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A THOUGHT FOR THE NEW YEAR. TO MY CITY.

I.

I am the critic of my city.

With watchful eyes I scan her streets and alleyways—her jails and schools—her houses and shops—her parks and saloons.

I know the tax rate for health.

With willingness I permit funds to be expended for cleaning the streets, removing garbage, fighting flies, inspecting tenements and plumbing, improving the food supply.

I know the health rate.

With astonishment I read the number of children who fail to live one year. With the satisfaction that everything possible is being done I regret the losses from preventable diseases.

I know that the city is responsible to the citizens.

Have I not delegated all authority? Have I not put the burdens upon the office holders?

If aught goes wrong, I am the critic.

II.

I am the spirit of my city.

I see beyond the efforts of city departments—I look into the home and see the human beings that make my city.

I see poverty, ignorance, neglect—in the homes of the rich and the homes of the poor.

Where are the health values? What can be done? What is the cost? Why is there disease?

Ignorant parents are poisoning their children.

Careless victims are spreading contagion.

Poor suffering humans unknowingly are wreaking vengeance on the merciless.

I must make my city serve more wisely.

III.

I am the hope of my city.

I must see straight. I must not delude myself.

Dollars expended do not prove health accomplishments.

The protection of health is more than esthetics.

I must think in terms of my needs, applied to all the citizens.

I must count results in terms of health instead of idle show.

I must be constructively critical in the light of my city's short-comings.

I must forsake health traditions and revalue methods of achieving health.

I must realize that education is intangible until its results are patent.

A teaching nurse far excels nuisance inspection.

Vital statistics are more valuable than merely controlling the milk supply.

Banishing manure pits and privies outweighs fly-swatting campaigns.

Public education means a new conscience of health.

I am the real problem of public health.

I must serve my city—I am the hope of my city.

IV.

I am my city.

I must understand myself—my duties, obligations, resources.

I must recognize my strength—my weakness—my problems.

I must perceive that personal health is the basis of all health.

I must be more liberal with spirit and funds for my education, development, conservation.

I must actively participate in the protection of health.

I am a trustee for the health of my city.

V.

My city, my life shall make you richer; my hands make you stronger; my mind make you wiser; my soul make you happier.

My spirit is in you, of you, and for you.

My city, I am your life. May I make it worthier!

IRA S. WILE, M. D.

The Health of Soldiers.—In his presidential address before the American Public Health Association, Dr. Evans called attention to the disability and injury to military commands, especially those in training, that result from measles, mumps, meningitis, pneumonia and the venereal diseases. Biggs and Fishberg have differed as to the interrelation of warfare and tuberculosis in connection with discussions as to the devastations by this plague in France.

Two recent important contributions on tuberculosis and acute contagious diseases in France point out that, as far as the French army is concerned, there has been a remarkable and successful fight to maintain the general health of the soldiers. There is more than mere academic interest in America concerning the health of soldiers because of the prevalence of epidemic diseases in the training camps. Satisfaction cannnot be secured thru severe criticism of those in high authority, to whose negligence has been attributed the unnecessary delays in the development of efficient military forces resulting from seemingly preventable illness.

Major Rist, in the *Military Surgeon,* December 1917, and Colonel Dercle, *Medical Record,* January 5, 1918, point out in an authoritative manner that the figures for the prevalence of tuberculosis in the French army have been greatly overstated. The appalling alleged figures for the morbidity and mortality from tuberculosis represent an exaggeration, based upon faulty statistical facts due to hasty diagnoses by medical officers, who were formerly civilian practitioners and wont to regard as tuberculous every suspicious cough. Thoro clinical study, however, demonstrated that "between eighty and ninety per cent. of those supposedly tuberculous soldiers were not tuberculous at all."

Major Rist in the *American Journal of Public Health,* December, 1917, indicates the tremendous difficulties which had to be overcome by France in gathering together, at a day's notice, an army of about three million men in order to check the ruthless invasion already begun thru Luxemburg and Belgium. There was no opportunity for intensive training in mobilization camps but there was a rush to arms by patriotic

France which forbade complete physical examinations or aught else save the prompt establishment of a human barrier on the particular frontier where a wave of French blood was necessary to arrest the savage progress of the despoiling invaders. From the military standpoint, speed was essential in securing the mobilization of the army. For the time being the dangers from contagious diseases were secondary to the menace of an on-rushing foe.

The condition of the French army, from the standpoint of health, must not be estimated on the basis of the facts revealed during the first months of warfare. It was natural that a typhoid epidemic should develop in an army where antityphoid vaccinations had to be postponed. Outbreaks of dysentery, meningitis and diphtheria were only natural results of hasty methods that could not be counteracted until the belligerents settled down to the slow business of trench warfare. The French Sanitary Service must be judged by its end results or at the least by its accomplishments after circumstances permitted it to proceed along scientific lines.

According to Major Rist there were only two cases of smallpox in the army from January 1, 1915, to December 31, 1916. There were only 100 deaths from dysentery in the army. There has not been a single case of typhus or cholera in France. Diseases such as measles, scarlet fever, mumps, diphtheria, cerebral meningitis, typhoid and paratyphoid fevers and bacillary dysentery have been constantly decreasing from the high figures at the beginning of the war to unusually low figures at the present time. "The death and sick rates from acute contagious diseases are lower on the front than they are in the interior, lower on the front than they were at peace times." This statement represents service to France as remarkable as were the wonderful powers of resistance on the battlefield and in the trenches.

The tremendous expansion of the American army presented even more serious difficulties than did the hasty mobilization of the French fighting forces. Under the French conscription law one-half million men were undergoing actual training at the onset of hostilities and more than two and one-half millions had been trained previously so that they were thoroly familiar with military life and its requirements even tho they were at the time engaged in civilian pursuits. The problem in America was intensified owing to the fact that the number of men trained in military service was small and the call for volunteers along medical lines was responded to by physicians trained for civilian practice and practically untutored in military hygiene or methods. Without underestimating the prevalence of epidemics among the forces in training thruout the United States and without denying that there have been many shortcomings in the organization of military hospitals, considerate thought must be given to the difficulties surrounding the transformation of a peaceful nation into a warring nation. Without doubt the end results of American military medicine will reflect credit upon American medicine and redound to the glory of scientific hygiene applied to conditions growing out of a state of war.

Carping critics who fail to appreciate the remarkable achievements of the American nation are necessarily blind to the magnitude of the problems which have been encountered. There is every reason to be proud of the accomplishments of the med-

ical service of the army and navy, regardless of occasional instances for which the unthinking are more apologetic than they are enthusiastic for the splendid accomplishments. Zealous and devoted civilians have been transported from the quiet of the study, the laboratory and the bedside to new fields which they must learn to conquer as truly as did the pioneers who wrested their sustenance from the rock-ribbed shores of New England. The nation is alive to its duties and responsibilities and bending every effort of brain and muscle to achieve them. The future will reveal the degree of national success, and its medical history will not lack in occasion for gratefulness and enthusiasm.

Home or Hospital Treatment.—Under existing conditions probably only ten per cent. of the sick receive treatment in hospitals. The advantages of hospital treatment are not to be denied providing one is fortunate enough to be accommodated in a modern, thoroly equipped, up-to-date hospital. The opportunities for receiving medical and nursing care by night and by day as well as having available the benefits of laboratory facilities and special appliances, must appeal to every one. Brannan, *New York Medical Journal,* January 5, 1918, calls attention to the benefits accruing from hospital treatment in medical, surgical and maternity cases because of the special facilities afforded. The distinct advantages of hospital treatment are thoughtfully enumerated but the only striking argument in favor of home treatment that he presents is the sentimental question which arises from the inborn love of home. As a result he makes an especial appeal that patients should be treated with kindness and consideration so that they may feel that the hospital is their home for the time being.

A large measure of Dr. Brannan's appeal for hospital treatment is based upon experience with large municipal hospitals devoted to the care of the sick poor. For such, the hospital possess more advantages than the home, altho it is doubtful if better results cannot be secured in the treatment of children at home than in a large, well-disciplined institution where the affections are never so prominently displayed as to interfere with the coldness of scientific medicine. The number of hospitals fully prepared to give adequate medical and surgical service is not exceedingly large and the shortcomings of the average hospitals are not unknown to the profession.

For the poor, hospitals provide everything that may be required including frequent consultations at minimum cost, or gratis. What is to be said with reference to hospital treatment for the great middle class who are willing to and desirous of paying for all that they receive? The cost of private rooms, the additional charges for nursing, the special fees for laboratory and X-ray work, the added expenditure for consultations, too often make hospital treatment at times a greater health liability than a health asset for the family. The ward is not a substitute for the home when the patient is a self-respecting, cultured individual who desires a home atmosphere. The high cost of private rooms and the accessories involved in the care of those actually ill place a financial burden upon the family which in turn may result in lowering the health standards of those who hitherto have been perfectly well. Home nursing, under intelligent supervision, will be productive of equally favorable results in a

large proportion of illnesses, particularly if a visiting nurse can attend to the patient daily.

Hospital infections and cross infections must be recognized; carelessness and inattention, as well as unintentional neglect are not uncommon, despite every effort to prevent such unfortunate conditions. Beds, for the sufferers from chronic diseases, are lacking in number. Contagious diseases are hospitalized in the interest of the public rather than out of consideration for the individual victim.

Home hospitals and private hospitals indicate that the possibilities of treatment outside of highly organized institutions are most excellent, providing, of course, that unsuspected complications, demanding special treatment or apparatus, do not arise.

It is difficult to establish a single line of action that will apply to all medical and surgical conditions. If a thoro hospital system were available, combining medical science with social understandings, and awake to public and family needs; if there were a broad plan of organization involving convalescent homes, special institutions for particular types of patients; if there were developed philanthropic attachments to palliate financial and social difficulties, hospital treatment would appear to be worthy of becoming universal and possibly mandatory. But this is a practical age and there are not facts enough to warrant the above hopothesis.

Home treatment for years must play an important part in restoring and conserving the afflicted masses. It becomes, therefore, of more than passing interest to develop means for teaching nursing in the home, for spreading knowledge of the care of the sick, and for increasing the nursing resources of communities.

The visiting nurse is a growing factor in bridging over the gap between home treatment and hospital treatment.

The need for such an agency was never greater than at the present time when our modern hospitals are being partially disorganized because of military necessities or are being prepared for transference to the national government for distinctly national work. In all probability, if the war continues for a long period of time, hospital facilities for the civilian population will be greatly reduced and the vaunted advantages of such hospitals necessarily will require the best available substitute. This will probably be found in the expansion of district nursing in the home combined with a freer use of the diagnostic equipment to be found in well organized dispensaries.

Hospital treatment and home treatment are both necessary but most essential of all is the combination of the two in a systematic linking up of home and hospital treatment thru social service nurses and visiting nurses understanding the science of hospital nursing and the art of home making.

The Heat Hazard in Industry.—While coldness adds its measure of discomfort and affliction to the community it would appear paradoxical to discuss heat exhaustion or sunstroke. It is, however, insufficiently recognized that high temperatures and increased humidity in industries are responsible for conditions by no means dissimilar to those arising as a result of intense summer heat.

The substitution of steam for water power added to industrial life is a serious

problem in hygiene. Heat is a health hazard which cannot be eliminated entirely from processes requiring high temperatures for successful work. Watkins, discussing "Mitigation of the Heat Hazards in Industries," *Public Health Reports,* December 14, 1917, points out the unusual conditions of high temperatures and humidity that threaten the welfare of workers in sugar refineries, paper mills, flax mills, laundries, tanneries, large kitchens, stoke holes and firerooms of ships, glass factories, steel blasts and chemical manufactories.

The maintenance of body heat at a practically constant temperature depends upon a state of equilibrium between heat production and heat dissipation. The heat production of the body is dependent upon the chemical processes involved in vital activity and metabolism. Food, beverages, oxygen intake and muscular activity are the main elements of heat production and must be considered in any plan for lessening the heat production of those subjected to the enervating influences of high temperatures. Various mechanisms are involved in heat dissipation but the physical processes leading to loss of body heat involve conduction and convection, radiation and evaporation. It is patent that the rate of heat loss, other conditions being equal, diminishes as the temperature of the air rises, while evaporation diminishes as the relative humidity increases.

The problem of heat production is largely within the control of the individual, altho the degree of muscular activity depends upon the form of work undertaken. The length of time involved in such muscular effort is almost wholly within the control of the one responsible for the efficiency of the particular industrial plant. The main factors in heat dissipation are environmental and consequently within the jurisdiction of those concerned with the problems of industrial hygiene.

Disturbances of heat equilibrium may become manifest in an attack of heat exhaustion or heat stroke but the more general effect of chronic exposure to excessive heat is found in the decreased physical efficiency of the worker and his increased susceptibility to fatigue and disease. The physiologic mechanisms of the body are not able to adapt themselves for long periods of time to severe efforts under conditions of extreme heat and moisture, wherefore short shifts are required to safeguard industrial workers from the acute and chronic symptoms produced by undue exposure to such abnormal conditions.

Acute heat exhaustion is readily diagnosed, and as its cause becomes obvious, effective plans for its elimination are possible. The baneful effects of long continued exposure are slow in manifesting themselves and all too frequently escape attention as the causal factor of the symptoms for which relief is sought.

Protection from the direct action of heat is almost a requisite of any rational attack upon the heat hazard. Pipe insulation, efficient ventilating plants, blow furnaces, suction fans and numerous other devices are available to minimize heat radiation in industry. A current of air should be constantly playing about to prevent the more or less permanent development of a zone of superheated air. Bathing, drinking of water, the use of a type of clothing that is thin, light and with good absorptive properties aid in promoting the physical well-being of the workers. Actual physical labor should be reduced to a minimum by

the use of special machinery or mechanical devices which will reduce the aggregate amount of work to be performed by human labor. The diet should be modified so that meats and fats are reduced while energy value is secured thru the use of starchy foods, fruits and green vegetables.

Before any other step is taken where high temperatures are essential to and inseparable from an industry, the periods of work should be shortened with a long interval between for restful recuperation. The tremendous stress and strain at present thrown upon national industries, particularly those which are necessary for the production of war materials, make it imperative that attention be directed at this time to the heat hazards of industry.

Man power cannot be sacrificed during times of war any more than during times of peace and, as a matter of fact, it is a source of greater concern to the nation while military exigencies demand full production. The shortage of coal is by no means as large a factor in reducing national vitality as is the over-production of heat in the home, shop, office or manufactory. The inspection of industrial plants is not to be regarded merely as a matter of studying the rate or volume of production by the workers but must involve the conservation of the health of the workers.

Gaseous Gangrene.—The prevalence of gaseous gangrene in war hospitals has focused attention upon the biology of *bacillus welchii*. Bull and Pritchett (*The Journal of Experimental Medicine,* December, 1917) after the study of many strains of *bacilli welchii,* have demonstrated a toxin comparable in its physical and biologic properties with the toxins of diphtheria and tetanus. The fact that the various strains were productive of a similar exotoxin, varying principally in the degree of potency, possesses significance from the standpoint of developing a specific antitoxin therapy.

The experimental work indicates that the time is not remote when gas bacillus infections will be offset by high potency antitoxins. An antitoxic serum having been produced, experimentation is required to determine the dosage and method of administration that will insure the best therapeutic results. Immunization will become practicable and another step in advance will have been taken in the conquest of disease.

A considerable proportion of gunshot wounds are complicated by gas bacillus infections which are productive of a varying degree of toxemia bearing no particular relation to the severity of the injury. At the present time at the first sign of infection by *bacillus welchii* (*B. perfringens*) radical surgical measures are necessary in order to limit or control the infectious process which spreads rapidly. The treatment of the toxemia has been largely symptomatic. Stress has been placed upon the early and free incision of the infected areas together with efficient drainage and exposure of the deep tissues to the air. Continuous irrigations are regarded as essential tho the irrigating fluids differ according to the experiments and opinions of the surgeons.

The importance of tetanus in wound infections has decreased considerably owing to the now general practice of administering immunizing doses of antitetanic serum. If the promise of an antigas bacillus serum is fulfilled, malignant edema and similar

gas infections will be relegated to the background as unusual complications of war injuries.

The Automobile Hazard.—The automobile has been recognized as an instrument of pleasure and utility. Its importance as a cause of death and injury has not been appreciated. The advances made in the conquest of disease and the progress secured along surgical lines are matters of general congratulation. New instrumentalities of civilization yield their grist of new diseases and accidents. The stress now placed upon occupational diseases has revealed causative elements long neglected. The automobile is playing its part in increasing the accident rate in America as is evident from the fact that the death rate from automobile accidents has more than trebled since 1911.

Frankel, discussing "The Increasing Automobile Hazard," *Medical Insurance and Health Conservation,* December, 1917, points out that there were approximately four and one-half millions of automobiles registered on July 1, 1917. The growing use of motor trucks and commercial vehicles is not merely an interesting economic fact but is of distinct surgical importance in view of the fact that these cars are productive of a large proportion of the deaths and accidents due to motor vehicles.

The automobile hazard is preeminently an urban problem as the rural death rate from this cause is only one-half that found in urban sections of the country. While the mortality rate is approximately 7.4 per one hundred thousand population, there is no record of the vast amount of social damage which accrues from nonfatal injuries resulting from automobile accidents. According to the reports of the Massachusetts Highway Commission one out of thirty known automobile accidents was fatal while the ratio for the same year in New York City was one out of every twenty-two. These figures are naturally incomplete, because hundreds of injuries are not reported, but nevertheless contribute to the general effects of the increased use of motor cars.

The driver of a car too frequently possesses a sense of road ownership and is inclined to throw the responsibility for accidents upon pedestrians. Statistical analysis would indicate that speeding, carelessness and incompetence, intoxication and almost criminal negligence constitute serious indictments of those driving the vehicles. It is true that the pedestrians are also blameworthy for almost the same reasons in their methods of crossing public streets. Traffic congestion for which neither driver nor pedestrian may be held responsible is the main cause of the majority of highway accidents.

The extensive use of automobiles by physicians and the seriousness of their errands warrant a word of caution, lest in their haste to save life they injure or destroy life. The use of the red cross sign on a doctor's car should not serve as an excuse for violating speed laws, altho it should enable medical drivers to escape unnecessary delays incident to traffic conditions while in the performance of their legitimate duties. There are few emergency calls for physicians which demand the ignoring of reasonable laws designed to protect the safety of the general public as well as the drivers of all kinds of vehicles. The automobile accident rate among physicians is higher than necessary if judgment and discretion were exercised more carefully.

"Shell Shock."—The term "shell shock" is probably regarded by most persons as referring to a condition in which shell explosions are largely causative factors. As a matter of fact the term has grown to be accepted as synonymous with a large group of war neuroses.

According to Salmon, *Mental Hygiene,* October, 1917, mental and functional nervous diseases have been "responsible for not less than one-seventh of all discharges for disability from the British army, or one-third if discharges for wounds are excluded."

The largest group of sufferers from "shell shock" consists of those among whom damage to the central nervous system from the direct effects of an explosion is exceedingly improbable. Under these circumstances it is obvious that the psychologic factors of war are more prominent in the causation of "shell shock" than the mechanical or actual traumatic factors.

The symptoms exhibited parallel those manifest among the victims of neuroses in civil life. Psychologic situations produced by modern warfare exhibit a countless variety, and tend to create intolerable situations which the human mind seeks to escape. Fear, anxiety, horror, nostalgia, conflict with the elements and undesirable duties, stimulate the instinct for self-preservation and induce a resultant neurosis as a protective device. "Shell shock" not only represents an effect of exposure to psychologically difficult situations but also provides a convenient mode of escape therefrom.

The symptoms include every possible disturbance of psychic function including delirium, amnesia and terrifying dreams, as well as functional disturbances involving the heart, the gastrointestinal system, lungs, skin and kidneys. The voluntary movements may be hampered by tics, tremors, convulsive movements and paralysis. There may be blindness, deafness, mutism, disorders of speech, hyperalgesia or anesthesia. While these symptoms are in no way dissimilar to those noted in the neuroses of civilians, their ability to make the soldier inefficient and incapable for service is of the utmost significance.

While "shell shock" is curable with proper management in its early stages, long continued treatment along lines that are prejudicial to cure may result in the fixation of the neuroses as chronic "shell shock."

From figures adduced by Salmon, it is learned that the neuroses constituted twenty per cent. of the causes among 10,000 soldiers discharged for disability. Based upon the experience in Great Britain it is estimated that the rate among the expeditionary forces is not less than ten per thousand per annum and among the home forces not less than three per thousand.

The frequency and seriousness of "shell shock" makes it necessary to establish special institutions for the care and treatment of sufferers from this condition. Furthermore, experience appears to indicate that the services of a psychiatrist are imperatively required to insure proper care for the victims of psychic disorders. Psychologic medicine involves the reeducation of the victim in will, thought, feeling and function. Treatment must be individualized with reference to time, place and method. The machinery for handling large numbers of cases of war neuroses is already in motion.

The importance of the reclamation of those afflicted with "shell shock" is greater

from the standpoint of civilian usefulness than of military effectiveness. The loss of capable soldiers is serious but the complete loss of a potentially capable citizen is far more discouraging to national progress. The immediate release of neurotics from military life would not necessarily cure those already invalided, while it would undoubtedly increase the prevalence of psychic disturbances among those who subconsciously are seeking a way out of the perils, unpleasantness and horrors of destructive warfare.

The urgent need of adequate facilities for the management of nervous and mental afflictions cannot be denied. The recommendations which have been made for the United States army relate principally to the needs for the expeditionary forces overseas and in the United States. Special hospitals, convalescent care and reconstruction centers constitute the plan of organization under the direction of neurologists and psychiatrists. Their familiarity with functional and organic mental or nervous disturbances will enable them to pursue the required lines of treatment proven necessary until full recovery has been attained or the impossibility of cure has been demonstrated.

The national experience in handling "shell shock" when fully matured will redound to the advantage of the civil population in whom the existence of neuroses has aroused comparatively little interest, sympathy or understanding. From the study of "shell shock" as a war neurosis there will arise a systematic and sustained effort to counteract the neuropathic tendencies of the day and to build up a civil population freed to a marked extent from the devitalizing, discouraging and demoralizing effects of neuroses of every source or description.

The Accident Severity Rate.—In the study of industrial accidents, the frequency of accidents in the industry has served as a full measure of the hazards of the employment. The International Congress on Social Insurance and the International Institute of Statistics have established for statistical purposes a full-time worker as one who works ten hours per day for 300 days per annum, making a total of three thousand hours per year. Accident statistics are more accurately measured, as far as frequency is concerned, by the number of accidents occurring to each one thousand full-time workers. While this plan may be regarded as a mere statistical abstraction, it serves at least as a standardized unit of measure which is essential for the comparison of plants varying in the number of employees, hours of labor, and with marked differences in the inherent hazards of occupation owing to the variations in machinery, processes and protective devices.

Accident frequency rates, however, take no account of the severity of the injuries experienced and, from the economic standpoint, it is unfair to compare a series of accidents resulting in bruises with those that result in the loss of a hand or an eye. For this reason accident severity rates convey a better idea of the hazards of industry than the rates of frequency. Some of the problems in formulating accident severity rates are referred to in the *Bulletin of the United States Bureau of Labor Statistics*, No. 216, which is devoted to a discussion of Accidents and Accident Prevention in Machine Building. The methods of weighting injuries according to their severity may be based upon compensation paid, wage loss, or time loss. Compensation payments fail as a general measure, because the benefits vary in different states and are subject to

change within the same state. Wage loss is unsatisfactory similarly because wages are not constant in all of the industries and are subject to fluctuations during the year. Time loss is a more rational index because three days or weeks of disability represent the same degree of seriousness in any industry, at any time, and in any state.

The number of days lost because of an injury represents, therefore, a satisfactory measure of the true hazard of the industry. As a practical problem it is obvious that in cases resulting in death or permanent injury it is imperative to estimate the time loss as a result of such serious disabilities or death. Fatality produces a time loss which may be interpreted as the expectancy of productive working life of the deceased workman. Statistics indicate that the average age of victims of fatal accidents is approximately thirty years and at this age the life expectancy is thirty-five years. In view of the fact that working men, because of their exposure to illness and accident in industry, have a shorter expectancy of life than the average for the whole population, it is undoubtedly fair to estimate the working time lost by the death of each workman at thirty years or 9,000 working days.

Permanent total disability is a greater burden to relatives and the community than death. In recognition of this fact the time loss, because of permanent total disability, has been fixed at thirty-five years or 10,500 working days.

The weighting for permanent partial disabilities presents a more difficult problem. The study of various compensation acts suggests a method of estimating the severity of permanent partial disabilities in terms of days lost. All compensation acts fix the loss of an arm as the most serious other than total disability; and in New York State compensation for the loss of an arm is fixed for 312 weeks, equivalent to 1,872 working days. As the New York scale is based upon two-thirds wages, it is proper to assume that the entire economic burden may be regarded as one-half greater than the benefit actually allowed and the time loss resultant from the amputation of an arm would thus equal an economic loss of 468 weeks or 2,808 days. This is the equivalent of about thirty-one per cent. of the allowance of 9,000 days established for death. Considering the time loss due to the loss of an arm as 100, a study of various compensation acts indicates a marked uniformity of the scale of awards for minor permanent partial disabilities as compared with that granted for the loss of an arm. Considering the standards as at present existent the time losses in days may be represented as follows:

Loss of arm	2,808
Loss of leg	2,592
Loss of hand	2,196
Loss of foot	1,845
Loss of eye	1,152
Loss of thumb	540
One joint of thumb	270
First finger	414
Second finger	270
Third finger	225
Fourth finger	135
Great toe	342
One joint of great toe	171

It is patent that multiplying the number of deaths and permanent disabilities by the time loss determined for each and adding the products to the days lost thru temporary disabilities a figure is obtained which represents the total days lost from injuries. Dividing the total number of days lost by the number of full-time workers, gives as quotient the average number of days lost per full-time worker. This figure constitutes the accident severity rate indicating as it does the seriousness of the accidents analyzed.

The practical value of establishing accident severity rates as well as accident frequency rates is evident from a comparison of the rates in steel manufacture and in machine building. On the basis of frequency rates the machine building plants are more hazardous than steel plants, the respective accident frequency rates being 118 as opposed to 114.5 per thousand full-time workers. On the basis of accident severity rates, the steel industry was almost four times as hazardous as machine building, the days lost per full-time worker being 21.2 and 5.6 respectively. It is undeniable that the severity rate yields a more accurate measure of the hazards than does the frequency rate.

Inasmuch as the severity rate constitutes a measurement of relative hazards, the character of the weighting scale becomes unimportant because the relations between the rates will remain substantially the same even tho there is considerable variation in the weightings for specific injuries.

It must be emphasized that the severity rates are probably more reliable than frequency rates because the errors in reporting accidents are probably minimized as the completeness of reporting is usually in direct proportion to the seriousness of the injuries. The recording of minor injuries is exceedingly incomplete. The failure to record the number of minor accidents interferes greatly with the reliability of the frequency rate but has comparatively little effect upon the severity rate.

The International Association of Industrial Accident Boards and Commissions recognizes the importance of the severity rates and approves of the principle of substituting them for the customary frequency rates. It is to be hoped that the simple plan above outlined will prove acceptable because of its simplicity and practicality. From the standpoint of accident prevention it is most assuredly of greater consequence to appreciate the severity rates as indicative of the real hazards of industry than to depend upon the meaningless figures provided by frequency rates. The interest of the community and of the families is better served by an understanding of the severity of accidents existent in any single line of industry than by basing constructive work upon frequency as the single item.

In order to accomplish the best and most certain results in accident prevention, however, it is necessary to employ the frequency rate as an auxiliary figure in considering the meaning of the severity rate. By the standardization of these two figures, distinct statistical advance will have been made which will redound to the advantage of those who are studying the problems of accident prevention in industry.

JUST SMILE.

You ask me, friend, is it worth while,
To always wear a pleasant smile.
My answer is, if you just smile,
And keep it up a long, long while,
You surely will attractive be,
To every one, as you shall see.

A smile upon a cheerful face,
Will bring you smiles from half the race.
A frown will drive away a friend,
And bring you sorrows in the end.
So smile away, 'twill bring good cheer,
And make you happy all the year.

When clouds and sorrows come your way,
Just smile.
There'll be another day.
Keep smiling while you work and play,
Just keep smiling day by day.
Then when you've run your earthly race,
They will find a smile upon your face—
Just smile.

—S. W. S. Dinsmore (*Med. Brief.*, Nov., 1917).

A Great American Physician.—A really great physician has just passed away, Dr. William Hanna Thomson. He had attained to the ripe old age of 84 years and died on January 17, 1918, at his home 71 Central Park West, full of honors of every description. He was a veteran of the Civil War, and during his service attained the rank of United States Medical Inspector. In 1899 and 1900 he was President of the New York Academy of Medicine. His knowledge and skill in regard to sanitary matters were recognized by the government, and Dr. Thomson served as quarantine officer of the Port of New York for several years.

Dr. Thomson's father was a foreign missionary and his children consequently were born in Beirut, Syria. The boy William was sent to this country at the age of nine years to go to school, and returned to Syria at the age of 16. He came back to America when he was 24 and graduated from Wabash College and Albany Medical College. Dr. Thomson completed his medical education in 1859 and was appointed assistant physician at the Quarantine Hospital in the following year. He was a fine student and a keen observer. Bacteriology interested him greatly especially from biologic standpoints, and he is credited with being the first to recognize and describe colon bacillus infection of the kidneys.

Dr. Thomson, in the course of his long and useful career, held many important positions. For several years he was Professor of Medicine at New York University Medical College and was attending physician at Bellevue, Roosevelt and Ward's Island Hospitals. Dr. Thomson was a man of serious and religious turn of mind, and interested himself in many philanthropic and charitable works. He especially concerned himself with the welfare of young men and was prominently identified with Y. M. C. A. work; for a long period he was senior deacon of the Broadway Tabernacle. He was essentially a broad minded and many sided man, and possessed of an exceedingly original and versatile mind. This originality and versatility was exhibited in his writings which covered almost the entire range of medicine. His literary output was large and some of the most noteworthy of his writings were Materialism and Modern Physiology; Graves' Disease, with or without Exophthalmic Goiter; Graves' Disease and Its Treatment; Brain and Personality, or the Physical Relation of the Brain to the Mind; Classification of Medicines; Life, Death and Immortality; Some Wonders of Biology, etc.

Many of these will live as perpetual reminders of the faithful, unselfish work of a true scientist. Dr. Thomson was a member of the Association of American Physicians, a Fellow of the Academy of Medicine, and of the Neurological Society. It may be truly said of Dr. Thomson that a great and good physician has passed to "that bourne from which no traveler returns." His life was a true beacon light to his friends and associates.

It will be observed that the portrait of Dr. Thomson represents him as most of his students and colleagues will best remember him.

The Narcotic Drug Problem.—Much interest was apparently taken in the articles devoted to drug addiction, which we were

fortunately able to print in our issue for last month, for we have received a large number of communications, not only commending the unique and timely character of the material presented, but agreeing with the views expressed by the different writers. The hearings of the Whitney Committee have continued and a vast amount of valuable information has been obtained. As in every important movement, those with "axes to grind" have been more or less in evidence, but happily, the chairman has been quick to recognize attempts in this direction, and has not hesitated to put these schemers in their proper place. The work of the Committee has been remarkably free from features that too often in the past have characterized legislative hearings and every member is to be congratulated, not only on what has been accomplished but on the very evident desire each has shown to develop the truth concerning drug addiction. Any group of earnest, intelligent men that approaches any question with this motive—the determination of the truth—as its fundamental purpose, is bound to do great good. We feel that the Whitney Committee will be able to exert a wholesome influence on legislation bearing on the narcotic drug problem, and we look for some very tangible results in the near future, from the time and effort Senator Whitney and his associates have given so faithfully to the investigation of narcotic drug addiction. That a real and substantial public interest has been crystallized by the work of the Committee is not the least of the beneficial results obtained.

To the medical profession the present movement, which the work of the Whitney Committee has brought to the front, is fraught with particular moment, for it has served to emphasize several points which we wish to refer to briefly in passing. The first is that there is no desire or intention to hamper, or interfere in any way with the work or scientific judgment of the honest physician. If present laws seem to do this, it was unintentional on the part of those who framed them, and if the medical profession had taken the active part it should in the construction of the drug laws now in force, every feature to which an honest physician can object would have been eliminated.

This brings us up to our second point which is that no honest physician, acting in good faith, has anything to fear from the officials charged with the execution of the drug laws. We know there is a prevalent opinion to the contrary, and certain events that have transpired fostered the opinion that the state and national officials were inclined to magnify trivial technical mistakes in connection with the anti-narcotic laws in ways which amounted practically to persecution. Unquestionably it is this opinion—which most medical men have held—that has been responsible for the refusal of so many to have anything to do with drug addicts. A few innocent physicians have been made to suffer thru excess of official zeal, or some one's mistaken conception of the purpose and intent of these narcotic laws. But this was in the past, and we know we can say to the medical profession that the Revenue officials, in charge of the situation today, have no intention of causing any honest doctor the slightest annoyance or inconvenience Of course, every practicing physician is expected to be informed concerning the requirements of the national law and to keep his records properly and with all due accuracy. But if an error is honestly made, and there is no indication of bad faith, or intent to deceive, the honest physician has nothing to fear. As Mr. R. E. Sams of the Revenue Department pointed out in his valuable testimony before the Whitney Committee, the Revenue officials are seeking to apprehend the illicit sellers of narcotic drugs and the wilful violators of the law; for it is these whom it is directed against. From our knowledge of the work of the national officials, we are confident that honest physicians will receive nothing but the most courteous and considerate treatment from them. Only the wrong-doer need be apprehensive, and the medical man who prostitutes his calling by trafficking in drugs surely deserves no consideration from any one. He is the meanest of offenders, for he preys on human suffering and misfortune.

In regard to the state officials, we believe similar statements can be made. It seems evident to us that the police authorities have no desire or intention to bother physicians engaged in legitimate practice. It is the crooked doctor whom the police want to "get," and every honest physician will wish them the fullest success in "landing" the

medical man who uses his profession as a cloak to break the laws of the state or nation.

The next point we wish to bring out refers to that which our officials have repeatedly voiced in urging the need of greater interest on the part of the legitimate practitioners of medicine in the care and treatment of drug addicts. A few of the reputable physicians of the country have given intelligent thought to the needs of the drug addict, but most of us have held ourselves aloof, with the result that the majority of drug habitues have been forced to go to unscrupulous practitioners or illicit dealers. The earnest, self-respecting physicians of every community owe it to society, their own consciences, and a sorely afflicted class, to give comprehensive thought and attention to the problem of drug addiction.

The final point is that if the evils of the illicit and improper use of habit-forming drugs are ever to be overcome the national government must be given definite control of the manufacture, sale and distribution of narcotic drugs. Just how this shall be done is not clear at the moment, but the most sententious plan we have heard thus far is that offered by a prominent Revenue official who suggests imposing a small tax on all habit-forming drugs and requiring each package to carry a stamp, so numbered as to show source of manufacture, date of sale, etc. Some such plan will doubtless be adopted sooner or later. No inconvenience will be offered to honest medical men or the legitimate use of these valuable remedies. But it will enable the government to trace any supply of narcotic drugs that may be open to question or suspicion. It would seem, therefore, to be the most satisfactory solution of the problem thus far brought forward.

It is not our intention to bore our readers with this or any other subject, but the whole problem of the abuse of narcotic drugs is so important to the profession at this time when new laws are sure to be passed, that we have felt it our duty to do all we could to arouse the interest of medical men generally, and correct, as far as possible, the mistaken ideas that unfortunately exist. If we are able to help in any way to achieve these ends, we shall feel well repaid for whatever thought and effort we have devoted to this grave problem of narcotic drug addiction.

The War and Its Effect on the Medical Profession.—There is something fine and noble in optimism, provided it is not blind or illogical. One never develops the habit of looking for the brighter and better side of affairs and events without receiving enormous benefit. It is strange, moreover, as the habit grows, how much more of the "good of things"—the real gold, as it were—can be found among the dross and refuse. All of which brings us to the one great subject constantly uppermost today in the majority of active minds. It is a frequent saying that war is the ultimate calamity, the one great catastrophe from which no good can come, the one cloud which has no "silver lining." To the average thinker this is true, too true, and to him, war, the "dernier ressort of kings," and mankind's "acme of disaster," indeed holds nothing but evil. But here is where the optimist proves his worth to the world, for even in war he is able to find a "pay streak." For example, a remarkable editorial in the *Military Surgeon* (Nov., 1917) calls attention to the benefits that the war, hateful and terrible as it is, will, nevertheless, bring to the medical profession as a whole, and to many of its members as individuals. Thus says the writer quoted, "To many, military service will open the gates of professional opportunity. Not a few medical men, whom finances or other matters have held in cramped environment, will rise thru achievement in broad fields of endeavor they would otherwise not have known. Many, whose educational facilities were restricted, will now have chances to perfect their clinical training in the wards of great hospitals and under the tutelage of medical officers who, in civil life, were great teachers and clinicians. The man of ability, dwarfed by environment, will have his chance to come to the front. Many a potential surgeon will have opportunity to learn by operative practice that which would never have been afforded him in his civil practice. Many a shrewd diagnostician will prove his abilities and rise from obscurity to a high place in the respect of his fellows before the war is over. Before military and naval forces are disbanded, many medical men of present average status will have moved up into the expert class. They will seek and utilize to the fullest the tremendous professional opportunities to 'carry on.'"

Professionally, there will be opportunities

to develop along certain lines to a degree impossible in civil life. While the field of practice is more restricted than that among citizens of all ages and sexes, yet the pathological conditions, which will be found in the military service, will have such richness in number as will make experts therein of those who take advantage of such opportunity. He who desires to specialize in any diseases, other than those of women and children, will doubtless have his chance. The ambitious and the able will rise to a new professional status.

To the profession as a whole, the throwing together of its representatives in a common uniform, for a common cause, cannot but bring about a mutual understanding and sympathy and weld it together in a way otherwise impossible. The general practitioner from the country and the city specialist may find themselves tent mates. From north and south, east and west, the profession comes together in the great medical training camps and divisional cantonments and readjusts its ideas and estimates of each other and each other's standards. Each cannot but be broader and better thru acquiring the other's viewpoint.

Military service necessarily implies much travel. Already the profession as a whole knows far more about this country than it did before responding to the call to arms. Soon it will go abroad to follow the flag to the diverse quarters of the world that destiny may dictate. It will be a pleasant, a thrilling and an instructive experience, and the profession as a whole will be better for it. It will make the individual broader, more tolerant, less self-centered and self-sufficient, from coming into rough, tho cordial, contact with other classes in life and new surroundings.

Thru experience, gained in the management of government hospitals, many small civil hospitals will doubtless be developed, after the war, in communities whose doctors had not previously had the training and self-confidence necessary to their successful establishment.

Physically, military life will do much for the doctor. The regular hours and unbroken rest unobtainable in civil practice, hard exercise and systematic physical training, life in the open, abundance of good plain food at regular times, forced abstention from alcohol—all these will do much to establish a strong physique and sound health that should add much to the expectation of life after the war is over.

As to the country at large, this will undergo a tremendous sanitary uplift as a result of the war. Thru service with troops, and familiarity there acquired with the modes of spread, and measures of repression, of the agencies of disease among them, very many thousands of medical officers will be transformed into potential civil health officers thoroly well qualified in all matters relating to applied hygiene and sanitation. As these return to civil life, they will bring with them far higher sanitary ideals as well as far broader sanitary knowledge. They will win against the farmhouse without a privy, the well receiving the leachings of the farmyard, the filthy dairy, the fly-breeding compost heap and other sanitary iniquities in which they have heretofore acquiesced. They will see no reason why civilian communities should not attain the same degrees of sanitary excellence as they themselves have seen brought about and maintained among troops. They will popularize antityphoid inoculation and thereby tremendously reduce typhoid incidence. If from the south, they will carry out in civil life such hookworm and antimalaria campaigns as they learned to wage in the army. They will completely alter their viewpoint toward numerous causes of disability that heretofore they have accepted unchallenged. They will in this way add so much to the life, health, efficiency and happiness of the nation as to go far toward repaying whatever the war may cost.

Skin Cancer.—Perhaps the most frequent excitant of all causes, so far as skin cancer is concerned, is dandruff. It falls from the scalp, and lights on the ear, eyelids, nose, neck, lips and face, and if there is already a scaling spot, or a thickening, or a wart, a mole, or a gland ready to receive the dandruff scale, it sets this spot alive with activity and it goes on to form a skin cancer. Probably 60 per cent. of skin cancers are due to this cause, and many a cancer has been prevented and may be prevented by curing the dandruff or by preventing it.—*N. O. Med. & Surg. Journal.*

RECOVERABILITY FROM DEMENTIA PRAECOX.

BY

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The insanity of adolescence was always looked upon as particularly grave in its prognosis, but when the term "dementia praecox" came into use, this grave prognosis became absolutely unfavorable. Since 1900, the literature has been full of symptomatic studies of this disease, but nowhere has there appeared any records of hopeful treatment.

In spite of the fact that the preceding statements are for the most part correct, the literature furnishes records of isolated cases with indubitable diagnoses of dementia praecox which have for one cause or another recovered. Even when the disease has shown itself in its most aggravated and disgusting forms, recoveries have taken place spontaneously and the patients have gradually been moved from the untidy and abandoned wards of our custodial institutions into those wards where some care, occupation and reeducation became possible, and at last either gradually or with incredible abruptness, the patients have been found in a condition to return to their homes and even to lives of moderate usefulness.

Perhaps the most significant fact for our purpose in all psychiatric literature is in connection with the spontaneous and sudden recoveries of dementia praecox patients after the onset of serious infectious diseases such as typhoid, erysipelas and smallpox.

While the origin of the disease was unknown, and a rationale of treatment impossible, the only course that seemed open was expectant and eliminative treatment. In one such case recovery followed my own suggestions for a strict regime.

A young woman of eighteen was brought to me for an ostensible ovarian tumor with the suggestion that her periods of reverie and inactivity might be due in some manner to the growth of this tumor. It was not difficult to make the diagnosis of dementia praecox. Her hands were cold and cyanotic, and her pupils were dilated and slightly irregular. There was a condition of the skin resembling hives after each scratch with the nail. Her abdomen was rigid and a distinctive tumor could be felt in the right inguinal region. This objective symptom might indicate an ovarian tumor, but it seemed to me more likely that it was due to some form of impaction. It disappeared with heroic catharsis. The blood presented the picture of Bruce, polycythemia and

leucopenia, and the patient had lost weight in spite of a reasonable exclusion of tuberculosis or any nutritional disease.

Having nothing better to offer, I advised Dr. Cromwell of Henry, Illinois, to place this patient in a condition in which he would place a patient with active tuberculosis. She was, therefore, put in a small tent with an old-fashioned or practical nurse, who was willing to obey unexpected orders. Her food was measured out to her in calories. She was given every morning a mild laxative and every night on retiring the colon was washed out with an enormous hot enema.

Because she had an acetone breath and a urine of a specific gravity often below that of water, each enema was charged with two or three ounces of glucose. This procedure followed the discovery that glucose was beneficial in cyclic vomiting in which disease the acetone breath is also noticeable.

After a few weeks of forced feeding and rest in bed, this young lady was given a horseback ride of about five or six miles once and at last twice a day, sometimes in the coldest weather. By the end of six months she was pronounced sufficiently well to return to her family. None of them had been allowed to see her—except as she rode away on horseback—in spite of the fact that her tent was located in the family orchard. They found her a new woman.

It is now more than ten years since this girl went under treatment, and she is well, hearty and apparently normal. She shares in the social life of her community, but she is not married. Altho several other patients were treated more or less religiously by the same method, this one only showed any actual improvement.

About the time that the study of the leucocytes was made conspicuous in the diagnosis of typhoid and appendicitis, it was noticed that temporary improvement in dementia praecox patients was frequently coincident with an increase in the number of leucocytes. This observation was made the basis of a thesis by Bruce and led to the suggestion that leucocytosis artificially produced, might bring about similar betterment.

Many different methods were tried to utilize this theory. The pessimists, however, constantly called attention to the fact that the most remarkable improvements attended typhoid in which there was a leucopenia. In the literature of every country of the world this relation between betterment and typhoid had been conspicuous.

During the last two decades of the past century, the "nucleates" or sodium nucleate or some other form of nucleic acid became very popular in the treatment of infectious processes and their value was attributed entirely to the production of a leucocytosis. It was natural, therefore, that various forms of nucleic acid should be used in the treatment of dementia praecox in the hope of betterment.

Halvar Lundvall of Sweden published in 1907 a very interesting study of the blood in dementia praecox, and a few years later he reported the use of sodium nucleate in the treatment of this disease, with beneficial results in eighteen patients.

A little later Kahlmeter made a most exhaustive study of the blood in one patient, covering a period of many months. He showed that rapid changes from apparent normality to a violent and indubitable manifestation of dementia praecox were coincident with changes in the blood.

About this time I was compelled from bitter experience to become interested in

this subject, and I read the literature of the disease as it was then written in most of the European languages. After a study of Lundvall, Kahlmeter and Dide, I attempted to treat a number of patients with dementia praecox by the subcutaneous injection of large doses of sodium nucleate. The controls were made by counting the white corpuscles and red corpuscles before and after the injection and at regular intervals for two days and administering the second dose only when the number of leucocytes approached the normal or when the red corpuscles rose far above the normal for red corpuscles in health.

In spite of my own discouraging experience, I determined to use the Lundvall treatment. Here again there were the most varied and inexplicable results. Ten to twenty cubic centimeter doses of the solution of sodium nucleate, recommended by Lundvall, were given to more than twenty patients. Almost every one of them showed some betterment. Either the betterment consisted in the disappearance of the cyanosis and the disappearance of the skin disease about the face and head, or in a few cases, in a better mental attitude. There were notable and astounding experiences, however, in which the patients' physical and mental condition improved incredibly from the first injection. One of these patients was a Swedish boy of nineteen who had been a year and a half in the Elgin State Hospital. He had been reluctantly paroled to his mother and had fallen into trouble at once. I rescued him from the police and began giving him large doses of sodium nucleate as often as I found the leucocytes below 10,000. The betterment was almost instantaneous. During one period of five weeks, his leucocytes remained above 20,000 and during that time he was submissive and tractable.

I succeeded in impressing upon him the necessity of going to bed at a definite hour, eating his meals at the table with his family and taking care of his own room and the sidewalk in front of his house. This was the beginning of rational activity and by the end of a year and a half, he was so well that he returned unattended to Sweden to visit his grandparents. I regret to say, however, that he has never followed any productive and remunerative employment, but is willing without feelings of regret to be supported by his mother, who is a dressmaker.

This case is like a second one, only in its sudden improvement. A Jew boy of twenty-one years, who had been confined in Kankakee and had been placed by his parents in an institution at Wauwatosa, was dirty, dissolute and suicidal. Ten injections, amounting to only two or three ounces of the solution, placed him in the ranks of labor, and since that time he has reported to me on every Jewish New Year day with a gradually increasing salary and a moderate improvement in his bank account.

Altho the great majority of psychiatrists held that dementia praecox was not a physical disease, but that the physical symptoms were manifestations of mental disturbances or "twisted ideas," Fauser was quick to apply the method of Abderhalden to detect, if possible, destructive lesions in these patients by the defensive ferment reaction. His reports led me to a study of this method, and I soon discovered that patients with dementia praecox give a characteristic reaction, indicating the presence in their bodies of a defensive ferment capable of destroying or catabolizing the sex glands and the cerebral cortex.

After I had personally become familiar with the dialyzing method, I examined the blood of eighty lodging house young adults, using at least thirty substrates from the various parts of the body, and proved to my own satisfaction that the ordinary run of young adults failed to exhibit any defensive ferments in their blood which could in any way compromise the work of Fauser.

In the spring of 1914 after Cazzamali had demonstrated the almost uniform low blood pressure in dementia praecox, Willi Schmidt showed that the subcutaneous injection of half a cubic centimeter of adrenalin (P. D. & Co.'s 1-1,000 solution) failed to raise it and even caused the blood pressure to fall five to twenty millimeters of mercury. A little later Neuberger confirmed the findings of Schmidt and showed that the instillation of a few drops of adrenalin into the conjunctival sac caused a dilation of the pupil or other reaction which he termed the "pupillary adrenalin paradox."

The pressor paradox of Willi Schmidt and the pupillary paradox of Neuberger, seemed to offer a hopeful clue to the study of the dementia praecox problem. Just at this time the little monograph of George Blin appeared on the ocular symptoms of dementia praecox, a protracted study of nearly four hundred patients with dementia praecox in Dide's clinic. It demonstrated that the pupillary conditions in these patients were similar to those observed in serious gastrointestinal disorders.

The work of the Wellcome Laboratories on ergot revealed the fact that pressor and pupillary paradoxes to adrenalin are manifested by animals and by human beings intoxicated with ergot. The method of study was carried out to such a degree of perfection that it was possible to determine which particular toxic amine—of which the crude ergot furnishes more than a dozen—was responsible for the paradoxical manifestations.

This gave the hint that possibly the pluriglandular catabolism in dementia praecox, and the paradoxes to adrenalin which these patients manifest, were in some way related to toxic amines similar to those furnished by ergot.

An added indication in the same direction was found in the unexpected discovery that mental disturbances resembling in many respects those of dementia praecox, appeared in more than twenty-five per cent. of all the patients afflicted with epidemic ergotism in Russia during the past thirty years. It became necessary, however, to determine how the toxic amines of ergot severally act and how they may severally be produced in the human body.

It is necessary to refer to only three of these amines—indolethylamine, paraoxyphenylethylamine and betaiminazolylethylamine, which we shall hereafter call simply indolethylamine, tyramine and histamine, respectively. Of these substances most physicians clinically recognize the importance of indolethylamine on account of its appearance in the urine in the form of indican. This amine is only slightly potent in producing contraction of the uterus. It raises the blood pressure in a very slight degree. It has little or no effect upon the muscles of the bronchioles, but its catabolized product is easily recognized in the urine and even in the blood. It can be found in the stools of most constipated people. It is the least toxic of the three.

Tyramine is much more potent in causing a contraction of the uterus. It raises the blood pressure by contracting the blood

vessels of the systematic circulation. It has no action on the bronchioles and cannot be readily recognized in the urine.

Histamine is still more toxic. It is the most potent of all the amines in producing a contraction of the uterus. It causes a relaxation or paralysis of the circular fibres of the blood vessels of the systemic circulation, and hence a low blood pressure. It contracts most violently the bronchioles of the lungs, and in toxic doses it produces death by their sudden closure and apnea.

It is a remarkable fact that when an experimental animal has been brought nearly to death by a large dose of ergot or a lethal dose of histamine, the animal's life may be saved by a subcutaneous or intravenous injection of adrenalin.

Each of these three toxic amines may be produced by the decomposition of protein by bacilli of the colon group. Indolethylamine results from the growth of a colon-like bacillus upon a medium composed of tryptophane and inorganic salts. Tyramine results from the growth of colon-like bacilli upon an inorganic medium in which the tryptophane of the former medium is displaced by tyrosine. Histamine is produced by the growth of a colon bacillus known as the Bacillus aminophilus intestinalis (B & B) upon a medium containing histidine. The chemical formulae for these reactions are analogous, the ring alone being changed in each instance.

Now it is recognized by every one that the intestinal tract is practically sterile of colon bacilli above the ileocecal valve. There is a constant flow of the remnants of food and the excretions and secretions of the small intestine thru this valve into the cecum where the liquid material in which colon bacilli grow is gradually reduced to a relatively solid mass, in which microorganisms could hardly be expected to multiply rapidly. Among the cecal contents are found tryptophane, tyrosine and histidine besides a dozen other aminoacids, proteoses and peptones. Therefore, if the toxic amines are produced anywhere in the body, the cecum would be the first place to look for them.

Having determined, therefore, that the toxic amines were capable of explaining the adrenalin paradoxes, were these amines produced in the body in any quantity, and that the cecum was the most likely place of origin, my first thought was to discover, if possible, their presence in the excretions.

To be brief, let me say that they were not to be found in the blood; they were not to be found in the urine except in the case of indolethylamine, but they were found in unexpected and almost incredible quantities in the feces of dementia praecox patients, and in such quantities in no other patients except in patients with the gastric crisis of tabes.

It did not seem possible that the intestinal tracts of dementia praecox patients contained different microorganisms from those to be found in healthy youths, but at that time I had no resources for making an investigation of the matter, and was compelled to premise that the microorganisms were always present. I was driven to conclude that the dementia praecox patient produces the toxic amine in his cecum while well people and other sick people did not do so.

This brought about the study of the motility of the intestinal tract in these patients, and it was quickly discovered that there was a protracted delay of the barium meal in the cecum, a retardation ranging all the way from fifty-four hours to five weeks. The motility of the stomach and small in-

testine was normal. The motility of the transverse and descending colon was normal. The activity of the cecum was exaggerated, but on account of a retort-shaped curve where it joins the transverse colon and on account of a spasmodic contraction in the neighborhood of the ring of Cannon the meal could not secure exit. Under the fluoroscope it was possible to force out portions of the opaque meal thru the contracted ring of Cannon and see these masses drop into the gas-filled transverse colon and be carried rapidly toward the rectum.

It has since been possible to demonstrate the presence of a histidin-destroying bacillus in a few cases of dementia praecox.

These investigations were concluded in the summer of 1916, and they seem to suggest the desirability of overcoming this cecal stasis. No method of accomplishing this object occurred to me except to plant the appendix in the abdominal wall and irrigate the cecum thru the transverse colon and rectum, five hours after the last meal of the day and when all the aminoacids from that meal had passed the iliocecal valve.

In July, 1916, I operated upon the first dementia praecox patient in a general hospital. The morning after the operation he went home, greatly to the consternation of the hospital authorities and his family, but he was not injured by this irregularity. He was carefully irrigated with six quarts of a warm solution of glucose and water each night at bedtime. The treatment is still continued but the patient, while very greatly improved, is not well, and is not at work.

The second case was that of an Irish boy who became insane soon after an operation at the Presbyterian Hospital for periappendicular abscesses. He was evidently in a desperate condition, as there were two or three incisions in various parts of the abdominal wall. He was a long time in the hospital with drainage, and three months later was committed to Elgin State Hospital. The patient was then in a wretched state; disturbed, dirty, restive. While in this condition cecostomy was performed for me by Dr. Willis Andrews. In spite of the greatest skill, the cecostomy was not ideal. The patient did not improve. Soon after this operation he was returned to Elgin State Hospital where he remained without improvement for several weeks, and then gradually became tidy, orderly and free from delusions.

His improvement was not satisfactory, and a fluoroscopic examination revealed the fact that the cecum was not emptied by the irrigations, that a portion of the test meal remained in the cecum after two evening irrigations. It is believed the opening was made in the transverse colon.

The third patient operated on early in October was an emaciated, restive, untidy and vicious patient. He was returned almost immediately after the operation to the Elgin State Hospital and only two or three months later did he improve, so that he was paroled. Within a few weeks after his parole he went to work. He is still steadily employed for good wages. He had been in an institution nearly three years before the appendicostomy was made. He continues the irrigations irregularly.

The next patient was the daughter of a professor of chemistry to whom the recital of my tortuous sequence of researches hopefully appealed. His daughter was twenty years old. She was mute, negativistic, untidy, cyanosed and had a peculiar condition of the skin resembling ichthyosis. She was operated upon by me in January, 1917, and

was faithfully irrigated for a month when improvement appeared suddenly and rapidly. She gained in weight and became tidy and interested in her surroundings. She now takes care of herself entirely. She has driven an automobile all summer and engages in social affairs at the university with which her father is connected.

On the first of April, 1917, with the help granted by the Board of Commissioners for Cook County and with one man furnished by the Board of Administration of Illinois, I was able to reopen my laboratory and ward for the study of dementia praecox at the Psychopathic Hospital. Dr. Adam Szwajkart, the superintendent, gave me constant help and support. During the past seven months I have made a study of twenty-five patients, ten of whom are still under my care. Several of these patients were removed from my ward by parents before any conclusive examinations could be made. Three of them were not cases of dementia praecox at all.

It is impossible to describe *in extenso* the result of these examinations except to say they confirmed the observations made before and added many points of interest confirmatory of the toxic origin of this disease. Our researches for origin are paramount, but as physicians we have regularly followed out all the palliative methods of treatment and at last resorted to appendicostomy. Two patients seemed to have been completely cured by intravenous injections of normal salt solution. They are both well and at work for wages. One of these boys has successfully enlisted and passed the preliminary examinations for aviation. Most patients, however, have been unaffected by this treatment.

Because we have been impressed by the very high interspinal and, therefore, intercranial pressure, we have attempted the reduction of this pressure to normal by the intravenous injection of a thirty-three per cent. solution of glucose. Unfortunately, this treatment has so far brought about no improvement in the physical or mental conditions of the patients.

Four of the twenty-five patients have been subjected to appendicostomy and irrigations have been regularly performed with prompt and satisfactory recovery. It is almost incredible how rapidly these patients have resumed an interest in life, and begun to engage in such occupations as were offered them. The fifth patient, however, operated upon three weeks ago has not improved either mentally or physically, but seems to have lost weight and is worse, if possible, from a mental standpoint than he was before. We still hope for improvement.

Our staff of workers is too small to carry out the more than thirty different sorts of investigation which were considered desirable even upon so small a number of patients as our ward affords, but it seems to me that the almost uniform and unprecedented improvement of these patients is such that it cannot be neglected. The forty-eight sovereign states are now housing at $26,000,000, no less than 130,000 dementia praecox patients to whom their officers are extending no hope of betterment and are granting no hope of the welcome relief of death until an average incarceration of fifteen years has passed.

It seems as if these results of meager and poorly sustained adventures cannot be passed without investigation by the boards of control of these forty-eight states, who are annually receiving into their custody not less than 15,000 dementia praecox youths—and with them, an economic re-

sponsibility of $200 a year each for fifteen years to come.

It has been the marvel of every psychiatrist who has seen a case of dementia praecox recover spontaneously or otherwise, that the mind was so acute and attentive and so well preserved after five to twenty years of apparently driveling idiocy.

It has been my delight to see some of these patients awake as a child awakes after a disturbed dream, following the simple and rational treatment which they have received.

The pursuit of the cause of this disease must be continued to the end, and a simpler, milder and less tragic method must be rationally used in its treatment, but the real conquest will come in prevention. It is to hasten this end that I beg for assistance.

ABORTION.[1]

BY

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Probably no subject is of greater interest to the general practitioner than that of abortion, as it is likely to confront him early in his career and during his entire course. Abortion may be defined as the premature separation of the products of gestation, and is limited to the period of pregnancy prior to the viability of the ovum. Abortion may be divided into *accidental* and *superinduced;* and the latter subdivided into *criminal* and *justifiable.*

Abortion may occur spontaneously as a result of a previous diseased condition of the endometrium, rendering it unprepared for the retention and development of the fecundated ovum. The occurrence of one abortion, from whatever cause, renders the individual more susceptible to its occurrence in subsequent conceptions. The susceptibility to abortion is markedly increased by specific infection, especially syphilis. Where the patient has had an inflammatory condition of the uterus continuing for a length of time its walls may undergo changes in which fibrous tissue replace the muscular structures to such a degree that it is unable to develop the necessary growth for the retention of the ovum. These are the cases in which abortion are inevitable.

Unfortunately, the cases which will come to the observation of the physician most frequently are those which are brought about by the action of the woman herself, or by someone who has been induced to produce it. This is the crime of our age, and has been the cause for the decline and fall of every civilization of the past. It should be condemned by every lover of his country and especially by every conscientious physician. It should be the duty of every physician to impress upon his patients not only the importance of human life, but the necessity for the purposes of state that every woman recognize her obligation in this respect, and that every attempt at arresting the processes of gestation should be considered a crime, and that the woman who endeavors to arrest the process thus begun is participating in the crime of murder whether she attempts it herself or secures the services of another.

The cases in which abortion may be considered justifiable are infrequent. They are particularly those in which the individual is the victim of a constitutional disease, the course of which is so speeded

[1]Read before the Atlantic County Medical Society, Atlantic City, N. J., Dec. 14, 1917.

by the advent of pregnancy that the continuation of her life until its completion is rendered doubtful. In this class are patients with tuberculosis in an advanced stage, with serious heart lesions and with marked renal involvement. Some cases will occur in which the toxemia of pregnancy is so pernicious it is evident the individual would not survive the completion of gestation. These cases should be subjected to rest under the care of a physician, continuous instillation of salt solution employed, the bowels kept open and they should be carefully fed for some time before it is admitted the interruption of the pregnancy will be required.

The reasons usually given for the termination of pregnancy are the inability of the parents to take care of and properly educate children, ill health of one or both parents especially where tuberculosis exists. The main reason is to gratify sexual appetite and avoid its responsibilities. None of these reasons justify the physician in assisting in the termination of pregnancy, and he will fail in his duty if he does not endeavor to impress on the patient consulting him the danger of such a course, and its criminality. No other attitude it seems to me is justifiable. I can appreciate that sometimes it is difficult to say "No" when a young physician is consulted by a member of a family, who explains that disgrace will fall not only on the unfortunate herself, but other members of her family. But these are circumstances which should have occurred to the individual prior to the conception and do not justify a physician in committing a crime, or of being a party to a crime. Crime has already been committed and if he is weak enough he is no longer his own master.

Weir Mitchell in one of his books has made the principal character a young physician who thru pressing need and want of moral courage performs an abortion. Subsequently, he was at the beck of every individual who desired his services in that way, and if he attempted to retrieve his error he was threatened with criminal prosecution for the previous offense, so that he finds himself forced to repeat the crime.

Treatment of abortion involves consideration of its prevention, arrest, measures to be pursued when inevitable, necessary to render it complete, or correct bad results. This involves hygienic and constitutional measures. If a patient has become syphilitic and as a result of this infection is prone to abort, she and her husband should receive careful specific treatment, and fecundation should be avoided until it is evident such treatment is effective. In cases of inflammation, resulting in repeated abortions, I know of no method of treatment more effective than iodid of potash continued for a length of time prior, and subsequent to, the occurrence of pregnancy. The patient should be particularly careful about exertion and exercise as the time for her menstrual period approaches. If she is able to go over three or four months, the probabilities of her carrying the fetus to the completion of gestation are greatly enhanced. In the toxemia of pregnancy the urine should be carefully watched. Alkalies, such as sodium bicarbonate, should be given, and the bowels should be kept regularly active, and the diet as nutritious as she can assimilate.

Threatened abortion is indicated by pain, the discharge of blood, and frequent contractions of the uterus. The patient should be at once placed in bed and given good doses of morphine, preferably by supposi-

tory or hypodermic injection, and should be kept under the influence of the drug for several days. The bowels should be evacuated by enemata or the administration of a saline; rest, physical and mental, should be secured. If the bleeding continues, the contractions increase and the uterus is dilated, the abortion becomes inevitable. Hemorrhage can be controlled by packing the vagina, and even the uterine canal until the latter is sufficiently dilated to permit the evacuation of its contents. The steps in this procedure should be thoroly aseptic to avoid the possibility of introduction of infection.

Incomplete abortion, by which is meant the retention of some of the products within the uterine cavity, is a very frequent occurrence, and the question which confronts one is what steps shall be taken to secure the complete evacuation of the uterine contents. If the uterus is open, permitting the introduction of the aseptic finger, the removal of its contents is usually easy. If, however, the uterus has contracted so that it will be necessary to dilate it in order to evacuate its contents, it is much better to take precautions to keep the patient clean, free from possibility of infection and allow nature to evacuate the uterus. Certainly it is unwise to dilate the uterus for the removal of retained products.

Sepsis in association with abortion is of very frequent occurrence, and it is these cases which give the physician the greatest annoyance and distress. He is confronted with all the fears of the patient and those about her. The elevation of temperature is regarded by the patient as absolute evidence of the retention of products, and she and her friends are urgent that such products must be removed, and an operation done therefor. Serious symptoms may be due either to sapremia, the putrefaction of retained products, or to infection known as sepsis. In almost every case the patient and her family will be urgently insistent that something in a surgical way must be done. In the former cases the removal of decomposing products may result in immediate subsidence, and in the latter will only open up avenues for the admission of further infection which endanger fatal results.

It is a great temptation to institute measures for the exploration of the uterus when symptoms indicating infection follow an abortion, but large experience in the wards of Jefferson Hospital, where I have analyzed some 300 cases, has demonstrated that both morbidity and mortality are decreased by a course of judicious inactivity. If we are unable by a curettement, or even the removal of the uterus, to get beyond the infective processes, we are but aggravating the condition. Delay gives more time for the forces of the patient to overcome the infective processes and bring about the destruction of the organisms. Premature measures add fuel to the flame and increase the rapidity of the infective processes. I would emphatically assert that the uterus should never be forcibly dilated in the early stage of the septic process.

If operative measures are prohibited it will be asked "What shall we do?" Absolute physical and mental rest should be secured. By this I mean the patient should be isolated from those who are deeply concerned in her condition. She should be kept in bed and cold applications applied over the abdomen to limit the progress of infection. Where the abdomen is distended and nausea is present proctoclysis of normal salt solution, 30 drops to the

minute, should be used continuously. If this is not well retained it is better to elevate the foot of the bed so that gravity will assist in filling the large intestine. Thus superfluous material may be removed by having proctoclysis take place thru a 2-way tube which will permit the fluid to escape if the intestine becomes overdistended. Such a course facilitates dilution of the toxins in the intestinal tract, more active elimination thru the kidneys and skin, and with this the reduction of the body temperature. When the infection results in a localized general peritonitis the proctoclysis should be supplemented by the use of morphine hypodermically, keeping the patient under its influence, and employing gastric lavage whenever the patient suffers from repeated vomiting, or the upper portion of the alimentary canal is distended by tympanites. In specific cases the preparation of an antitoxin is desirable. This, however, is not always procurable even tho it is evident the patient has bacteremia. The organisms may be situated on the sides of the vessels and outside the blood current, and thus escape from observation and the bacteriologist be unable to obtain them. In these cases the injection of horse serum will increase phagocytosis and establish early results. The subsidence of temperature and discomfort should be followed by the substitution of heat for the cold as it promotes a more rapid absorption of exudation and the results of inflammatory processes. The patient, however, should be kept strictly at rest until it is evident the active processes have completely subsided. Operative measures should be employed only when it is evident localized foci exist, either in the tubes, ovaries or sides of the uterus, subsequent to the subsidence of the more active processes. Sacrifices of ovaries, tubes and even the uterus may be necessary for the recovery of the patient, but these procedures should come late in the treatment.

DIAGNOSIS AS AN ART.

BY

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Altho the ultimate aim of the practice of medicine is to relieve disease, perhaps the most important and fascinating branch of medicine is the art of diagnosis. Rational treatment cannot be instituted until a correct diagnosis has been made. In other words, until we have classified the patient's syndrome as the manifestation of a definite pathological entity based upon our knowledge of pathology and etiology.

It is not my purpose in this paper to discuss the commonplace methods of diagnosis with which we are all familiar. Nor shall I attempt to describe any new methods of diagnosis. I shall merely endeavor to consider the usual methods critically and from the standpoint of logic. From this point of view I shall discuss the relative values of the axioms which form the basis of our diagnostic deductions as to the underlying pathological and etiological factors.

It is self evident that the limitations of our diagnosis are based upon the number of facts from which a conclusion may be deduced and upon the finite analytic power of the diagnostician. The usual errors of diagnosis in cases where the basic facts have been or can be determined are dependent upon the accuracy of our deductions. Since the analytic ability of the individual varies, everything else being equal,

the better analyst will usually be the better diagnostician.

Determination of Diagnostic Axioms.—Before we can arrive at a conclusive diagnosis it is first necessary to determine the basic facts from which a conclusion may be reached. We may term these facts the diagnostic axioms. They are determined by careful clinical, pathological and other laboratory studies. The statistics of the correlation of certain clinical phenomena with definite pathological changes form the basis for the generic facts which constitute our diagnostic axioms. In each individual case the basic elements for a diagnosis are obtained from:

1. The History.
2. The Physical Examination.
3. The Laboratory Findings.

The History.—It is surprising how many valuable data may be obtained from a good history. To obtain a good history is a very difficult art. Yet, strange as it may seem, in most hospitals this is usually delegated to the youngest and most inexperienced interne. To take a good history is often more difficult than to elicit remote physical signs. Eliciting physical signs is dependent only upon the more or less highly developed skill of the examiner. Obtaining a good history, however, is not only dependent upon our knowledge of clinical medicine and pathology, but also upon the psychology of the patient who tries to emphasize certain symptoms while keeping others in the background. Neurasthenic patients usually present as many symptoms as possible so as to clothe their imaginary illness with the cloak of reality and thus to create a worse impression than the illness warrants.

A thoro knowledge of clinical medicine is usually necessary to obtain a good history so that each symptom should present comprehensive possibilities. Each symptom should then be utilized as a lead with which to determine the presence or absence of other symptoms, which together may serve as the skeleton around which to form a possible clinical entity. When a complete history has been obtained it should be transcribed, not in the sequence related by the patient, but so as to give the reader the most probable clinical pictures for diagnostic aid.

The Physical Examination.—The physical examination should be as complete as possible and should embrace all the methods commonly used. At the end of the examination a record should be made of all the positive findings arranged in the order of their preciseness.

The Laboratory Findings.—Complete laboratory examinations should be made in every case, especially in cases offering diagnostic problems. In such cases the laboratory findings may be distinctly helpful. In the average case, however, much time may be saved by having only those tests made that seem to be indicated by the various diagnostic probabilities.

When the essential facts have been determined from the history, physical examination or laboratory examinations, they should be used as the elements for the formation of a definite conclusion, greatest weight being given to the most positive data.

Types of Diagnosis.—In general, the cases that present themselves for diagnosis are of two kinds:

1. Cases presenting definite clinical data (Type Cases).
2. Doubtful Cases.

In both of these groups it is assumed that all the known accurate methods are to be used in determining the diagnosis. It

is manifestly unnecessary to discuss the so-called "snap shot" diagnosis where a mere cursory examination may enable the expert clinician to arrive at a more or less definite conclusion in cases presenting a few characteristic phenomena.

Diagnosis of Type Cases.—A study of the clinical phenomena of various diseases, as determined by their pathological, bacteriological and other etiological findings, have shown such phenomena to be regularly associated with very definite pathologic changes and etiologic factors. Our knowledge of this correlation and our ability to recognize the typical phenomena enable us at once to recognize the underlying pathology and to determine the correct diagnosis.

In the classical cases a characteristic history will frequently be associated with corresponding physical signs. When the physical signs are characteristic all other doubtful data may be disregarded. When the only guide is the clinical history this may have to be relied upon, but this must be done cautiously.

It would appear then that the so-called classical cases should present no inherent difficulties in diagnosis. But how frequently are we startled even in such cases by the not uncommon variance of the post mortem find from the ante mortem diagnosis. We can account for this in two ways: In the first place, the diagnostic axioms determined by the correlation of definite clinical syndromes with definite pathological changes are based upon statistics. In only the rarest instances are such statistics one hundred per cent. true. The relative fallacy of statistics has often been tersely expressed by Dr. Abraham Jacobi in the remark that the only valuable statistics are the following: "When a man is dead he is 100% dead."

The statistics which form the basis of the generic data, which we are constantly using in our diagnostic work, are the facts presented in the majority of cases. In actual practice however, we are dealing with individual cases; and the case in point may just happen to be one of the minority group. The exclusion of cases presenting clinical phenomena similar to the classical syndromes, but due to a different pathology, will be facilitated by observation of frequent autopsies of such cases. Careful analysis of the history and a thoro physical examination may also enable the examiner to determine the clues for differentiating the minority from the type cases.

Diagnosis of Doubtful Cases.—If definite physical signs of any disease can be elicited, then a diagnosis based upon these signs should be made. If a complete history, a thoro physical examination and complete laboratory examinations do not reveal any definite basic facts, and the diagnosis still remains in doubt, how many we arrive at a definite conclusion? When neither the physical examination, the clinical history nor the laboratory examinations are helpful the case should be handled in the following way:

In the first place a careful search should be made for a definite etiological factor; by laboratory methods or by a careful physical examination. If such a cause is found and the clinical phenomena can be accounted for on this ground, the diagnosis may safely be made on this factor alone. For example, if we happen to be in a quandary as to the diagnosis of a particular condition, and an examination of the blood reveals a 4 + Wassermann reaction it is reasonable to assume the case to be a syphilitic condition.

Sequence.—On the other hand, when

there are no positive data of any kind present, and no definite etiologic factor has been found, then sequence is the most important factor to deal with. In other words, the occurrence of certain sequelae as a result of a previous disease or in the course of an illness may be used in a diagnostic way. In doubtful cases, therefore, the history, particularly the past history, should be carefully searched for the previous occurrence of any illness or any other factor that might possibly be followed by the condition in question as one of its sequelae.

The Doctrine of Probabilities.—When neither etiology nor sequelae may be utilized as diagnostic factors then we may resort to the doctrine of probabilities. We should weigh each probability in the light of its frequency, leaning mostly to the more common conditions. The most common condition is more apt to be the correct diagnosis. Altho the infrequent conditions are particularly apt to occur in doubtful cases, yet it is safer to diagnose the common condition rather than the rare one. Besides if an incorrect diagnosis is to be made it is better to fall down on a rare disease.

Diagnostic Sense.—Frequently a correct diagnosis may be made by fitting the clinical picture into a definite clinical entity based upon previous experience. Extensive clinical experience and observation may develop a so-called "diagnostic sense" whereby the observer may recall to mind similar clinical pictures in which subsequent post mortem examination has revealed certain causative pathology.

One or Several Explanations.—We are often confronted by the dilemma of explaining the clinical phenomena on one or several bases. Unless there are distinct evidences of the presence of several conditions, in doubtful cases we are more apt to be right if we explain the existing phenomena on one, rather than on several grounds.

Conclusions.—Diagnosis may be considered as an art which consists of reaching logical clinical conclusions from basic diagnostic axioms determined from the history and physical examination of the patient, and from various laboratory examinations.

The limitations of modern diagnosis are based upon the truth of the axioms with which we have to reason and upon the analytic power of the physician. The axioms are the scientific facts which repeated pathological and clinical observation, experiment and research, have proven to be true or relatively true. Greater clinical experience tends to increase the accumulation of reliable facts which may be so regarded. The analytic power of the observer varies with the individual, is inherent, but may be developed by experience.

SUMMARY.

1. In cases presenting definite clinical physical signs or history no difficulty may be encountered in the diagnosis.
2. It must be remembered that the diagnostic axioms from which we deduce our conclusions are often based upon statistics where the essential facts are shown by the majority cases. Even in classical cases difficulties may be encountered owing to the fact that we are dealing with individual cases which may belong to the minority cases of the statistics.
3. In doubtful cases our greatest aids are the following factors in the order named:
   (a) Classical physical signs.
   (b) The presence of a definite etiological factor.
   (c) Sequence, or the presence in the history of a previous disease or

other factor which may account for the existing clinical entity.

(d) The ability to fit the clinical picture into a definite pathologic entity by means of our "diagnostic sense."

(e) The diagnosis of common conditions is more apt to be right than that of infrequent ones.

(f) One probable cause of a syndrome is more apt to be correct than several.

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CHRONIC CYSTITIS IN WOMEN.

BY

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This disease and the conditions which it resembles occurs most frequently in women of middle age. They complain of irritable bladder, but are otherwise in good health.

Definition.—Chronic cystitis is often seen as a distinct affection of the bladder, independent of acute infection, altho it may result from well known and well recognized causes such as trauma or operative interference. The bladder is generally contracted, or at least its capacity is lessened, a result of frequent urination which permits the bladder to remain collapsed and nearly empty for indefinite periods of time. Besides this feature of the disease, the mucosa is seen in folds or convolutions with perhaps several shades of abnormal color from a slight redness to deep red or purple, and oftentimes a granular surface is observed. The blood vessels are not so distinctly seen as in health, but there is generally a surface redness which is less distinct at the apex than at the base or at the trigone.

Etiology.—Infection plays an important role in cystitis of any kind. It is not always possible to ascertain how or by which route the infection was introduced, altho we know that the entrance is by the urethra and the ureters, as well as from circulatory sources.

The habits of patients have an influence in the causation of cystitis. Overdistension of the bladder, imprudent exposure, excessive use of liquors or wine, intestinal stasis and uterine displacements which prevent completed urination, are contributory causes of cystitis. Finally we see many cases due to the use of the catheter following an operation or used during any illness. Some of these patients continue to suffer for months without treatment and without knowledge of the real cause of their discomfort.

Diagnosis.—The clinical history alone points clearly to the disease in question. The presence of pus and epithelial cells in the urine practically confirm the diagnosis. A cystoscopic examination always enables one to see the character and extent of the disease. A bimanual examination of the bladder may disclose the presence of complications, such as the presence of pelvic tumors; displacements of organs; disease of the lower end of the ureters; the presence of stone and the condition of the walls of the bladder itself. If the bladder is sensitive to pressure and appears to be thickened we will probably find its capacity greatly diminished. The greatest care should be exercised in making an examination of urine. Much depends upon careful asepsis if we attempt to treat one of these cases, altho the technic is not more difficult than the simplest surgical detail. The meatus and vulva should be cleansed with dilute iodine solution (1-2,000) before the

catheter is used to obtain the specimen for examination. All instruments must be boiled for five minutes before being introduced, and finally, the centrifuged urine should be examined chemically and with the microscope immediately after the patient leaves the office, or before precipitation occurs. The Kelly cystoscope will prove of great value in the study of these cases, and it seems impossible to lay too much stress upon the importance of direct inspection of the mucosa, and to rely upon our vision rather than upon the sensations of the patient when the cure appears to have been accomplished.

Diseases mistaken for cystitis are:—

First, vulvar hyperesthesia or neuritis.

Second, caruncle, often associated with these conditions.

Third, irritation about the clitoris or labia.

Fourth, atrophic changes of the labia and vulva frequently seen at or after the menopause.

Fifth, the neuroses: a local manifestation of a general disease.

The presence of a tubercular kidney must not be overlooked especially if the urine is acid, the quantity of pus small and if the symptoms persist or return after apparent recovery. In case of doubt, the ureters should be catheterized and the urine from each one examined for bacilli. Fortunately, the cases of renal tuberculosis are comparatively rare, and we will see at least twenty-five cases of chronic cystitis to one of tuberculosis of either bladder or kidney.

Treatment.—As previously indicated, the habits of patients have some, altho not always a definite, relation to the disease, and the utmost care should be taken to promote the general health of these patients. There is good reason for the belief that intestinal stasis has some indirect effect upon the bladder and its diseases. It is difficult to change the habits of those who drink champagne and lead a life of indulgence, and who have for years failed to empty their bladders until driven to do so by actual distress. There is one view of this observation which is at least somewhat consolatory, namely—practically all of the cases of cystitis due to direct infection are benefited by treatment, and a very large proportion of these remain well.

Medication.—As cystitis is a local disease it is useless and unnecessary to give any drug by the mouth. The remedies of former days, such as buchu, spts. Nitr. Dulc. etc., may be used as "placebos" and should be so considered. There is no drug so much abused at the present time as hexamethylenamine as used in genitourinary disease. The symptoms of cystitis are produced by the free use of this remedy, and the writer has had such cases referred to him for treatment. Urine of high specific gravity should be diluted by the free administration of water if there is irritation from this cause. It is necessary to remember, however, that by this means we may cause more distress by compelling a patient with a contracted bladder to rise frequently at night. Obviously, the use of diluents whether simple, as water, or medicinal, as acetate of potash, etc., are rarely needed. The writer has not used any of the reputed cures for cystitis for many years and has seen no reason to do so.

The principle underlying the treatment of cystitis is to treat it as a local disease, and to do this one must apply remedies directly to the entire mucosa which is involved. It is not enough to prescribe irrigation with an antiseptic after an examination of the urine shows the presence of pus. The bladder when contracted needs dilatation in order to thoroly treat the corruga-

tions and folds of its mucosa. At each sitting the bladder should be filled with hot normal saline solution or 2 per cent. boric acid solution, using as much pressure as the patient can fairly well bear.[1] This stretching process is invaluable because it not only overcomes muscular contraction, but in addition to this unfolds the mucosa, permitting the antiseptic irrigant to reach the utmost crevice or fold of the membrane.

As a rule, the writer relies upon comparatively weak solutions of protargol, 1 and 2 per cent., never stronger. Two ounces of one of these solutions is left within the bladder as a last act in the treatment, and the patient usually retains it until she reaches her home. Tri-weekly sittings are quite often enough to secure a rapid recovery in most instances.

Trigonitis often requires special local applications, such as 5 or 10 per cent. silver nitrate solution. These should be applied thru the cystoscope if possible. If the patient is at all nervous, one must expect bladder spasm, and indeed, any patient may not bear the stronger solution. Bladder spasm may occur during the routine treatment of dilatation and medication of the bladder. It occasionally causes intense suffering and may require the use of morphia for its relief. When it occurs during the course of usual office treatment with mild applications, it may be necessary to suspend the sitting, but will rarely require the use of sedatives.

Conclusion.—In conclusion, the writer wishes to emphasize the necessity for actual inspection of the bladder by the direct method with the Kelly cystoscope. It is the instrument best adapted to office work by the general practitioner, and will prove to be of great satisfaction to those who use it, far more than an electric cystoscope, which would not often be required, and which should be used only by an expert. Irrigation of the bladder necessitates only a very unpretentious outfit. A rubber tube twenty inches long attached to a silver catheter at one end, with a funnel at the other, is a safer and better apparatus than an elaborate container. It is easily sterilized after being used and cannot be raised high enough to do harm. A good electric light and a forehead mirror are desirable, altho any good light such as used for laryngoscopic examination will answer. It is certainly desirable for the novice to practice cystoscopy upon patients who are willing to cooperate with the physician, rather than upon nervous or sensitive women who shrink from the slightest discomfort. It is possible for any competent physician to acquire sufficient skill to successfully treat these chronic cases, and it will be found far more satisfactory to both physician and patient to use the cystoscope in confirming the diagnosis, as well as to note the improvement from time to time.

[1]Sufficient pressure can be obtained by elevating the container or funnel containing the irrigant less than twenty-four inches above the urethra.

Treatment of Eclampsia.—The following method is used in one of the large obstetric hospitals in New York City: In very serious cases colon irrigations of bicarbonate of soda solution of nine gallons are given every eight hours. This is given slowly, taking at least three-quarters of an hour for the treatment. Hot packs are administered every eight hours, and the treatments are given alternately so that the patient receives therapeutic measures every four hours. Forced fluids are given, consisting of 10 ounces every two hours of either milk or water. Chloral, 15 to 30 grains, is given by rectum every four hours. The amount of treatment and medication must be adjusted according to the condition of the patient.—*The Nurse.*

PUBESCENT AMERICANOSIS.

BY

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Pubescent Americanosis is a condition and not a theory. The term Pubescent Americanosis is definitive of an active pathological process arising in—and due to —the transition from youth to adult life. Broadly, it is not a disease but a symptom-complex. In a narrower and more scientific sense it is a disordered state of body chemistry from which nature evolves a series of constitutional changes to menace the life and usefulness of the individual and to threaten society. It is a physical disease with serious social complications and sequelae, not the least of which is the nauseous propaganda of birth control, for the *ostensible* purpose of improving a race unborn, and for the *actual* purpose of engrafting the already infamous "kultur" upon the body politic. The most attractive asphalted and tree-lined avenue covers a sewer, and if we scratch beneath the surface of many of the smooth "uplifters," who encourage these revolutionary reforms and "isms," we will find an autointoxicate, the foulness of whose colon is reflected in the dirty tongue, fetid breath, mottled complexion and the morbid view he takes of this beautiful world of ours, and in the pessimism with which he regards his fellow men. Hear him cry out "Racca" upon the unfortunate narcotic addict and observe him reach for the cathartic to which he himself has become the slave.

Constipation is the father of autointoxication and the grandfather of immorality and discontent. The child of constipation is the Pubescent Americanosis which forms the title of this article.

The body of a youth is like a city, one suburb of which (reproductive system) awaits development. Soon that suburb will take on activity and there will be streets to be made; sewers, mains and conduits to be installed and houses to be built. All these sanitary measures require a portion of the water supply of the city, and this demand progressively increases until a time is reached when the suburb begins to functionate as a community dwelling place. In its adolescence there will be bodies to be bathed, floors to be scrubbed, food to be cooked and a multitude of calls upon the water supply which will embarrass its volume and pressure thruout the city. If A has a one-story shack and B has a laundry, A's inconvenience will be inconsequential, whereas B's plant will be materially and seriously depreciated in efficiency. It does not require a great stretch of imagination to trace the reactionary influence of this inefficiency upon the comfort and convenience of the social and commercial units which form the basis of B's business. Now let us apply this analogy to the American boy and girl who are about to pass thru pubescence and adolescence to manhood and womanhood, taking Mary as the type since the physiological and pathological manifestations of this transition period are more marked in her than in John.

With the beginning of pubescence, and running to and thru adolescence, by reason of the growing demands of the reproductive system, the blood supply of the rest of the body suffers some diminution. The digestive apparatus, consisting of the mouth, esophagus, stomach, small and large intestine, liver, pancreas and lymphatics, suffers

a modification of blood supply that gradually reduces its efficiency. Now this insufficiency of blood, if it were a constant element, might, in the providence of nature, reach a condition of adjustment or compensation. However, the added constant element of the tension of American life, and the occasional element of a menstrual period which imposes an irregularity upon the distribution of blood, embarrassing and complicating body nutrition and metabolism by way of the primordial channel thru which we live and have our being, negative the attainment of such an adjustment.

If for the sake of illustration we assume that the digestion of a normal youth yields 70 per cent. nourishment and 30 per cent. waste it does not require a very scientific mind to understand that any appreciable modification of the efficiency of the digestive apparatus will produce a corresponding decrease in the nutrition of the individual. Moreover, if such modification be continuous, with occasional periods of intensity (corresponding to the periods of menstrual function), the percentage-nourishment will surely drop to 60 per cent. and the waste to 40 per cent., then to 55, etc., until the disturbed balance manifests itself in wasted tissues and loss of weight which warn the patient of danger, or an increase in appetite which deceives her for yet a little while. This decrease in nourishment and increase in waste converts the physiological activity of the *bacillus coli communis* upon normal waste from an ordinary process of healthy life into a pathological riot among the undigested and partly digested food which passes from the ileum into the colon, with the resulting formation of liquid poisons and gases. One of these agents for evil threatens chemical destruction and the other produces physical embarrassment. We are aware that such results will ensue, because we know that the absorptive power of the ascending colon is great and that we may expect the reduced quantity of blood and the impoverished quality of blood to have added to it the element of intoxication from these poisonous substances, together with pressure effects from gas expansion. Indeed, we may expect more untoward effects than these, for impoverished toxic blood is the only blood Mary and John have in stock with which to supply the tissues, organs and systems of the body, and thus the already inefficient digestive apparatus is rendered still more inefficient, since it must do its work with an intoxicated blood, small in quantity and poor in quality.

If the reader has followed Pubescent Americanosis thus far he will recognize that in this condition we have a blood supply which shows the elements of a true disease-disordered anatomy, physiology and chemistry, but at the same time he will realize that this disease is itself but a symptom-complex of disordered economics in the life of Mary and John, which if given its due and proper place in the teaching of preventive medicine and in public education, would soon cease to exist. A volume of large size might be written with this disordered body chemistry as the theme, but I will content myself with tracing its pernicious influence thru a few channels in order to point the moral of prevention which is the aim of this article.

We know that the heart is nourished during the filling up or resting period, when the closed semi-lunar valves of the aorta uncover the mouths of the coronary arteries and permit the life-giving blood to course through the heart tissues. We know that when the heart closes, in systole, it

empties not only its chambers, but contracts its substance, and it is obvious that the faster the heart beats the shorter will be the period of rest and nutrition, the heart will exhibit less force and the general circulation will be impaired. When we realize in addition the pressure on the chest contents from an intestine distended with gases we can now understand that this mechanical element enters the vicious cycle of Pubescent Americanosis.

Now this blood supply of Mary and John, deficient in quantity and quality, intoxicated, lacking in force, containing too much carbon monoxid and too little oxygen, poor as it is, recognizes the danger to the patient from the toxins forming in the intestinal tract and hastens to attack them and render them inert. This signifies pelvic congestion, which the diminished heart action, plus intra-abdominal pressure, makes passive (venous) and this venous engorgement spells piles in the anatomical order, stimulation of erectile tissue and sexual excitement in the physiological order, tired and exhausted blood in the chemical order, and a very probable masturbation habit in the social order, or a precocious sexual instinct which may sow the seeds of a later perversion. At this point a serious social element enters the vicious cycle of Pubescent Americanosis.

We are all familiar with that form of intoxication which comes from an imperfectly acting liver and the absorption of an inferior bile product. We have seen as a result mental depression amounting almost to typical melancholia; nothing on earth is bright, a nameless dread of impending danger overshadows the patient and only the flow of natural tears distinguishes it from the melancholia of insanity. A careful diagnostician will separate the true from the false and recognizing the stamp of bile intoxication will apply to the patient that form of treatment as a cure which should have been applied as prevention. This condition in Mary and John colors their mental deductions a deep and dismal blue and prompts them to construct from innocent facts an illusional feeling or discontent amounting almost to delusion. Let me illustrate this point:—It is reasonable to believe that a longshoreman cannot do effective work on a diet of chocolate eclairs, and it is equally reasonable to suppose that a brain supplied with impoverished, vitiated and overworked blood will be incapable of exhibiting high powers of memory or reason. Mary and John, victims of Pubescent Americanosis, are at an age when they are just to graduate from Grammar School, the very brick walls of which are familiar, where they have come to regard the principal and teachers as real friends. From this environment of home and confidence, they pass into an environment of newness and doubt. Building, principal, teachers and associates are all strangers. The advanced subjects they are given to learn are awesome and they are conscious that the personal touch which influenced the rating of former examinations is lacking in this new field. The mass of "ologies" and "ographies" crowded into the first year, with the intense physical and mental strain of excessive homework, still further embarasses the digestive apparatus. By reason of this forced cerebration, and because their anemia and toxemia have added to them ischemia to still further reduce the percentage-nutrition and increase the percentage-waste, Pubescent Americanosis becomes more active. The memories of Mary and John become less acute and judgment and reason less strong. The teacher, ignor-

ant of the cause for failure to promptly answer a question, passes it to the next pupil. The teacher does not know and cannot understand, unfortunately, that it is not lack of study and application, but the sheer sluggish operation of a tired, anemic, toxic, underfed and overworked brain, which if given a little more time would produce the answer. When class tests are given Mary and John fall below the standard, they develop from their state of chemico-toxic mental depression a belief that the teacher dislikes them, and this belief assumes the proportions of a delusion, which is impossible of eradication unless, and until, we recognize and remove the physical cause of this morbid cerebration. While the high brow standards set by educators generally continue to soar upward, the mental capacity of the children under their care continues to grow less, because however much food they may consume, the net result in nutrition and blood rehabilitation is entirely out of proportion to the physical and mental demands of a system of education which evolves from theory a curriculum which the American youth should absorb but cannot, because the ramifications of Pubescent Americanosis have extended to the physical foundation upon which mentality rests, and have undermined it.

Disordered food digestion with its consequent malnutrition, anemia, toxemia, tissue intoxication and individual demoralization is bad enough in itself, but it must needs extend its malign influence to the intrasomatic digestion of body meat from which a disordered metabolism results. For example:—an individual is born, has a time for development and growth, reproduces his kind, completes his life work, dies and must be destroyed else his body will cause pestilence. In a like manner each individual cell of the body is born, has a time for development and growth, reproduces its kind, completes its life work, dies and is dead meat which must be destroyed. It is the special province of the blood to accomplish this destruction by oxidation and hydrolysis until a gas (urea) is formed and eliminated by way of the kidneys. Obviously, the impoverished, vitiated and overworked blood supply of Mary and John is unable to accomplish this work perfectly and must apologize to the dying cells and say "I would like to do my full duty by you and oxidize and hydrolize you into gas and throw you out thru this child's kidneys, but, unfortunately, a riot of dangerous toxins threatens in the intestines; however, I will do my best and convert you into a salt and deposit you, temporarily, in the muscles, tendons, joints, tonsils, heart valves, gums and other places and return tomorrow and complete my work."

Unfortunately, tomorrow's story is the same as today's and instead of liquidating these promissory notes, the blood must issue more and more until a muscular rheumatism, a persistent tonsilitis, a distressing endocarditis or a beginning Rigg's disease inconveniences and incapacitates the patient for the world's work and a serious commercial and economic element enters the cycle of Pubescent Americanosis.

Now Mary suffers in a special manner because of this imperfect transition from girlhood to womanhood. During each menstrual period her generative organs are physiologically congested, and at its termination the womb is soft. Above and around it the loops of intestine, filled with gas and restless as the waves of the sea, are making pressure, which "kinks" this flexible womb, so that the next menstrual period is accompanied by some cramp-like

pains to straighten out that kink and permit menstrual flow. This is succeeded by a dull womb-ache which radiates down the inner side of the thighs. The self consciousness and modesty of Mary prompts her to suffer without complaint until the habit of periodic anteversion becomes fixed and she has added to the other vicious manifestations of this Pubescent Americanosis, the distressing element of dysmenorrhea.

In these days when the public mind is exercised over the spread of tuberculosis, the consideration of causes for reduced resistance must not exclude the condition which forms the subject of this article. Not only is the lung tissue supplied with an inadequate quantity and inferior quality of blood for its nourishment and function, but the very blood itself is sick and without sufficient phagocytic power to repel the invasion of germ disease. Not only that, but the intra-abdominal pressure which anteverts the womb of Mary, diminishes the chest space of both Mary and John, decreasing the dynamic force of the heart and capacity of the lungs. The fluttering heart has its complement in shallow breathing and the apices of the lungs are but little used, and while "increase in function predisposes to disease," it is equally true that decrease in function predisposes to degeneration. Remember too that the apices, under ordinary conditions, are attractive home sites for the *bacillus tuberculosis,* and remember also, that the whole lung requires full space for expansion in order that the revivifying oxygen may purify the blood, and make it strong to do its triple work of nourishing tissues, clearing out the metabolic waste of the body, and waging a phagocytic war upon germ life within the body.

I might go on and on, tracing the pernicious influences of this wretched condition upon organ after organ and system after system, but I believe sufficient has been said to demonstrate that Pubescent Americanosis is really a condition and not a theory. I can imagine some captious critic saying "this man is revolutionary; he makes this pet condition the basis of all diseases and by educating the public would rob us of our subsistence." No need for fear on this score, my brothers, only the wise will heed our words, and there always will be plenty of foolish ones to keep us busy. Besides if you take thought you will agree that the condition at least has the capacity to influence if not cause many of the human ills we are called upon to treat. In any case I venture to suggest that the prophylactic care of Mary and John in this formative period rests upon the medical profession as a sacred public duty, and that care can best be exercised by teaching Mary and John and their parents in the home, and the teachers in the schools, that the digestive system is the channel thru which life is sustained, and is, therefore, entitled to first consideration and attention at this highly important period of life. That Mary and John shall not be stuffed with the food that they wish for, rather than what they need; that cakes, pies, fancy pastry, rich candies, "sundaes" and delicatessen food are not good blood-making material and really overwork a digestion which is beginning to be impaired by reason of the altered circulation accompanying the pubescent period. That the bowels should move not less than once a day in order that the food waste may be disposed of and not left to intoxicate an already tired blood supply. That the growing body requires a reasonable amount of rest and that the one-step and

hesitation waltz, until the early hours of the morning, are not conducive to health. That proper clothing, that is at once adequate and modest, helps to keep the skin warm and enables it to do some of the work of elimination and to save the kidneys. That frequent bathing keeps the skin active. Teach Mary and John body economy as the great industries are teaching and profiting by commercial economy. Use homely illustrations that will sink in; teach them that the family garbage can which contains half a ham and several potatoes means wastefulness, and that catharsis by way of the removal wagon while improving the state of affairs from the esthetic standpoint does not repair the leak from the bread-winner's income. There must be better domestic utilization of that ham and those potatoes or, if made-over dishes are not popular, there should be a smaller ham and fewer potatoes purchased. That correction must take place in the commissary department and the kitchen of the household (or the dietary and digestive department of the body). Such foods must be selected as will yield a high percentage of nourishment and a small amount of waste. This does not mean reduced diet, for reduction of diet only panders to lazy, sluggish organs. Those organs are given us to use, they should be our servants, and not our masters, and we should see to it that they do their work, helping them only over the rough places.

We must teach Mary and John that the digestion of food, like the making of a suit of clothes, must pass thru several processes, or phases, before a nutritious substance, or a wearable garment is produced. That however good the material, however accurate the pattern, an inefficient cutter will start the garment wrong and it will be wrong to the end. If the liver and pancreas at the very commencement of the intestinal system are working badly, the outcome of their work will embarrass every group of digestive glands the food must pass on its way out, and imperfect nutrition and toxemia from the disintegration of undigested and partly digested food in the colon will result. Therefore, in a general way, a sluggishly acting liver in Mary or John should be spurred with a cholagogue, and this treatment supplemented within a few hours by a mild cathartic, so that all food waste will be promptly evacuated, and not left to be converted into toxins and gases. Such treatment should be persisted in until three movements a day are had; two movements are sufficient and the third is a signal that nature is beginning to come into her own and is taking part in producing this third movement. Then decrease (not discontinue) the cathartic to every other day, then to two days between, etc., always being governed by the third movement. Add to this such tonic treatment as will sustain, support and encourage nature in rehabilitating the blood supply. We may then hope to see the pendulum swing back towards health and the 30 per cent. nourishment and 70 per cent. waste give place to the 70 per cent. nourishment and 30 per cent. waste, which will carry Mary and John to adult life, strong and useful citizens, capable physically and mentally of looking upon this world thru rose-tinted glasses, who retain their enthusiasms and are not blasè, who can and will produce a race of healthy children, which they will strive to keep well because knowledge and experience has taught them the value of preparedness against Pubescent Americanosis.

While we are dealing with this subject, let us urge upon our educators to consider the presence of this condition in our Amer-

ican child life and to so order the curriculum of high school work that these future citizens may be safeguarded from the strain of unnecessary studies and excessive homework at this crucial period of their lives. With this end in view the teachers will generalize their subjects and individualize their pupils. And we will at least have begun a great work for normalizing the race of men.

INTESTINAL ANTISEPSIS IN TYPHOID FEVER.

BY

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About six months ago a very interesting case was reported in the *Medical Herald* in which two eminent surgeons of Kansas City reported a case which turned out later, on being operated upon, to be one of complete intestinal obstruction. All symptoms, however, had ceased several days before operation, after the stomach had been thoroly washed out and all food other than cracked ice withheld. The authors pointed out that this proved that death in acute intestinal obstruction took place from toxemia caused by the absorption of poisons generated in the small intestine above the obstruction and that this toxemia could not take place if the stomach was thoroly washed out and no food other than cracked ice taken. This treatment then is advocated from the time the diagnosis is made until the patient can be operated upon, which, of course, should be as soon as possible.

In typhoid fever we have the somewhat similar condition of an acute toxemia due to microbic infection of the ileum. It seems, therefore, a rational idea to first produce an aseptic condition of the stomach; secondly, to try to get a similar condition established in the small intestine; thirdly, to prevent reinfection. Hence it would seem a good plan the first day one suspects a case to be one of typhoid to give copious drinks of a very weak solution of permanganate of potash, the solution being merely of a rose tint so as not to irritate but yet to disinfect the stomach. This is, as one recalls, Roger's treatment of Asiatic cholera, a much more virulent microbic infection of the intestines. If the patient vomits, so much the better. Secondly, to give large doses of liquid petroleum with two grams (30 grains) of bismuth subnitrate to each tablespoonful of the paraffin. This should be given to an adult in the dose of one tablespoonful at 10 a. m., 4 p. m. and 10 p. m. Thirdly to give copious drinks of Vichy water but very little or no food for the first two or three days, and then, since one does not wish to weaken one's patient in such a long drawn-out disease, to give a fairly generous diet of only farinaceous foods, gruels, oatmeal, vegetable broths with a minimum of milk and no proteids, such as meat juices. As to fruits, I believe the juice of all acid fruits, such as oranges, lemons and pineapples are best given with a little bicarbonate of soda, for it cannot be doubted that the resulting citrate of soda is most valuable as a preventive of the acidosis so common in fevers.

As to results I am not one of those who believe that typhoid can be aborted by any known treatment, but I believe that in the seven cases treated by me this year, the short duration of the toxemic condition, known as the typhoid state, and of the nocturnal delirium almost invariably met with, may have been due to my energetic treatment during the first few days of the dis-

ease and the administration of small doses of liquid petroleum and bismuth thruout the whole course of the fever.

THE PHENOLSULPHONEPHTHALEIN TEST AND ITS APPLICATION TO SURGICAL DISEASES OF THE KIDNEYS.

BY

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It is indeed surprising to note the number of men engaged in the general practice of medicine, who are either wholly unfamiliar with the phenolsulphonephthalein test for kidney function or who, having only a passing acquaintance with the test, do not regard it as being of any particular value whatever. There are even some, in fact, who rashly condemn it. While it cannot be expected that the refinements of the test can be carried out in the average practitioner's office, still there is no question that even by its simplest application, much light may be thrown upon many pathological conditions of the urinary tract, which might otherwise remain altogether obscure. For example, any urine containing pus with an appreciably diminished output of phenolsulphonephthalein, should at once suggest an involvement of one or both kidneys. And yet, how many men there are who are more than willing to ascribe cystitis, unqualified, as the sole cause of the patient's symptoms. As a means of offering a fairly definite prognosis in many conditions, the phenolsulphonephthalein test is very reliable, and when the question arises as to the functioning power of a kidney whose fellow is so diseased that nephrectomy may be necessary, we have yet to find any one method which gives us a more satisfactory idea of the function of the better or sound kidney.

The phenolsulphonephthalein test was originated, and studied experimentally and clinically by Geraghty and Rowntree of Johns Hopkins University. Since the publication of the original article[1] a number of clinicians in trying out the test have gotten results which compare most favorably with those of the originators. For the estimation of the total output of phenolsulphonephthalein from both kidneys, the technic scarcely varies at all from that employed originally by Geraghty and Rowntree. However, other investigators have contributed very materially to its practical application, especially in comparing the function of one kidney with that of its fellow, after catheterizing both ureters. Notable among these contributions, where the method employed is that of injecting the phenolsulphonephthalein intravenously, is the excellent articles of Keyes and Stevens[2] who show clearly the advantages of the intravenous administration.

In order to induce those who are skeptically inclined to give the phenolsulphonephthalein test a trial, I shall attempt at the risk of tiring others (for it has been described time and again) to give briefly the technic of the test as it is employed today, both for estimating total renal function and comparing the output of each kidney separately. In the first instance, 1 c. c. of

[1] Transactions of the American Association of Genito-Urinary Surgeons, Vol. V, 1910, p. 59.
[2] Transactions of the American Urological Association, Vol. VI, 1912, p. 31.

the solution[1] is injected intramuscularly, preferably into the buttocks, as one injects the various mercurial preparations in the treatment of syphilis. Ten minutes are allowed to elapse (the time necessary for absorption and appearance of the drug in normal cases) and the urine collected for the first and second hour respectively from that time. In cases where it is suspected there may be an appreciable delay in the appearance of the drug, the bladder may be catheterized and the time of appearance noted by allowing the urine to drain into a receptacle containing a drop of sodium hydroxide (about five per cent. strong). As soon as the drug appears, a pinkish to brilliantly red color will be noted as the urine comes in contact with the alkaline solution. The one and two hour specimens may now be collected from the time of appearance. This catheterization feature of course makes the test more accurate, but is an extra bother and except in unusual cases may be dispensed with. The amount of phenolsulphonephthalein is next estimated in each specimen according to the method described later.

According to Geraghty and Rowntree's original investigations, in normal cases forty to sixty per cent. of the drug should be excreted during the first hour and twenty to twenty-five per cent. in the second hour, or a total of sixty to eighty-five for the two hours. I, personally, have found the average to be nearer the lower figures, *i. e.*, forty and twenty per cent. for the first and second hours.

In cases where it is desired to compare the functional capacity of one kidney with the other, the intravenous method of administration is employed as follows: The ureters are first catheterized, preferably with fairly large, flutetipped ureteral catheters. As soon as the catheters begin to work satisfactorily, 1 c. c. of phenolsulphonephthalein solution is injected intravenously. It is usually easiest and most satisfactory to employ the veins at the elbow for this purpose. Care must be taken to insure getting all the solution into the vein, otherwise the test will be vitiated. It is a good plan to fit the needle on to the loaded syringe first, as the syringe offers a convenient handle for manipulation. Then after introducing the needle, remove the syringe to see whether or not blood will come through the needle, which it usually does in drops at regular and short intervals. The syringe is again connected with the needle and the injection is made. The time, from the moment of injection until the appearance of the drug from the catheters, is now noted. The urine from each catheter is allowed to drain into separate receptacles containing a drop or two of sodium hydroxide as in the foregoing method, and the first "blush" carefully watched for. The time of appearance is usually about three minutes. Specimens are collected from each catheter for fifteen minutes, and as a rule, beginning with the time of appearance in one kidney.

In intravenous injection, the amount excreted for the first fifteen minutes is about one per cent. per minute from each kidney, or a total of thirty per cent. After the first

[1] The preparation we use is put up by the Hynson, Westcott Company of Baltimore and contains 6 milligrams of the drug in 1 c. c. or, according to Geraghty and Rowntree, it may be prepared as follows: "0.6 gram of phenolsulphonephthalein and 0.84 c. c. of $^{2}/_{N}$ Na oH solution are added to 0.75 per cent. Na Cl solution. This gives the monosodium or acid salt, which is red in color and slightly irritant locally when injected. It is necessary, therefore, to add two or three drops more of the $^{2}/_{N}$ hydroxide, a quantity sufficient to change the color to a beautiful Bordeaux red. This preparation is nonirritant."

fifteen minutes, this percentage per minute does not hold good since the drug is excreted less rapidly than at first.

From a study of twenty-six cases, where intravenous injection and ureteral catheterization were employed, Keyes and Stevens[1] found that the time of appearance may vary widely. In fourteen of their normal kidneys, it varied from two to nine minutes, with an average of four and one-half minutes. They also found that the time of appearance may be approximately the same for two kidneys whose functions differ markedly and believe that "it is peculiarly misleading and should be taken into consideration only for the purpose of estimating the time at which to begin collecting specimens for phenolsulphonephthalein estimation." From the same series of cases they further conclude, that the phenolsulphonephthalein output is little if at all influenced by oliguria or polyuria, an observation which seems to be readily enough substantiated by the numbers of cases one sees in which the greater per cent. of the drug is frequently found in the smaller volume of two specimens of urine collected for the same period of time.

For total estimation of renal function, the intramuscular employment of phenolsulphonephthalein is not only simpler but ordinarily more accurate. For here, one is dealing with larger dilutions of the drug and longer periods of excretion, factors which make for accuracy as opposed to the errors which may occur in collecting specimens of more concentrated dilution, and in much shorter and more exact periods of time, as is required in the intravenous method. Then, too, in the latter, as previously pointed out, a drop or two, accidentally injected *extravenously,* will interfere with its accuracy. But the intravenous method has its definite place in estimating separate renal function. In the first place, the intramuscular method is too long a procedure for the patient propped up in a semi-recumbent posture with a catheter in each ureter. But, most important of all is the fact ascertained by Keyes and Stevens that after intramuscular injection of phenolsulphonephthalein, inhibition of excretion of the drug occurred in certain kidneys following catheterization of the ureters, whereas such inhibition did not occur when the drug was given intravenously.

The following brief report of cases[1] will serve to illustrate the application of phenolsulphonephthalein in determining both the total functional capacity of "surgical" kidneys, and as a means of comparing the capacity of one kidney with the other:

Case 1. F. B. F. Male. Age 26. Of healthy appearance. Gave a history extending over a period of about two years, of having fifteen or twenty sudden attacks of severe pain over region of appendix. Toward the end of this period, he began to complain of dysuria and hematuria, the latter being more or less intermittent.

Urine Analysis: Bloody. Sp. Gr. 1012, albumin ⅛ per cent., no sugar, many R. B. C., much pus and a few staphylococci. The phenolsulphonephthalein test (intramuscular injection) gave 45 per cent. in the first hour, and 14 per cent. in the second hour.

At a later date, the patient was cystoscoped, the ureters catheterized and an intravenous injection of phenolsulphonephthalein given. Analysis of the separate specimens of urine:

Right Kidney.—Much pus. Phenolsulphonephthalein—none in 13 minutes. Urea 0.15 per cent.

Left Kidney.—Mod. amount of pus. Phenolsulphonephthalein (appeared

[1] Transactions of the American Urological Association, Vol. VI, 1912.

[1] I am indebted to Dr. Edward L. Keyes, Jr., with whom I am associated, for the privilege of publishing these cases.

in 3 minutes) 11½ per cent. in 10 minutes. Urea 0.6 per cent.

A scratch was obtained on a wax-tipped catheter introduced into the right ureter.

Radiography showed a large stone in the pelvis of the left kidney, a large stone in the pelvis of the right kidney, together with several smaller stones thruout the kidney, and a shadow suggesting stone in the right pelvic ureter.

The left kidney was opened and a good-sized stone, together with considerable gritty debris, was removed. About three months later, the right kidney was explored, found to be a mere shell, full of stones, and was removed. The patient stood this last operation very well, but three weeks afterwards he became septic and died a week later.

It is interesting to note that a cystoscopy, performed two months after the first operation, showed *no* pus from the left kidney.

At first glance the findings in the above case seem to indicate a discrepancy between the phenolsulphonephthalein output and the renal pathology, for the total output is quite within the normal limits. But the *separate* output clearly shows which kidney was the more incapacitated (in fact utterly incapacitated) and both the total and separate outputs bear testimony to the fact that the left kidney was quite capable of answering for the work of the two combined, a fact attested to by the splendid general appearance of the patient. Incidentally, the picture also serves well to illustrate how little the functioning power of a kidney may be disturbed by the presence of a stone of good size, provided, of course, no great amount of kidney tissue has been destroyed, as was the case in the right kidney.

Case 2. T. G. Male. Age 37. Complained first of pain in right groin, and a short while thereafter of pain across sacrum. A month later, he began to have frequency of micturition with pain at the end of the act. Six weeks later, he noticed a slight hematuria. When the patient presented himself for examination, four months from the beginning of his symptoms, he was urinating every hour or two during the day.

Urine Analysis: Pale, cloudy urine. Sp. Gr. 1010, albumin 1/16 per cent., no sugar, many R. B. C., much pus, some staphylococci and a moderate number of tubercle bacilli.

An intramuscular phenolsulphonephthalein injection gave a total output of 35 per cent. for the first hour; second hour's output not noted. Ureteral catheterization showed pus and tubercle bacilli from the right kidney; no pus, no acid bacilli from the left kidney. Intravenous phenolsulphonephthalein not done.

Right nephrectomy showed a moderately dilated ureter and many obvious tubercles of the upper pole. However, there apparently still remained a great deal of normal parenchyma. The patient made an uninterrupted recovery.

While the output of phenolsulphonephthalein in the above case is not strikingly low, it is low enough to direct attention to the kidneys, especially when taken into consideration wth the urinary findings. Had separate examinations been made, they would doubtless have shown a high output from the left kidney with a relatively low output from the diseased side.

Case 3. E. W. Male. Aged 23. Gave a history of a left sided tubercular epididymitis for two years. No marked urinary symptoms.

Urine analysis: Pale, cloudy, Sp. Gr. 1015, albumin 1/16 per cent., no sugar. Pus and tubercle bacilli present. Intramuscular phenolsulphonephthalein, 25 per cent. in first hour; second hour not noted.

Ureteral catheterization showed pus and tubercle bacilli from left kidney; no pus, no acid fast bacilli from right. Left nephrectomy. Ureter dilated to size of little finger. Parenchyma infiltrated with tubercles in all stages at upper pole, elsewhere normal.

The right epididymis and left testicle were found to be involved and were removed. Recovery.

Case 4. Mrs. J. A. Age 38. This patient presented herself, complaining of difficulty in urinating and hematuria. These symptoms had first troubled her six weeks before. During the past thirteen years she had undergone three operations, one for an extopic gestation, one for prolapse of the viscera, and finally, an abortion of a three months' foetus because she could not urinate.

The patient had lost 25 pounds in a year's

time. Physical examination revealed a large, moderately adherent, low kidney on the right side. The bladder was found to contain large blood clots, which explained in large measure her difficulty in urination, as these clots would actually block the urethra.

An intramuscular phenolsulphonephthalein test gave 35 per cent. in the first hour and 16 per cent. in the next twenty minutes. A cystoscopic examination was made before all the intramuscular phenolsulphonephthalein had been eliminated. However, specimens were collected from each ureter anyway, that from the right side showing only a trace of phenolsulphonephthalein in 10 minutes, while the left side excreted 5 per cent. in 10 minutes.

The right kidney was removed the day following the cystoscopy, and revealed a very large non-adherent hypernephroma chiefly involving its lower pole. Convalescence uneventful.

It is worthy of note that while 5 per cent. of phenolsulphonephthalein would not be considered a good output from one kidney after intravenous injection, it is unusually good after intramuscular injection, especially during the second hour's excretion.

Case 5. Mrs. A. E. T. Age 44. Gave a history to the effect that she had pain in her left side for three months. Remained in hospital two weeks prior to operation without any rise of temperature. Urine full of pus. A total phenolsulphonephthalein test gave 10 per cent. for the first hour and 10 per cent. also for the second hour.

Ureteral catheterization showed much pus and 0.4 per cent. urea (4 grams to litre) from the left side, and a very little pus, and 1.2 per cent. urea (12 grams to litre) from the right side.

Under local anesthesia, the lower pole of her left kidney was "tapped" and a large quantity of pus evacuated. The patient was up in ten days, and a cystoscopic examination three months later showed a normal bladder with normal ureteral orifices. She seemed perfectly well.

From such a low total output as is shown in the foregoing case, one might conclude very properly that both kidneys were involved, as indeed they were, tho the infection of the one side was quite mild as compared with the other. In this instance, the urea output indicated quite accurately the badly diseased kidney. The case is of further interest in that a cure was effected by means of nephrotomy.

The bacteriologist reported the infection as probably due to the *bacillus dysentericus.*

Technic of Estimation.—Originally, a very exact and quite expensive instrument, called the Duboscq Colorimeter, was used for this purpose. But this has been largely discarded in favor of other simpler and less expensive instruments. The latter, while not so exact, are exact enough and are becoming more popular on account of the price. The Dunning Colorimeter, one of the latest, simplest and cheapest, is well adapted to the needs of most of us. It consists of a series of sealed ampoules, about 15, containing different strengths of phenolsulphonephthalein in alkaline medium. The solution to be tested is put into an open ampoule, made for the purpose, and the shade and density of the specimen is compared with that of the other ampoules until one is found which matches the specimen the nearest.

The entire quantity of urine representing the specimen to be estimated is diluted to about 200 c. c. with water and rendered alkaline by the addition of a 5 per cent. solution of sodium hydroxide (however, most any alkaline solution will answer the purpose). The open ampoule is then filled with some of the latter solution and comparisons made. If the specimen matches the ampoule marked 30 or 50, for example, then the reading is 30 per cent. or 50 per cent. as the case may be, since the test ampoules are all based on a solution made by diluting 1 c.c. of the standard phenolsulphonephthalein solution up to 1,000 c. c. of water.

If only a slightly reddish coloration is obtained after adding the alkaline solution, it indicates that the phenolsulphonephthal-

ein content is small and hence dilutions should be carried only to 250 or 500 c. c. or even smaller fractional parts of 1,000. The reading should then be divided by 4 or 2 or a higher figure as the case may be.

The presence of blood in the urine sometimes makes an accurate reading impossible. By centrifuging the urine, and discarding the sediment, this difficulty may be obviated, tho the accuracy of the test is of course influenced to some extent by this procedure. Urines which are cloudy from pus or other causes, may be rendered clear, sometimes by filtering or better by adding basic lead acetate[1] and filtering. This precipitates various salts in the urine which carry down the pus, etc., with them. The phenolsulphonephthalein is not precipitated.

Phenolsulphonephthalein in Nephritis.—In closing, a word or two about the employment of phenolsulphonephthalein as a test in ordinary nephritis cases (the "medical" kidneys) would perhaps not be out of place. Geraghty and Rowntree, in their original article, claim almost as much for its use as a functional test in the latter as they do in the case of the "surgical" kidney, laying especial emphasis on its value in acute nephritis and in differentiating true nephritis from obscure conditions which resemble the latter clinically. They cite several clear cut cases, which seem to substantiate their view.

But there is still much difference of opinion among internists as to the real value of any one functional test in nephritis. This can be well understood when it is considered that the classification of the different forms of nephritis is yet quite hazy and is constantly undergoing more or less change. On theoretical grounds, however, it would seem that phenolsulphonephthalein could be employed with advantage in cases of tubular nephritis (formerly and wrongly called parenchymatous nephritis), but would be unreliable in glomerular nephritis (interstitial nephritis) since Geraghty himself states that the drug is excreted by the tubules of the kidney, the glomeruli taking little or no part in its elimination.

[1] Geraghty and Rowntree. Transactions of the American Association of Genito-Urinary Surgeons, Vol. V, 1910.

WHAT HAS THE WORLD TO FEAR MOST FROM THE WAR?

BY

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What has the world to fear most from the war? Is it a collection of nations impoverished by the awful drains upon their resources made by this terrible conflict? Is it a people beggared and ruined, a continent devastated, its cities in ashes, its soil laid bare, its forests smouldering—the toil and wealth of centuries gone? No, these are not what Europe or the world at large has to fear most from the war. Famine can be relieved, suffering lessened and alleviated, towns and cities rebuilt, fields replanted, harvests again made to grow, civilization restored, and the most cruel wounds healed, even tho scars remain. Disease is what the whole world must look for as the most baneful result of this awful war. The "white plague" that science has sought to check, to stem the dreadful spread of, is the most dreadful menace now facing Europe. Another winter with millions of men, ill and wounded, exposed to the cruel colds of a barren land, sleeping upon wet soil, in rain-drenched clothes, living in trenches that are as canals after every heavy rain;

the wounded and sick often housed in damp, foul-aired buildings hastily converted into hospitals; the bedding, when it is obtainable, often that upon which the sick before them have died; all these dreadful conditions are already only too apparent to the surgeons and nurses with the allied armies, and no lengthy warning is needed to guard them in their heroic work against the conditions which now threaten the spread of a plague far worse than man has ever known.

When the war is over and the sick and wounded are sent home the world will rejoice in the return of peace; the horrors of battlefield and hospital will be over, so it will be believed, but the worst phase of the awful conflict will yet remain to come—the spread of tuberculosis sure to follow the return of many infected soldiers to their home circles. The weeks of suffering from cold, the days and nights of sleeping in the same wet clothes, upon the cold and damp soil, or crouching in trenches that are knee-deep in water, have lowered their vital resistance and severe colds have been contracted that at first seemed nothing serious. But soon the "seeds" of tuberculosis, so to speak, are sown, and before it is realized the disease has fully developed.

The Franco-Prussian War of 1870-71 carried tuberculosis into thousands of homes thruout France and Prussia. As a consequence, the disease was discovered after that frightful war where it had never been known before, and not only in families of persons whose ancestors had lived to advanced ages but to whom consumption, or pulmonary tuberculosis, was a disease unheard of.

Today Europe is confronted by a far more dreadful enemy than siege guns, air craft or submarines, that in the twinkling of an eye can send hundreds of lives into eternity and destroy millions of dollars of property. It is threatened by a scourge that sows its seeds in one generation, destroys it in harvest season, and leaves another generation to face a similar condition. For years science has fought this scourge, tuberculosis. The world as a unit has risen to seek to stamp it out; millions of dollars have been spent in endeavors to prevent it, to save those already attacked and to preserve those yet unborn from falling prey to its ravages.

The nineteenth century closed with the fight against tuberculosis being waged by the medical profession of the entire world; the twentieth century opened with a gratifying decrease in the number of cases. Tenement houses wherein the germ was believed to exist had been destroyed, the importance of sanitary homes had been established, and the crusade against ill-ventilated factory rooms had made substantial progress. Cities had taken up the work of prevention and treatment. The scourge was meeting strong and mighty opposition in the movement for fresh air, good ventilation, the better housing of the poor, the prevention of over-crowding of dwelling places, and the elimination of old disease-laden tenements and factory buildings. Of importance, also, was the fight against the sweat shop—the greatest menace to health—the over-working of the laborer in congested workrooms.

Has all this failed? Will Europe, and America, too, thru immigration from Europe, have to suffer from the "white plague" as never before? The conditions in Europe point to it and the end is not in sight. It has been said that the war thus far has placed crape upon the doors of millions of homes thruout Europe. Is it going on in-

creasing the number even after peace is restored by carrying into countless other homes the seeds of a scourge that is far less merciful than war? War does not mow down women and children with its shell and shot, whereas the "white plague" does, attacking ruthlessly the babe at the mother's breast, the mother herself, the child at play, the youth at school—all are its prey save the few who escape, like a certain proportion of soldiers in battle, why and how they cannot tell you.

Europe has, therefore, far more to fear from her war than a bankrupt treasury, a devastated country and a prolonged pauperism among its people—it has a scourge, a cruel, relentless and awful scourge to fear—a scourge that has baffled the science of the past century more than any plague of old ever baffled those who sought to combat it. The sequel to the war now raging, that civilized man needs to fear more than any other, is tuberculosis, the pitiless enemy of mankind. No field of activity will call, therefore, for more earnest, more faithful or better organized effort on the part, not alone of the medical profession, but of thoughtful people generally, than the fight that must be made to keep the great "white plague" from taking new and increased toll from the productive classes. Only by the exercise of such effort can the world hope to avoid the prolongation of one of the gravest consequences of the war.

Eczema.—For ordinary cleansing in the course of an eczema it is best to avoid the use of soap and water but to employ instead boric acid solution, solution of bicarbonate of soda, and bran or starch baths. When the ointments or other applications have collected and hardened upon the affected area they are most easily removed by the use of petrolatum, olive oil, or sweet oil.

—SAMUEL HORTON BROWN.

Rational Organotherapy

Heredity and Internal Glands of Secretion.—The question of the influence of the glands of internal secretion has also invaded the field of heredity says the editorial writer in the *Boston Medical & Surgical Journal*. It has been advanced that the glands of internal secretion are mainly concerned in meeting the brunt of this defective heredity, in that they are rendered deficient to some extent in the production of the materials necessary to uphold natural immunity and to prevent this sensitization. The rôle of tuberculosis in the so-called Addison's disease is well known. Here the disease is distinctly a tubercular disease of the adrenals. The mental and emotional disposition of tubercular individuals—that is, their peculiar spirit of cheerfulness and hopefulness—savors very much of a gland overactivity somewhere, because of gland deficiency elsewhere. The control of the secretions from the various glands of internal secretion depends upon an antagonistic control of the other glands of the system. The hyperactivity of the reproductive organs in advanced tuberculosis points in the same direction. The relation of gland development to mental development, even aside from that associated with the thyroid, has been much discussed, and it seems that much of the hereditary diathesis must soon be definitely associated with gland conditions. It is for this reason that organotherapy looms so large in conditions associated with heredity, and altho organotherapy may seem to the rankest, empiricism, it does appear to be the only rational therapy in a great many conditions of unknown origin.

Hyperthyroidism.—Morris describes in *Medical Record* (Nov. 24, 1917) the treatment necessary for this condition. Absolute mental and physical rest is essential in all fully developed cases. A nurse who has had considerable experience in handling such cases is preferable. En-

couragement has a good effect. Plenty of fresh air is beneficial. Alcohol and tobacco are harmful. Two tepid sponge baths or one warm tub bath, daily, are helpful. Tea and coffee are harmful.

It has been taught that a diet rich in protein should be given to offset the increased protein exchange which occurs in hyperthyroidism. Lately, however, the experiments of Falta go to show that administration of protein causes an increased thyroid secretion; and the experiments of Rudinger show that this increased protein exchange may be depressed to normal by the administration of an almost protein-free diet, but rich in carbohydrates.

Extracts of all the endocrine glands, alone or in combination, have been tried without benefit. It is almost unnecessary to state that the administration of thyroid extract or of iodine only aggravates the condition.

Various sera have been tried, without especial benefit. Beebe's serum, obtained from thyroidectomized animals, seems to be the best of that class of preparations.

Digitalis and strophanthus seem to have little or no effect upon the heart rate. The tincture of convallaria sometimes has a very beneficial effect on the tachycardia. Belladonna, in the form of the tincture or the extract, does good by decreasing excitability and restlessness. A capsule containing atropine sulphate, gr. 1-150, Squibb's extract of ergot gr. 5 and quinine hydrobromate gr. 5, given three times daily, produces good results.

Injections into the gland of boiling water have been tried without much improvement. But Watson has reported securing very beneficial results in the relief of symptoms by injecting small amounts of a weak solution of quinine and urea deeply into the thyroid gland. Watson recommends this form of treatment for those cases not severe enough to justify surgical removal.

The effect of radium treatment on thyroid hypersecretion is decreased vascularity and a reduced secretion.

X-ray treatment has given exceptionally good results. By using the Coolidge tube, the burning rays are screened and the penetrating rays are allowed to pass in. The strength of the ray is measured by a colorimeter. The dose should be just a little less than the erythema dose. The first effect of roentgenotherapy is a slowing of the pulse rate, which is followed by a diminution of the nervousness and the disappearance of the tremor. Later, a gain in weight and a slight decrease in the size of the tumor occur. The exophthalmos is not much reduced. It is MacKenzie's opinion that a good way to handle these cases is to cause myxedema by means of the X-ray, and then relieve the myxedema by the administration of thyroid extract. Also irradiation of the suprarenals causes a marked improvement in hyperthyroidism.

The time required for a complete course of X-ray treatment varies from six to eighteen months.

The surgical treatment is also very important. In applying any surgical measures to these patients, the operator must remember the possibility of the patient's dying of fright and should, therefore, use the greatest caution. In very severe cases the surgical work has to be done with the patient in bed, in which case the operating room is carried to the patient's room instead of the patient being carried to the operating room.

Some surgeons prefer local anesthesia, some choose ether by intratracheal insufflation, and others prefer a combination of the two methods.

At present, the removal of one lobe, the isthmus, and part of the other lobe of the thyroid, is the chief surgical procedure. The mortality in such operation, when done by skilled men, is less than 5 per cent.

The preferable treatment is to use first the medical and X-ray opportunities and to resort to surgery when those methods have failed.

The Real Dermatology.—Leonard Williams, in *Medical Press and Circular* (Oct. 24, 1917), says that the efficiency of the skin as organ of drainage is directly dependent upon the thyroid gland. When that gland is at fault, the fact is immediately reflected in the integument, which becomes dry and generally scaly. In the present day therapeutics of all skin lesions—as indeed of most other conditions—too much is made of the microbe and too little of the soil. So far as the skin is concerned, its health is so intimately de-

pendent upon the thyroid that it is almost safe to say that this little gland contains all the cutaneous laws and most of the prophets. Radcliffe Crocker tried to express the riddle of dermic disease in terms of the thyroid. That he was only very partially successful was not altogether his fault, for he was betrayed by fashion into giving to human beings with slight thyroid insufficiency doses of thyroid extract which had been found suitable for apes which were entirely thyroidless. If the dermatologist of today would wipe that particular slate clean and recommence the study of the question on the basis of small initial doses, not only of thyroid extract, but also of the extracts of other endocrine glands, he would not only contribute much of real value to the therapeutics of skin diseases, but he would do something to throw light on some of those wider fields of dermatological inquiry to which the writer has, with ostensible levity, but with a real underlying humility, ventured to direct your attention.

Akromegaly.—Symmers in *Interstate Medical Journal* (Nov., 1917) states that hyperactivity of the anterior lobe of the pituitary, coming on before the completion of epiphyseal ossification, results in giantism, that is to say, the individual is overgrown but well proportioned. After epiphyseal ossification is complete, however, hyperactivity of the hypophysis results in akromegaly with or without giantism. That the relationship between akromegaly and giantism is close is shown by the fact that a considerable percentage of akromegalics are giants and that a still larger percentage of giants develop akromegaly.

Changes in the thyroid are commonly found in akromegaly, and consist in interstitial fibrosis, adenomatoid hyperplasia, and the like. In fact, the frequency with which the thyroid is altered, taken in conjunction with the enlargement of the hypophysis in myxedema and after experimental thyroidectomy, had led certain observers to the conclusion that interference with the normal interaction of these glands is a formidable factor in the production of akromegaly.

Glycosuria is a symptom of frequent occurrence in akromegaly. Sometimes it is a sign of genuine diabetes due to sclerotic and hyaline changes in the islands of Langerhans in the pancreas. At other times it is but an expression of diminished tolerance for carbohydrates brought about by increased activity of the hypophysis. In still other cases of akromegaly the patient develops signs of hypophyseal insufficiency marked by increased tolerance of carbohydrates, impotence, obesity, etc.

Akromegaly usually begins in the third or fourth decade. It is rather more frequent among men than women. Heredity appears to play a role. For example, it has been observed in both parents and a child, in father and son, in father and daughter, in mother and daughter, and, in the case of two brothers.

Thyroid in Gynecology.—Hayd in *New York Medical Journal* (Dec. 8, 1917) recommends thyroid extract in treatment of the genital hemorrhages in women, the causes of which are obscure, until a diagnosis can be established and the best kind of subsequent treatment decided upon.

In amenorrheas of young girls, where the periods are irregular, scanty, or absent, the author relies upon thyroid feeding in gradually increasing doses in conjunction with good hygiene, proper living and exercise.

The Internal Secretion of the Testes.—Wheelon in *Interstate Medical Jour.* (Dec., 1917) arrives at the following conclusions in regard to the internal secretion of the testes:

1. It has been shown that the cells of Leydig act as secretory cells and that pathological conditions alter their normal activity.

2. The observations on cryptorchid individuals demonstrate that the development of secondary sexual characters is independent of the presence of functioning spermatic tissue. The selective action of the X-ray gave further evidence of the same fact.

3. The effects of vasectomy upon the somatic characters have been shown to be negative, the presence of the interstitial cells being sufficient to produce all the secondary characteristics of maleness.

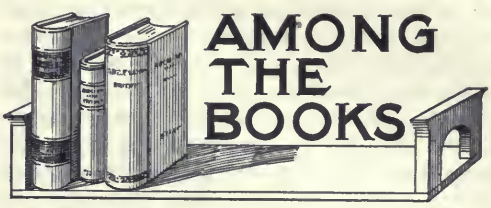
It seems evident that the presence or ab-

sence of Sertoli's cells and spermatic cells does not affect the secondary sex characters, and that the internal secretory function is the sole property of the interstitial cells. This tissue not only exercises a protective influence, but it determines the appearance of the somatic male characteristics.

The behavior of Leydig's cells during the embryonal period and at other times of development point to the same conclusion. The first appearance of Leydig's cells in the embryo precedes the sexual differentiation of the primordial genital cells. The structure of the former indicates an exceptional degree of activity during embryonal life. The normal development of the secondary characters in the course of postnatal existence can be ascribed only to the function of this tissue. From birth to about the beginning of puberty, at the time when somatic sexual divergence is least clearly marked, the interstitial cells undergo the minimum relative development.

These cells of Leydig, altho of mesodermal origin, are able actively to produce certain specific substances in the blood stream; such being the case, Bouin and Ancel felt justified in calling them, in their totality, "*an interstitial gland.*"

Increasing the Efficiency of Placental Extracts.—Quite often the therapeutic value of placental extracts may be enhanced by the addition of mammary extract, and it has been suggested by Harrower that a combination may be useful as a galactagogue and post partum uterine tonic. The placental extracts of commerce are usually made from the fresh placentae of ewes, altho occasionally that of the cow is used. It is deprived of its blood, washed, chopped and dried *in vacuo,* as in the preparation of other animal extracts. The dry powder is quite innocuous when given internally, and represents approximately 15 per cent. by weight of the fresh substances. The dose varies from 3 to 10 grains (0.2 to 0.7 grams) two to four times a day. Hypodermic injections of aqueous extracts have been discontinued, owing to the excessive local reaction which so often results. Gaifami has shown that this method is accompanied by fever and considerable pain.



Diseases of the Chest and the Principles of Physical Diagnosis.—It is a matter of the greatest moment, in the examination of an individual suspected of suffering from pulmonary tuberculosis or other affections of the chest, that the medical practitioner should be well versed in the accepted methods of physical diagnosis. It is of even greater importance that an examiner should be possessed of a thoro knowledge of the most modern modes of diagnosing heart disease, functional or organic. The means for determining abnormal conditions of the heart have been completely revolutionized during recent years, mainly owing to the work of Sir James Mackenzie and other British specialists in this direction. Not only has a new conception of the significance of certain heart conditions arisen, but accurate diagnosis of the same has been rendered possible by the invention, or rather evolution, of various mechanical methods for making examinations. In no branch of medicine, indeed, has greater progress been made than in this direction. Dr. George William Norris and Dr. Henry R. M. Landis in their *Diseases of the Chest and the Principles of Physical Diagnosis,* (W. B. Saunders Company, Phila., 1917, price, $8.50 net) have written a practical book on the physical diagnosis of the heart and lungs in health and disease which is bound to fill an important place in the literature of the subject. Especially have the authors laid emphasis upon the necessity for the medical examiner to fully comprehend the laws of sound production and transmission, as only in this way can the results of percussion and auscultation be intelligently interpreted. Consequently, the question of acoustics in physical diagnosis is dealt with at very considerable length. The history and theory of percussion are also exhaustively considered, as likewise is the subject of auscultation in relation to the diagnosis of lung affections.

The examination of the circulatory sys-

tem is also treated at great length, and all the most recent methods for properly accomplishing this purpose and the manner in which they shall be used are closely described. These first two sections are written by Dr. Norris, in which is included, however, a chapter on the electrocardiograph contributed by Dr. Edward B. Krumbhaar. The last two parts of this work are written by Dr. Landis and discuss diseases and affections of the lungs generally and diseases of the pericardium, heart and aorta. The description of pulmonary tuberculosis in all its phases is excellent, as might be expected from the pen of the authority who discusses this subject. The chapter on diseases of the diaphragm is particularly interesting, and the account of the position, physical signs and etiology of a subdiaphragmatic abscess is one to which medical readers will do well to pay close attention. The two authors have done their work exceedingly well and together have presented a book which is not only the most complete and satisfactory exposition of the subject in the English language, but one which cannot fail to prove of very great use to medical practitioners. Illustrations have been made use of on a large scale, to exemplify and render clear the text. In saying that the illustrations are in keeping with the written word, we can offer no higher praise. The work as a whole is a credit to authors and publisher. No physician who aims to keep up-to-date should be without it.

Notes for Army Medical Officers.—It is only in the nature of things during a war of the magnitude of the present one, that many manuals on the treatment of wounds, disease, sanitation and other subjects pertaining to the medical side of warfare, should be brought out. Among the war manuals which have been issued recently in this country there is one which is especially deserving of approval. *Notes for Army Medical Officers* (Lea and Febiger, 1917, price, $1.00) is the outcome of a series of lectures delivered at the Army Medical School in Washington by Lieut. Col. T. H. Goodwin, R. A. M. C. and put into book form by permission of the Surgeon-General of the United States Army. Col. Goodwin is admirably fitted both by literary ability and experience in medico-military work to write a war manual. It may also be said that while in this country, Col. Goodwin has gained the respect and affection of all those who have come in contact with him, and that he has served the cause of the allies, of this country and of his own land in no uncertain way by his lectures and writings. Particularly has he made many points clear which had been formerly obscure. He has explained just what the British Surgeons and medical men have done, and are doing, and the reasons why American physicians and surgeons are needed in Europe in large numbers. In short, his missionary work has been extremely effective. The little work before us is in every way a very useful handbook for members of the American medical profession proceeding to the front. As Major-General Gorgas says in his foreword, "Many of the perplexing questions which have presented themselves to our officers are here answered in a most clear and interesting manner." If any section of the book may be singled out for more favorable comment than another, it is that devoted to fractures. The treatment of these is described tersely but sufficiently, and some of the methods are well illustrated. Sanitation is another topic succinctly, albeit adequately, discussed. The manual contains all that is needed to render it a valuable reference book to the physician taking up military service, and to whom, very naturally, such surgical work as is met with in war is comparatively new. The salient points are properly emphasized and the little book is written in language that admits of no confusion or misunderstanding. Col. Goodwin has performed a very great service for the American medical profession in thus placing at the disposal of his medical colleagues the results of his ripe experience. It is a pleasure to commend a work of this character.

Venereal Diseases.—At the present time, the problems of genito-urinary surgery and venereal diseases are very much to the front. Therefore this new edition of *White and Martin's Genito-Urinary Surgery and Venereal Diseases,* by Edward Martin, A. M., M. D., F. A. C. S., Benjamin

A. Thomas, A. M., M. D., F. A. C. S. and Stirling W. Moorhead, M. D., F. A. C. S., (J. B. Lippincott Company, Philadelphia and London, 1917, price, $7.00) is very timely. This is the tenth edition, which is sufficient proof in itself of the excellence of the work and of the esteem in which it is held by the medical profession. In the present volume it has been re-written, re-set and re-illustrated, and in every respect brought up-to-date. All the recent remedies have been incorporated in the text, and the authors have faithfully endeavored to present those therapeutic methods which have received the general approval of the clinically experienced. The book is profusely illustrated by 422 engravings and 21 colored plates, and from all standpoints one of the most complete, comprehensive and authoritative works on this important subject we have today.

Practical Sanitation.—Hygiene and sanitation are very much in the foreground at the present time. The war thus far has been a triumph for sanitation. The application of sensible public health measures during recent years has resulted in a great decrease of mortality and a corresponding increase in the standards of health generally. It is obvious that the nation which possesses the largest number of healthy citizens has the best chance by far of making headway, socially and economically. Dr. Fletcher Gardner in his book, *Practical Sanitation* (C. V. Mosby Company, 1917, 2nd edition), has attempted as he says in the preface, to fill a vacancy in medical literature by providing a plain, non-technical exposition of the duties of the health officer. Dr. Gardner is himself a well known health commissioner, and as a result of training and broad experience is well qualified to write on the subject of public health and personal hygiene.

The first part of the book deals with epidemiology, and is a carefully thought out and well written presentation of the causation, symptoms and methods of prevention of the epidemic and endemic infectious diseases. The role played by the animal parasites in the dissemination of disease is given especial attention.

The second part treats of general sanitation, and the third part is devoted to laboratory methods. The work in its original form was written by Dr. Gardner in collaboration with Dr. James Persons Simonds, and in the present edition the contributions of Dr. Simonds are included, while the entire book has been revised with the aid of Dr. Simonds and Aubrey H. Straus. The first edition was intended principally as a hand book for health officers. The revised edition is somewhat more enlarged in scope and altho keeping to the original viewpoint, more attention is very properly given to the importance of education in health matters.

Such a work is peculiarly apropos, at the present time, and may be recommended to public health officers and, in fact, to all those interested in hygiene, as a book supplying a wealth of valuable material on the subjects treated. It covers the field of practical sanitation in a thoro and comprehensive manner, and is a valuable contribution to a subject that is of constantly increasing importance.

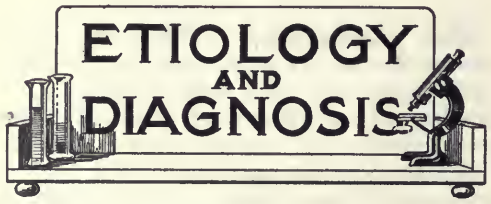
The Exceptional Child.—Everyone knows that *his* child is exceptional. Unfortunately the marvelous infants fail to develop into the promised prodigies. The development of childhood into normal maturity depends upon more than the expression of hereditary talents. The influence of environment and training is requisite to open the pathways of the mind and enable the inherent powers to expand to their fullest flower.

The study of the exceptional child, regarded merely as a youngster who deviates from the average type, yields greater hope than contemplation of the shortcomings of atypical children who are distinctly below the plane of normality. A consideration of exceptional children as variations from type constitutes them the moving power of our civilization.

The problems of the education of exceptional children are interestingly discussed by M. P. E. Groszman in *The Exceptional Child* (Charles Scribner's Sons). The normal child is not forgotten in the midst of discussions of exceptionally bright children or the feeble-minded group. The importance of accurate diagnosis and the means

of testing the educational possibilities of children are treated with a rational understanding of the meaning of intelligence and the value of early clinical investigation. Eugenic problems, legal provisions, the special indications for educational treatment in the home and in the school afford topics that emphasize the need of an adequate consideration of the necessity for intensive and individualized training. The modes of attack upon the problems of preventing, adjusting and relating specific exceptional types to the work of the world are treated in unusual detail.

Physicians will find particularly useful material contained in the one hundred and fifty pages devoted to a medical symposium which covers a large number of themes naturally related to the educational development of exceptional children. It is always interesting to note that pedagogues are growing to recognize the particular value of medical facts in the development of their educational theories. In few volumes is it more clearly expressed than in *The Exceptional Child*.



Diagnosis of Goiter.—The diagnosis of hyperthyroidism is difficult at times, especially when there is no exophthalmos or decided enlargement of the thyroid. Watson (*Ill. Med. Jour.*, Nov., 1917) points out that when these symptoms are absent the heart and nervous system are often treated without recognizing the underlying cause of the disease. The symptoms first noticed may be slight insomnia, nervousness, and accelerated heart action, which are increased on exertion. Exophthalmos is present in only a small per cent. of the cases of moderate hyperthyroidism and is not demonstrable in every case of severe toxic goiter. When enlargement of the thyroid gland occurs at puberty, menstruation or pregnancy, it may be physiologic and temporary; if it follows severe or prolonged emotional strain, it is more likely to be pathologic. In eighty per cent. of the exophthalmic patients coming under my observation the onset was traced to an accident, sudden fright, parturition, grief, worry, climacteric or infectious diseases. Simple goiter may change into the toxic type at any time. Ninety-four per cent. of all goiters occur in women.

The Diagnosis of Nervous and Mental Diseases in Enlisted Men--Report of Mental Hygiene War Committee.—One of the most far-reaching of the original medical measures that are now being carried out to insure a minimum of unfit men being accepted for the armies of the United States are those devised for the purpose of checking up on the nervous and mental conditions of recruits. *Amer. Jour. of Public Health* (Oct., 1917). The committee states that this is the first attempt ever made in organizing an army to take into consideration the "neuropsychiatric qualifications of the men." The report has been accepted and officially incorporated into the instructions of the Surgeon-General to medical officers charged with examinations of recruits in general and especially to consulting neurologists and alienists assigned to military camps. The following are the instructions of exclusion on neuropsychiatric grounds:

RECRUITS TO BE EXCLUDED.

I. Nervous Disease.

(a) *On the Basis of Disease*

1. Tabes. (Look for Argyll-Robertson pupils, absent knee and ankle jerks, ataxia of station and gait.)

2. Multiple sclerosis. (Look for absent abdominal reflexes, nystagmus, intention tremor.)

3. Progressive muscular atrophy and syringomyelia. (Look for fibrillary tremors, atrophy in the small muscles of the hand and of the muscles of the shoulder girdle; sears on forearm and fingers caused by burning; deformities of feet.)

4. Epilepsy. (Look for deep scars on tongue, face and head; voice. Where diagnosis depends only upon history of epileptic attacks given by the patient, the latter should be asked to give the address of the physician who has treated him. This history must then be verified by a letter from the physician.)

5. Hyperthyroidism. (Look for persistent tachycardia, exophthalmos, tremor, enlarged thyroid.)

(b) *On the Basis of Symptoms or Combination of Symptoms or History*

1. Unequal pupils+irregular pupils+Argyll-Robertson pupils.

2. Nystagmus (in one not an albino)+absent abdominal reflexes+intention tremor.

3. Absent knee jerks associated with some one other organic neurologic symptom.

4. Exaggerated tendon jerks+Babinski.

5. Disorders of station or gait.

6. Disorders of speech (on test phrases) +facial tremor+one other organic neurologic symptom. Stammering and stuttering *per es* is not significant of an organic neurologic conism, prevarication, suspicion; auditory or visual hallucination, paranoid ideas.

II. Mental Deficiency.

Look for defect in general information with reference to native environment, ability to learn, to reason, to calculate, to plan, to construct, to compare weights, sizes, etc.; defect in judgment, foresight, language, output of effort, suggestibility, stigmata of degeneration, muscular incoördination. (Consult psychometric findings.)

III. Drug Addiction.

Look for pallor, dryness of skin; flippancy, mild exhilaration (if under the influence); cowardly, cringing attitude, restlessness, anxiety (if without the drug); distortion of the alae nasi; contracted pupils (morphine) or dilated pupils (cocaine); dirty deposit at junction of gums and teeth; bluish and whitish needle scars on thighs and arms.

[Photo by International Film Service]

ROUMANIA'S QUEEN AS HOSPITAL NURSE.

The royal palace at Bucharest, Roumania, has been transformed into a hospital for the wounded soldiers and the beautiful Queen Marie is at the head of the nursing staff. She has been tireless in her efforts to administer to the wounded soldiers. This picture shows her at the bedside of a wounded man. She has just finished cutting up his dinner as his wounds prevent his using his hands.

Hot Foods as Factor in Dyspepsia.—Manquat (*Jour. de Medicine de Paris*) relates various experiences which converted him to the opinion that in a very large proportion of cases dyspepsia and aerophagia are brought on and maintained by the habit of taking beverages and food too hot for the tissues to bear without injury. This is particularly the case with hot soups, tea, etc., taken on an empty stomach. The hot fluid passes so rapidly thru the mouth that the buccal mucosa is not injured. When the hot drink is taken at the close of a meal, the injury is comparatively slight as the stomach walls are protected by other food. The thermometer will show temperatures of 60 or even 68 C. (140 or 154 F.) in soups and other dishes currently taken, and even higher than this in a baked potato. He found that those dyspeptics accustomed to hot beverages and hot soups usually had long, narrow and sagging stomachs. The stomach is tender under pressure and spontaneously painful at a variable period during digestion. Hypersecretion with varying acidity and constipation are the rule—all indicating a tendency to chronic gastritis. The action of ptyalin on starch becomes reduced at temperatures over 45 C. (113 F.) and pepsin may have a similar temperature range of action. The hand cannot be held in water at 45 C. (113 F.) without modifications in the respiration and the general circulation. These modifications must certainly be more profound when the extensive and delicate mucosa of the stomach is exposed to such high temperatures. In practice, when Manquat has been able to overcome the habit of hot drinks and foods, the dyspepsia improved notably. The symptoms from stagnation in the stomach and the aerophagia were the first to show the benefit. When heat is indicated for the stomach, he adds in conclusion, "apply it to the outside."

The Treatment of Hypoplastic and Mentally Impaired Children.—McCready states in the *Medical Record* (Dec. 15, 1917) that the defects with which the pedologist deals are the result of interference, from many and diverse causes, with the normal processes of growth, which causes are either hereditary or environmental in character. Either class of causes may predominate as an etiological factor in a given condition, or group of conditions, to which an individual is subject—seldom, however, is either of these classes found alone.

The various stigmata of degeneracy are somatic manifestations of hypoplasia. It may some day be possible, when our knowledge of endocrinology has become more complete, to trace by means of the stigmata of degeneracy the retardations and exacerbations in function, changes in chemical complexity and even structural abnormalities of individual glands of internal secretion, even back to early intrauterine and early postnatal existence. More even than this is possible, as a result of an enlightened knowledge, it may be that the mysterious directive forces of hereditary transmission will be found, not to reside in the essential structure of the chromatin, but in the intricate harmonic constituency of the cells.

The hypoplastic child is distinguishable from his more normally constituted fellows by various anatomical, physiological and psychic characteristics. The clinical picture most often seen is the under-developed, badly nourished child whose unstable nervous system is still further handicapped by the effects of reflex disturbances arising from nasal obstruction, defective vision, or perhaps phimosis. These and similar conditions are a part—not the cause—of the hypoplastic complex. Such children are subject to delayed epiphyseal union, as revealed by the X-ray, hypotonicity of ligaments and muscles, postural defects, visceroptosis and hernia. Incontinence of urine and feces is frequently present. The *signe du sourcil* (deficiency of the eye-brows in the outer third) is often present and is considered by some a sign of thyroid deficiency. Delayed sexual development is common, tho sexual precocity may be found. Premature erotism leading to sexual misdemeanors is frequent in hypoplastic children—especially in emotional, physically inferior girls. Practically without exception all girls charged with sexual offences have enlarged and over-active thyroids, in many even before the development of secondary sexual characteristics. The high-arched palate produced by yielding of the palatine bones owing to their relative poverty in calcium is a fairly constant symptom of hypoplasia, dental malocclusions are likewise common, and variations in bodily temperature and irregularities in pulse rate are frequent. Abnormalities in size and shape of the sella turcica indicating variations in size and function of the pituitary gland are common in hypoplastic children and within certain limits may be considered merely as stigmata of degeneracy. Information of positive value may sometimes be obtained thru examination of the blood and thru biochemical studies of the urine.

In a large proportion of mentally impaired children, the impairment is but a symptom of the general hypoplastic condition and improvement and cure of such children depends on the stimulation of the correlative forces of growth, and any line of treatment or education is futile which does not reach and correct the underlying causes.

Treatment of hypoplastic children should be initiated as early as possible. The younger the child the better the chance of counteracting faulty hereditary influences and correcting the effects of improper environment. Among the most important of the hygienic measures is the matter of diet. The diet of the hypoplastic

child should be based upon scientific principles. Not only should the caloric value be regulated according to his needs but the proportion of protein, fats and carbohydrates as well.

says that following close upon Koch's discovery of the tubercle bacillus many attempts were made to find some method of destroying the bacillus without injuring the somatic

[Photo by International Film Service]

YOUNGEST NURSE ON THE FRENCH FRONT.

Photo shows the youngest nurse on the French front, the nine year old Countess de Bourbon, who has removed to her native village and who helps the grown-up nurses at the first aid station.

Results of Treatment of Tuberculosis by Means of a Bacillus-Destroying Compound.—Von Unruh in *Medical Record* (Nov. 17, 1917)

cells of the host. At that time relatively little was known of the other forms of tuberculosis, such as joint, kidney, bladder and intestinal

types, hence the pulmonary type was chiefly studied and conclusions derived therefrom. An enormous number of drugs intended to act as tuberculides were exhibited by mouth, but the gastric and general constitutional symptoms were so disturbing that nothing was gained thereby, and in many cases actual harm was done.

To this end a happy combination has seemingly been found in the use of two drugs which we have been employing for the past five years in tuberculosis not only of the pulmonary type, but of all other types as well. The value of this combination lies in its power to bring about a chemical disintegration of the lipoid envelope of the tubercle bacillus and its ultimate destruction. These drugs are echinacea angustifolia and inula helenium, both described in the *American Dispensatory*.

Studies, clinically and in the laboratory, show that even with a bad prognostic cell count, the influence of the I-E compound will often reestablish a normal or nearly normal Arneth count, and raise the phagocytic index.

The general order of sequence in the cessation of signs and symptoms is first a reduction of temperature and pulse to normal or near-normal; next, the cough and expectoration diminish and the "Arneth count" shows return to normal. Phagocytosis is then found to be active and body weight increases. The last of all to clear up are the physical lung signs, tubercle bacilli being absent long before.

Conclusions arrived at from a study of over 150 cases are as follows: The I-E compound (1) destroys tubercle bacilli; (2) increases phagocytosis; (3) favorably influences fever, reducing the temperature to normal; (4) materially assists in the elimination of toxins from the organism; (5) controls night sweats; (6) increases appetite and favors assimilation of food; (7) effects an arrest of the disease or a clinical cure in virtually all incipient cases and in about 50 per cent. of moderately advanced cases. In far advanced cases it has no appreciable effect.

Frostbite.—Smith writes in *N. Y. Medical Journal* (Jan. 5, 1918) that the effects of extreme cold upon the exposed portions of the body such as the fingers, ears, nose, toes, hands and feet, show three forms: 1. The condition of vascular constriction and local anemia followed by blood-vessel paralysis and extreme hyperemia, with transudation into the subcutaneous tissue, does not last long as a rule. 2. If the degree of cold is sufficiently intense, there is ulceration. This may appear at once in the acute forms. The epidermis is raised by a serous or bloody fluid, which breaks and leaves an ulcerated surface that is slow to heal. 3. If the effect is more intense, there are thrombosis and gangrene. Prophylactic measures are important. The hands and feet should be well protected, socks changed frequently, the extremities kept as dry as possible. Accustoming the feet to cold water rubs increases the resistance to low degrees of temperature. Massage with stimulating lotions or dry friction is beneficial. In extreme cold, sprinkling powdered capsicum in the socks will assist in keeping the feet warm.

In the first degree, the application of cold with friction until the circulation is restored and pain relieved is all that is necessary, followed by powdering the part with boric acid, wrapping in wool, and elevating. Evaporating lotions to relieve too great swelling and stimulating applications, such as spirits of camphor, kerosene, and diluted alcohol, are to be used as needed. In the second degree, the ulcerations should be protected from infection by antiseptic dressings. Saturated solution of warm boric acid to cleanse, followed by sterile vaseline and gauze with, later on, mild cauterization with silver nitrate if healing is slow, or the application of scarlet red ointment, balsam of Peru, and castor oil is effective treatment. In gangrene, usually of the dry form, spontaneous separation should as a rule be awaited, trimming off all redundant tissue or any gangrenous remains. In the moist form, separation may be hastened by the use of scissors and knife. The line of demarcation should be awaited and the line of incision should be below it so as not to interfere with the protective zone formed at the line of demarcation. In the presence of ascending infection, deep incisions should be made in the infected tissue and flushed freely with chlorazene or Dakin's solution.

In chilblain, the treatment is local and constitutional. Locally apply

℞ Iodine 4
Ether 30
Collodion flex. 100

A simple protective dressing with boric acid or the following ointment will be found beneficial:

℞ Phenol 1
Tr. iodini, Acidi tannici ..... āā 2
Simple ointment 4

Internally, give calcium chloride or lactate, in doses of seven and a half grains, three times daily in chloroform water. Do not give longer than four or five days. There is a lack of calcium salts in the tissues of those predisposed to chilblain, and here the administration of these salts seems to act favorably.

Hookworm Disease.—According to McCulloch in *Southern Medical Journal* (Dec., 1917) this is one of the few diseases in which we fortunately have what may be called a specific treatment. Three drugs have this specific action: thymol, oil of chenopodium and betanaphthol, and of these chenopodium is the most efficacious; thymol stands second, and betanaphthol third. Betanaphthol sometimes causes irritation of the kidney, and even perhaps nephritis. Oil of chenopodium expels the round worms as well as the hookworms, but requires prompt purgation; occasionally it is followed by unfavorable results and even by death. Thymol must be given under precautions as to diet and

even then it is followed by unfavorable poisonous symptoms and even by death in some cases. They have had much more experience with the treatment of hookworm disease in Porto Rico than in any other place. In the evening an ounce of a saline cathartic such as magnesium or sodium sulphate is given, and the patient is kept in bed and without food until the next day at 1 o'clock p. m. Two grams of powdered thymol (adult dose) in capsules are given at 8 o'clock in the morning and the same dose is repeated at 10 o'clock. Stiles prefers to divide

[Photo by International Film Service]

BRITISH SURGEONS TREATING WOUNDED ARAB.

British surgeons wearing disinfected masks treating a wounded Arab. Because the injuries have long lacked attention the masks are worn as a precaution.

the thymol into three equal doses, administered at 6, 7, and 8, and followed by salts at 10 a. m. The same amount of grain-hour action is obtained, but if the patient has an idiosyncrasy to thymol, the effects will be less on a one-third than on a half dose, and less on a two-thirds than on a three-thirds dose. If the second dose is well taken, the third dose rarely produces untoward effects. At noon a purgative dose of salts is administered. In the afternoon light diet is allowed, avoiding oils or fatty foods such as butter and milk. Solvents of the drug, such as alcohol and oils, are to be avoided during the treatment, as they are likely to lead to the absorption into the system of poisonous amounts of the drug.

Colds.—Dover's powder is still used at the onset, oftentimes with the idea of aborting the cold, according to a writer in the *American Jour. of Clin. Med.* Unfortunately, medicines can rarely strangle germs. It is not as popular as it used to be, possibly because more people now seem to be susceptible to the disagreeable after-effects of opium than formerly, or because of the anti-opium hysteria which has spread over the country. Reilly has never satisfied himself that its benefits equaled its disadvantages.

Acetyl-salicylic acid, he believes, does relieve symptoms, and in small doses it does not congest the mucous membranes seriously. In some patients relief is undoubtedly afforded by atropine. Under the title of rhinitis tablets this medication is much in vogue. The well-known combination of quinine sulphate (½ grain), fluid extract of belladonna (⅛ grain), and camphor (¼ grain), makes the practitioner feel that he is orthodox in using quinine and camphor in treating a cold, but it is the atropine that produces the results. The dryness of the mucous membrane that follows its use causes most people, after a time, to discontinue it. In order to obtain good results it must be given early in the attack, *i. e.*, within the first twelve hours, and repeated every half-hour or so until the physiological effect is produced. Of course it does not cure the cold, but it alleviates the most prominent symptoms of coryza during the first day or two. After that the disease runs as before. It is useless in the moderate and descending types of the disease. When the profuse watery discharge is very troublesome a powder consisting of bismuth subnitrate (3ij), starch (3j), gum arabic (3ss), with menthol (gr. ij) or antipyrin (gr.x), may be snuffed up. This almost always gives considerable relief.

Treatment of Scoliosis.—Peckham in *Journal of American Medical Association* (Oct. 13, 1917) declares that scoliosis is due to a softened state of the bones and ligaments caused by any process that interferes with calcium metabolism. This may be rachitis, infections—including autointoxications, or the rapid growth, which sometimes takes place in adolescence. The thyroid gland is supposed to preside over calcium fixation.

The vertebrae and ligaments, yielding to the superincumbent body weight, become pushed downward and thus the deformity of scoliosis is produced. There may be different degrees of severity, both of symptoms and of deformity, but it is scoliosis all the way thru.

The duration of this softened condition usually extends thru quite a period of time, and it is the treatment of this condition to which sufficient attention has not been given.

In cases of hypothyroidism the thyroid gland may be indicated. In the rapid growth of adolescence when there has been no scoliosis, but the symptoms have been backache and headache, swollen eyelids, the entire lack of strength and often the appearance of stupidity, the administration of thyroid extract will usually produce the desired result.

When it is uncertain just what process is going on the author uses the mixed gland tablets. Combined with this glandular therapy, aimed at the fundamental cause of the disease, there should be mechanical removal of the weight of the head and trunk from the spine, which is best accomplished by the use of properly fitted braces. These should be such as to allow the patients to get about fairly normally. Their use should be supplemented by treatment, by exaggerated body flexion over a curved frame and simultaneous rotary traction.

Acute Catarrhal Conjunctivitis.—Wolfe in *The Jour. Kansas Med. Soc.* (Dec., 1917) discusses this distressing malady commonly called "Pink Eye" and says that lack of persistence or faulty treatment of the acute stage is usually the cause of the complications.

In the mild cases, or in the first stage of any of the cases, or where it is impossible for the patient to visit the physician, nothing excels cold applications, along with the instillation of a ½ per cent. solution of zinc sulphate. This should be used two or three times a day.

The patient should be instructed to lie down, or sit with the head well thrown back, and hold the lids open with the fingers at least one minute after the instillation of the solution. This enables the remedy to come in good contact with the conjunctiva, especially the lower lid, which is usually more affected, and by so doing the medicine is not immediately washed away by the drainage process of the eye.

In infections of the Moran-Axenfeldt diplobacillus this ½ per cent. solution of zinc sulphate is absolutely specific, and if persistently used will effect a cure.

We should caution our patients to avoid dust, tobacco and all smoke, straining, or over-use of the eyes, especially by artificial light.

Blue glasses should not be used unless it is necessary for the patient to be exposed to strong artificial light. The eyes should not be bandaged, as ordinary sunlight, if not too bright, is beneficial.

In the second stage of the disease where the discharge appears, astringents are indicated, but these should not be instilled at night. One-fourth to ½ grain of alum added to the ounce of zinc solution is very good, but silver nitrate is best. Some of the organic silver preparations may be used in place of it, as silvol 10 to 40 per cent., argyrol 10 to 30 per cent., protargol 10 per cent., or others. These contain a smaller percentage of metallic silver and attack the tissues less, and are much less irritant. They also have the advantage that they can be entrusted to the patient to instil himself.

Treatment of Sciatica.—Strauss in *Journal Amer. Med. Asso.* (Dec. 15, 1917) believes that in the early stages of sciatica, rest in bed, the application of warmth along the course of the nerve, especially in the gluteal region, and the administration of large doses of the salicylates are indicated. Complete rest in bed is the one remedy on which stress should be laid. The rest, and moist heat in some form, are the two most efficacious measures in the beginning. All forms of massage are absolutely contraindicated. At this stage they always do harm. Counterirritants likewise are of little benefit. If salicylates are given, they should be administered in large doses.

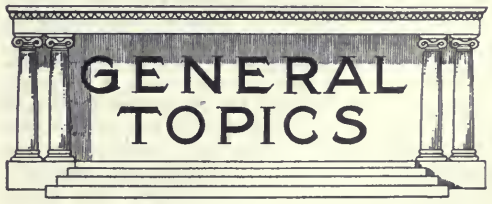
The salicylates undoubtedly lessen the pain, and in my opinion also exert a beneficial effect on the inflammatory process itself. If the pain is severe, codeine should be freely administered. If the attack does not yield to these measures, and especially in those cases which have lasted for weeks or months, recourse must be had to other methods.

There are two methods which have yielded good results: One is the injection of physiologic sodium chloride solution into the neighborhood of the nerve according to the technic of Lange, and the other is the epidural injection along the lines described by Cathelin. In making perineural injections, the patient lies on the abdomen with a pillow underneath its lower part, and the feet projecting beyond the edge of the table or couch. A line is then drawn from the sacrococcygeal articulation to the lowest point of the postero-external border of the great trochanter. The point of puncture is 1 inch to the outer side of the junction of the inner one-third and outer two-thirds of the foregoing lines. A trocar and cannula about 20 cm. in length and 2 mm. in caliber is used in the injection. The point of the trocar ought not to project very far beyond the cannula. The needle is inserted directly downward thru the gluteal muscles until the nerve is reached. When the nerve is touched, the patient feels a sharp, shooting pain down the leg, and there is very often involuntary contraction of the gastrocnemius muscles. When the nerve is struck, the trocar is immediately withdrawn, and a syringe attached to the cannula. Physiologic sodium chloride solution is then injected in amounts varying from 100 to 150 c. c. Considerable pressure is sometimes necessary in order to force the fluid into the tissues, and in such cases, care must be taken that the needle is not forced into the nerve. Considerable pain may follow the injection, which, as a rule, subsides after an hour.

It may be necessary to repeat the injection every other day until at least five are given, but as a rule three injections suffice. Alcohol should never be used for these injections.

Tonsil Operation.—Voorhees in his interesting article in the *N. Y. State Jour. of Med.* (Mar., 1917) says in conclusion:

1. An analysis of tonsil operations in singers shows that in the hands of skilled operators there need be no special fear of bad results.
2. It is the concensus of opinion that bad results are most often due to cicatricial contractions occurring from careless dissection or from neglected after-treatment.
3. Pain in the tonsillar region, neck and larynx is probably due to section of some of the larger branches of the glossopharyngeal nerve (Justus Matthews).
4. Loss of singing voice occurs very rarely after tonsillectomy, if at all. Impaired voice is possible, but most cases show an increased range of from one-half to a full tone.
5. Loss of singing voice after tonsillectomy might be due to a nerve lesion, but is probably due to adhesions and cicatricial formations in the fauces.
6. The singer's problem is a very special one, and no laryngologist should undertake to operate on these patients unless he has some knowledge of the art of singing.
7. At operation the greatest care and skill must be exercised in securing a clean, free dissection. Injury to the tissues surrounding the tonsil may prove disastrous.
8. Postoperative care is of special importance. The patient should be seen daily until full heal ensues.



Blue Pus.—Bacillus pyocyaneus (isolated by Gessard in 1882) is one of the chromogenic bacilli. Frequently termed the bacillus of green or blue pus, it is a small, motile, gram-negative, slender delicate bacillus. Generally presenting a thread-like form, at times it may appear as short plump rods. Growing rapidly upon agar or gelatine, at room or incubator temperature, it liquifies the medium and the characteristic color diffuses thru it, so that both the colony and the medium as well are colored green or blue. Bacillus pyocyaneus is widely distributed in water and air, may often be isolated from feces and is frequently associated with other pus organisms in abdominal wounds and abscesses.

On account of its often appearing together with other organisms of better organized pathogenicite it has until more recently been considered rather harmless. This view can however be no longer entertained. It is frequently the sole cause of middle ear inflammations, intestinal disorders, cystitis and at times of septicemia.

Where such an application can be made (as for instance, upon an open suppurating wound) the following will be found to give prompt and efficient control of the green or blue colored pus:

℞ Fuchsin .....Grs. v
Vaseline q. s. ad. .....℥j

M. Ft. mg. Sig. Spread very thin on plain gauze and apply covered with a good pad of absorbent cotton or gauze.

Shoes.—There is no need of any special orthopedic shoe, asserts a writer in the *Medical Review of Reviews*. The patient should procure any comfortable shoe in which he is able to move all his toes freely. If we are handling a case of weak foot the inner one-half of the soles and heels can be raised one-quarter to one-half an inch by the cobbler and then the patient has an excellent shoe without any additional expense. This addition is not for the purpose of raising the arch but to make the patient walk more on the outer border of his foot which in turn tends to bring the foot to the normal plane.

Worry.—The tendency of the human mind, in that evolution which the purists like to call its emancipation from the mundane, is to lay greater and greater stress upon the trivial and the unimportant. Ring in the *N. E. Gazzett* (Nov., 1917) says this is probably in part due to our universal system of limited education in America which teaches us enough to worry, but not enough to single out that which is important from that which is trivial. A German professor who was told that in America we had an adage which said that a little knowledge was a dangerous thing remarked feelingly, "*Ach mein Gott!* how much in danger we all are." If this is true of the really learned, how much more true is it of the rank and file.

How many of us with our noses "close to the canvas" of our own lives can get perspective enough to discern the high lights and shadows and give them their proper relationships to the main theme of our life picture.

It is just here that the physician, especially if he is a student of modern psychotherapy and sociology, is in a position to aid the neurotic patient in separating the wheat from the chaff of life and starting the nervously unstable on the road to stability and usefulness, and to teach him to eliminate worry by acquiring a sense of proportion and by placing the right values on his experiences.

There is much to be said in favor of a kind of philosophy which permits the individual to realize that he is justified in assuming that if there are one hundred million persons in the world only that fraction of its care and responsibility is his share. Worry is often said to be the cause of many ills. We believe that in most instances this is placing the cart before the horse and that practically all worry can be shown to have a pathological substratum.

There are persons who seem to have a carefree abandon from childhood, but they are subnormal and rarely a success in life. There are temperaments which from the start seem to sense their responsibilities and shoulder them manfully. This is normal. But there are many who overestimate their obligations and take life and themselves too seriously; their ego is not well balanced and tips the scale to the introspective and morbid side. These persons lack humor; they never get far enough away from their own little sphere to get a perspective and view the world as an onlooker or something apart from themselves. They never feel understood—they are fearful and indecisive. Theirs is the temperament that worries. They need reassurance and some one to lean upon. They are very suggestible and always get help from the positive advice of one who stimulates confidence. If thru explanation they can be given the "Ish ka bibble" attitude of mind it is assuredly of great help. And who can better perform this mental surgery than the well-informed physician?

When is Cancer Operable?—Vaughn in *Journal Amer. Med. Asso.* (Dec. 8, 1917) states that he feels justified from the uniformity of observations in stating that if the test shows the immune mechanism to be intact, operative treatment is indicated. Conversely, if the test shows the immune mechanism to be destroyed, operation is useless except for palliative reasons.

Again, Vaughn believes that operation is best performed when the percentage of large mononuclear cells is high, as metastasis is less liable to occur from the operative handling if the anticancer ferment is active when the operation is performed.

One more word concerning the value of this test: It is a valuable prognostic aid. After complete destruction of the immune mechanism, which may occur occasionally when the initial tumor is small, the progress of the disease is always rapid, and operation in such cases is usually followed by rapid general metastasis, while many cases, apparently far advanced, will respond to stimulation of the immune mechanism. Such patients always live much longer than the physician anticipates, unless he is particularly guarded in his prognosis. It is this class of case, with the alternating period of retrogression and advancement of growth, that furnishes the fruitful field for the work of the charlatan, since the temporary benefit observed from nature's efforts is usually attributed to whatever medication is being used at the time.

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A Food Subsidy.—In the minds of most supporters of families in the community, the food problem is of the utmost seriousness. Its significance is heightened because the problems it involves are so intimately associated with the gratification of a powerful primitive instinct. The rise in the food cost of living, considered as a single item, conveys little information regarding the severe trials to which it subjects the general population. The higher prices of meat, milk, fats, sugar, bread, eggs, and similar essentials of life can only be interpreted in terms of the purchasing power of the consumers. The increased cost of living is of especial interest because of the relatively decreased power of the workers of the nation to meet the higher demands for the necessities of life.

The educational campaign that seeks to spread knowledge concerning home economics is of undoubted value, but possesses well defined limitations. Families possessing an income adequate to supply the needs of the body may be encouraged to save or to purchase more nutritious foods for the same expenditure of money thru the practical application of lessons in food purchase, preparation, and conservation. The main benefits of food economy are to be found when the income ordinarily is just sufficient to insure a satisfactory plane of nutrition for every member of the household, from the suckling infant to the senile representatives.

Investigations in many cities, notably New York City and Boston (*Food Supply in Families of Limited Means,* Michael M. Davis, Jr.,) demonstrate that instruction in food economics may suffice to make a change from an insufficient diet to a satisfactory one for families with weekly earnings of from $15.00 to $20.00.

It is a difficult task to preach economy to those who constantly feel the pressure of the gaunt hand of poverty and whose joy in life is not enhanced by patriotic appeals. Despite the fact that the regulations laid down by the Federal Food Administrator would correct the dietetic errors most common among the very poor, there is a disinclination to deprive the family of those foods which habit and tradition have established upon a firm foundation as most valuable nutrients. No habits are more difficult to overcome than those related to food.

A practical solution of the food problem might be attained thru the regulation of prices. Families below the 1,000 dollar income group then would be able to purchase, during the period of war, the foods necessary for the adequate maintenance of the bodily health of the family, and particularly of the children. The assistance of the state in paying the difference between the special price established and the prevailing cost for those able to meet the existing economic conditions would be required.

It obviously is unwise and unsound to force groups of families to seek and accept material or financial relief from charitable societies because of the sacrifices they are undergoing arising from national action. The problem of undernutrition is not purely personal in character but involves the wellbeing of the nation. The country must recognize an obligation to conserve the vitality of its noncombatants.

Dietetic guidance is of the utmost importance in order that the requisite amounts of needed foods may be exported to save our foreign neighbors from starvation. Unless it becomes possible for our own citizens to obtain meat, wheat, milk, or their substitutes, in sufficient quantity to supply their bodily needs at a price within the possibilities of their relatively low incomes, the burden of weakened bodies will fall also upon those who form the bulwark of our industrial system.

While the government is establishing definite rates for profits in numerous industries, it should be possible to protect the vital capital invested in the adults and children upon whom the future of the country depends. Dietetic education, supervision and guidance are of paramount importance but these should include ample provision for making possible the procuring of those foodstuffs whose use is advocated. The majority of families in the United States earn less than 1,000 dollars per annum and the food problem must be interpreted in the light of the low purchasing power of this income under existing conditions.

In its last analysis, from the standpoint of public health, the food problem is a money problem. The health and welfare, physical, mental and moral, the stability of growing children is dependent upon a family income that is sufficient to purchase a proper quality and quantity of foods to insure good nutrition and the building up of a disease-resisting vitality. Money shortage must result in food shortage. Food shortage is certain to eventuate into health shortage.

A national or state subsidy for health would be money well expended. The gross disparity between wages and the cost of essential commodities can bring no other result than ill health, malnutrition, and diminished resistance to disease. *"Work, save, and serve,"* forms an excellent slogan to promote the sale of thrift stamps. The slogan for vital thrift might read *"Work and wages, striving and saving, strength and service."*

A Marriage Law and Venereal Diseases.—The widespread efforts being made by the Government to limit venereal infections among the military and naval forces of the country attest the significance of these diseases in diminishing the efficiency of men. The constantly increasing endeavor to protect young men from temporary or permanent disabilities due to sexual irregularities demonstrates the seriousness of the situation which confronts every government.

If it be a matter of national concern to safeguard youths, who have been drafted for national service, it is no less important for the welfare of the nation to conserve the vitality and efficiency of the vast industrial and civil army who must supply the sinews of war in the battle for national supremacy or equality in the international sphere of activity.

The momentum now being acquired must be guided so that no energy be wasted. The systematic programs must be applied to larger fields of promise among the non-combatant reserves of the population. The banal

policy of silence can no longer continue. The cloak of secrecy has been cast aside. The venereal diseases are now recognized for what they are, unnecessary monsters, maiming and destroying vast numbers of young men and young women, and leaving in their trail a pathetic wreckage of once useful beings.

Health departments, thru state and municipal organizations, are obliged to take cognizance of their responsibilities, which have been more or less ignored or underestimated. The demand for a certificate of health previous to marriage possesses considerable value as an educational factor, but it cannot serve as a substitute for constructive educational measures nor as a relief from adequate provision for hospital and clinical facilities, nor take the place of the abolition of segregated areas in which prostitution is tolerated, condoned, supervised, licensed, or winked at.

According to the new New York State Law, candidates for matrimony must swear to the following statement: "I have not to my knowledge been infected with any venereal disease, or if I have been so infected within five years I have had a laboratory test within that period which shows that I am now free from infection from any such disease." Until such an affidavit has been made, a marriage license will not be issued.

This provision of the marriage law merits posting in a conspicuous place, but it is exceedingly doubtful whether it will serve to diminish to any great extent either the prevalence or the ravages of venereal diseases. It represents a mandate which comes at the end of a period of sexual carelessness or thoughtless licentiousness, after possibly irreparable damage has been done. It gives a sense of guaranteed security at a time when laboratory tests may be inactive, altho the disease may be latent and burst forth actively after marriage has been consummated. No one would urge that the venereal plagues are to be wiped out by any health fiat of this character.

Present trends in antivenereal disease attack depend upon a recognition of human psychology. The sex instinct is being opposed by rational recreation and healthful occupation. Education, occupation and accepted ethical principles incorporated into daily life form the essential program of those who are fighting the death dealing satellites of Venus for the benefit of the forces of Mars.

The revaluation of humanity in terms of present day health and future racial betterment is bringing about larger programs for venereal prophylaxis. Greater stress must be placed upon prevention, while every step is taken to insure the permanent cure of those infected. The pre-nuptial guarantee is a significant advance, but the time of its operation is delayed for too long a period to serve as a satisfactory prophylactic measure. Fortunate, indeed, is the community which will appreciate the basic thought involved in such a guarantee and begin the application of the necessary educational machinery during the earliest days of childhood, adolescence and maturity.

Warring against venereal disease is virtually an attack upon unhallowed traditions and the besieging of the sex instincts of mankind until they surrender to the control of intelligent wills, motivated by an interest in human welfare. The gratification of uncontrolled sexual impulses and untrained and misunderstood yearnings for sexual experience are primitive, animalistic and antisocial. The socialization and rationalization of sex life are fundamental steps in the elimination of venereal diseases.

Vaginitis in Children.—The studies of gonorrheal vaginitis in infants and children have been based upon the theory that diagnoses from smears were eminently satisfactory. The difficulty in securing therapeutic results has served to create unusual interest in this condition. Despite irrigations, local applications of silver nitrate, bichloride of mercury, tincture of iodine, and similar active medicaments, or the use of vaccines, the certainty of a cure has not been attained. Periods of time would elapse during which negative smears are reported only to be followed by the reappearance of a positive report.

The significance of this condition has been accentuated because of the apparent ease with which it spreads thru institutions and because of the fear of complications and sequelae, harmful to the health of the growing child. Tradition has accepted diagnosis from smears as pointing to the gonococcus as the accepted etiologic organism and this has served as the premise for all medical treatment.

According to Rubin, *Boston Medical and Surgical Journal,* January 31, 1918, there is grave doubt as to whether the incidence of vaginitis in children is gonorrheal in origin. His investigations demonstrate that "The smear examination, even by the Gram stain of secretion or discharge from the vagina, is unreliable and misleading and hence valueless as a method of diagnosis."

Inasmuch as the application of strong germicides is irritating and productive of secretions, it is undesirable to resort to such methods unless it is established that the gonococcus is actually present. A purulent vaginal discharge, in which intracellular Gram-negative diplococci are discovered, strongly suggests the existence of gonorrheal vaginitis. Rubin maintains, however, that this organism should be identified by cultural methods and, if doubt still remains, complement fixation tests and agglutination tests should be made.

Under all circumstances, the constant irritation of mucous membranes is undesirable and the subjection of young girls and infants to unnecessary handling of the genital tract is objectionable, if not reprehensible. The possibility of excitation or stimulation during the pubertal period may result in an increased, but, nevertheless, physiologic secretion.

The various exanthemata may be factors in increasing vaginal desquamation and in preparing a medium upon which microorganisms, such as the *micrococcus catarrhalis* or other organisms, morphologically simulating the gonococci, may thrive.

During infancy excreta or urine may contaminate the vaginal tract and set up an irritation productive of discharge varying in profuseness, which may be regarded, mistakenly, as gonorrheal in character unless careful diagnostic differentiation is made.

In all probability the percentage of gonorrheal vaginitis in children has been overestimated. Intelligent and scientific treatment demands that our newer methods of diagnostic control be instituted in order that revised figures may be secured. In all likelihood, the reason for the difficulty in achieving cures is dependent upon the fact that the causative organisms have not been differentiated and a single method of attack has been employed as tho all vaginal discharges were due to one organism.

Without underestimating the importance of venereal diseases among infants and children, it is time for a critical examination of new cases presenting themselves, in order that the existence of specific vaginal infections be placed upon a safe diagnostic basis.

If vulvovaginitis is non-venereal in origin, it is time that the types of infection were differentiated in order that methods of cure may be established upon a sound basis. To treat every voulvovaginitis as a venereal affection is unwarranted until due evidence establishes the diagnosis beyond doubt. Too much treatment, particularly when of the wrong type, may be more injurious than the condition producing the increased secretion of discharge.

Institutional Enuresis.—Enuresis nocturna forms a difficult problem for patients and physicians. The multiplicity of remedies suggested indicates the various theories underlying its causation. Unfortunately, there is a tendency on the part of many to regard it as a disease which children will outgrow as they approach puberty. In the present state of our knowledge, it is obvious that enuresis must be regarded merely as a symptom which may be due to any one of a large variety of physical or psychical disturbances.

In child-caring institutions, the problem of enuresis is peculiarly irritating and difficult to control. The medical care of children in institutions has not been as satisfactory as might be desired and in this particular instance has been inadequately administered all too frequently.

W. H. Slingerland presents a careful study of the Care and Cure of Enuresis or Bedwetting in Child-Caring Institutions, which has been issued as a pamphlet by the Department of Child-Helping of the Russell Sage Foundation. A study of 78 institutions, caring for approximately 19,000 children, shows enuresis to be present in 9 per cent. of the juvenile institutional population, with boys manifesting the symptom to the extent of 11 per cent. and girls 6 per cent. Inasmuch as these institutions were not specially selected, but represented a fair cross section of child-caring institutions in the United States, it is not unfair to apply the 9 per cent. to the 145,000 children being cared for in institutions for dependents and delinquents. The size and seriousness of the enuresis problem in institutions becomes patent when one acknowledges the existence of 13,000 enuretics in institutions.

Medical measures have not been instituted with a degree of regularity that the care of childhood merits. The main treatment has been circumcision or the use of belladonna, ergot, strychnine, hyoscine, quinine, and iron, with results that have been unsatisfactory in most cases. Dietetic regimes have been instituted, but without much permanent benefit from the different types of restrictions instituted.

Numerous educational studies were made to ascertain at what intervals nocturnal enuresis occurred with individual children, with a view to awakening them in time to prevent its occurrence and particularly with the intent to break up the enuresis rhythm, which apparently plays no small part in the continuance of the habit.

It is regrettable that some institutions continue to make use of disciplinary measures, ranging from corporal punishment to creating a sense of shame by public reproach, or by the deprivation of privileges, entertainments, associations and luxuries. A number of institutions more wisely adopt positive measures of reward for dry beds, the stimulation of pride, and the arousing of a sense of responsibility for self-control. Mechanical procedures designed to prevent a child lying upon its back are occasionally employed. The use of inferior beds and humiliating segregation in wet wards have also been used, but with little advantage to

the child. No child is to be held responsible for its unpleasant habit any more than he would be if he suffered from convulsions or habitual headaches.

The special treatment of enuresis must depend upon its cause. Phimosis, pinworms, large tonsils, cystitis, diabetes, nephritis, eczema, urethral defects, vaginitis, anemia, hysteria, psychic irritations, asthenia, dietetic errors are more likely to be responsible for enuresis than carelessness or bad home training, while feeble mindedness, epilepsy, and masturbation must not be forgotten among the important factors productive of enuresis.

In all probability, the profession is more responsible than any other portion of the community for the failure of institutions to grasp the needs of children suffering from enuresis. The child requires a thoro physical examination, together with a study of its social and familial history. There is no single type of treatment which suffices to relieve every enuretic. Medical treatment or surgical interference should be resorted to only upon the advice of physicians and surgeons, after the need for such treatment has been decided upon as a result of careful study.

The regulation of diet and the limitation of fluids during the latter part of each day are aids in overcoming the habit, while stimulation of the will, proper instruction and a wise use of rewards are helpful in creating the desire on the part of the child to cooperate in overcoming what is an annoying, unpleasant and insanitary affliction. There should be no segregation of the enuretics from normal children, merely because of this symptom, as the separation itself involves depression which hampers the spirit of reformation.

In institutions it is particularly helpful to have night nurses awaken the children at suitable hours and to utilize their influence in stimulating the children to greater efforts in overcoming the habit.

From the medical standpoint, there must be an awakening to the fact that medical diagnosis is of greater importance than disciplinary methods. The profession must point out the symptomatic nature of enuresis and insist upon a thoro investigation that will bring to light its etiology. Encouragement, sympathy and understanding, stimulation of the will, and the addition of proper medical or surgical procedures persisted in for weeks and months usually bring favorable results, when mentality is unimpaired. A lack of interest on the part of the physician throws the institution back upon its own resources and tends to place enuresis among conditions in which medical relief is unobtainable.

The tendency to minimize the importance of the symptom or to suggest that the child will outgrow it is indefensible and distinctly contrary to the best interests of institutions, families, or the children. The complexity of causes, from which enuresis results, places this symptom among a group whose importance must not be underestimated and which challenges the diagnostic skill and therapeutic powers of those into whose charge the care of enuretics is given.

The medical profession is charged with the responsibility of treating diseases and alleviating symptoms. Institutional derelictions invariably are attributed to a lack of medical oversight and rightly so when the attending physicians ignore the truly medical problems, such as those surrounding the care of children suffering from enuresis nocturna.

Warring for Childhood.—It is fitting that the mortality of war should be offset by an even greater conservation of life despite war. The experience of England demonstrated that during the excitement and confusion attendant upon the first year of strife, there was a relative and absolute increase in the number of infants who died. Beginning with the second year of the war, however, social efforts were made to develop a consistent health policy looking toward the protection of mothers and babies, as a result of which the infant mortality rate fell below the rate existent during the year previous to the beginning of war.

The death rate for infants in the United States is twice that existent in New Zealand. While nationalized machinery does not exist that can be operated with facility to decrease the infant mortality rate, there is every reason to believe that thru state and local action the infant mortality rate in the United States may be reduced to a plane more in keeping with the standards of the nation, committed, as it is, to the highest principles of humanity.

The Children's Bureau aims to begin, upon April 6th, the anniversary of the date of the United States' declaration of war, a campaign to save the lives of 100,000 children in the United States. The inauguration of this nation-wide campaign should be productive of valuable results because the essentials of child-saving are well known, even tho they are not practically applied thruout the country.

The main factors involved in a campaign for the conservation of childhood involve prompt birth registration, adequate prenatal care, children's health centres, controlled and supervised, district home nursing, the protection of the milk supply, and the establishment of a wage system that makes decent living standards possible. Keeping the home fires burning involves the patriotic duty of maintaining hygienic conditions of living that will safeguard and promote the welfare of the home forces. The future is being determined by the present. Attention to the essentials that make for a constructive health program guarantees a healthful future citizenship for the years to come.

It is possible to establish definite quotas of children for the various states, which should be saved by overcoming those conditions recognizedly preventable, but which have been responsible for a loss of health more significant and less forgivable than those incident to warfare.

While a large number of doctors and nurses have entered into war service, this cannot serve as an excuse for failing to enter upon the child-saving program with enthusiasm and effort. A large part of the active work of weighing and measuring children, of making physical examinations, of pointing out remediable defects and of carrying out the treatment required, will fall upon the medical profession. There is every reason to believe that the duties and responsibilities of childhood conservation are appreciated and that the end results will attest the willingness of the profession to enter wholeheartedly into a form of service that represents a constructive warfare against the child-destroying forces whose leaders are Ignorance, Poverty, Indifference and Neglect.

The Atropin Diagnostic Test.—The general use now being made of inoculation for the prevention of typhoid and paratyphoid infections has been accompanied by results eminently satisfactory. While the

immunity conferred is temporary in character, epidemics among civilians and soldiers, thus inoculated, have been reduced almost to the minimum. Unfortunately, when an occasional infection occurs among those who have been vaccinated, diagnostic difficulties arise which make prompt determination of the disease difficult.

The British Medical Research Committee has published the results of the studies by Captain Marris upon the use of atropin as a diagnostic aid in the determination of typhoid fever. (*British Medical Journal,* 1916, p. 217). The methods of Captain Marris are now being tried and studied, and the corroboration of his results will undoubtedly place this test among the helpful achievements in diagnosis arising from war experiences.

E. H. Mason, *Archives of Internal Medicine,* January, 1918, has tested out, with slight variation, Marris' technic on 109 patients, 63 of them suffering from typhoid or paratyphoid B. infections and 46 non-typhoid cases. His investigations indicate that the test possesses considerable diagnostic value and very frequently precedes the Widal reactions in ordinary cases of typhoid fever.

The importance of atropin, however, is especially marked in the identification of infections by bacteria of the typhoid group among those who previously had received the triple prophylactic inoculation. The atropin test does not differentiate types of infection due to the organisms producing typhoid fever or paratyphoid fever A. and B.

As Vaughn points out (*The Journal of Laboratory and Clinical Medicine,* January, 1918), "the principle of the tests seems to depend upon the following known facts:

1. Under ordinary conditions the administration of atropin markedly increases the rate of heart beat.

2. Bradycardia is generally observed in typhoid infection.

3. In this infection the administration of atropin fails to increase the heart beats proportionately to the increase observed in health or in other diseases."

The method of applying the atropin test, as described by Mason, who substitutes 1/30 of a grain in place of 1/33 grain of atropin sulphate employed by Marris, and who retakes the pulse in 20 minutes, instead of 25 minutes, is as follows:

"On a fasting stomach the pulse rate is taken for ten consecutive minutes, while the patient rests quietly in bed. If the rate per minute remains practically constant, this is accepted as the average mean rate. Then one-thirtieth grain of atropin sulphate is injected hypodermically into the upper arm, after which the patient continues to remain quietly in the same position. After twenty minutes have elapsed the pulse rate is taken again and the counting is continued until the maximum rate per minute has been reached and it has definitely started to fall to a lower level. The difference between this high level and the mean of the ten consecutive minutes before the injection is taken as the release."

In most normal individuals the injection of the atropin sulphate increases the pulse rate from 20 to 40 beats per minute. If the pulse release is not greater than 14 beats, typhoid infection is suggested. According to Mason, releases between 10 and 20 may be considered as doubtful, while increases of only 10 beats or less per minute are most suggestive that the patient suffers from a typhoid or paratyphoid infection. It must be remembered, however, that Mason's work was confined to patients who had not had protective inoculations.

It is apparent from the original work of Captain Marris and the further studies of

Mason that the atropin test is a distinct gain in diagnostic methods. Agglutinations and blood cultures point to the reliability of this new diagnostic agent, tho there is still a small percentage of individuals who fail to give a positive atropin test, while either the blood culture or agglutination gives positive results.

Despite the fact that the atropin test fails to distinguish the type of typhoid or paratyphoid infection, it is a welcome method for routine diagnosis because of its simplicity, the ease with which it can be performed, and its high degree of reliability, together with the fact that the lack of release is most evident during the early stages of the disease, while the Widal reaction may be still negative. Further evidence is required to establish the variations in the test and possibly there will be some modifications required to place it upon a solid foundation of accuracy and undoubted reliability.

Natural Ice Saves Ammonia.—The unusually severe winter, which has affected wide areas of the country, might be expected to have a compensation in the summer time by virtue of an increased harvest of natural ice.

The importance of ammonia in chemical processes related to the development of war industries makes it essential that the manufacture of artificial ice be decreased. While it is possible that the shortage of labor may to some extent hamper ice cutting and storage, the continuance of the cold spell for long periods of time will enable a small number of men to work more continuously in the number of days than during other winters, and a longer period of time thus will have been available for reaping the ice crop.

It will be an unusual irony of fate if, despite the prolonged cold season, ice during the summer time attains the high figures which have existed during previous years. It is of the utmost importance that natural ice should be kept down in cost because otherwise there is likely to be an ice shortage, as the conservation of ammonia may require the shutting down of plants now given over to the manufacture of artificial ice. Incidentally, the price to the consuming public must not be prohibitive.

From the standpoint of public health, it must be remembered that natural ice is freer from contamination than the water in which it is formed. The part of the ice cake most likely to contain bacterial or other impurities is the surface, because during the freezing process from above, downward suspended contamination is excluded by the process of crystallization.

Freezing temperatures do not destroy bacterial growth entirely, but, as was demonstrated by Sedgewick and Winslow, the storage of ice results in the destruction of more than 90 per cent. of the pathogenic organisms within three months. If, therefore, natural ice be taken from waters, such as lakes, ponds and streams that are comparatively free from contamination, the ice crop may be regarded as safe for human use after due and careful storage and handling.

The literature contains a number of instances of typhoid fever epidemics due to impure ice, but considering the widespread use of ice in the household and the lack of special care which has been given during the harvesting period, there is little reason to fear that reversion to natural ice would be accompanied by health disturbances in any community. The public now should be taught that lack of safety arises from misusing ice in the home.

The safeguarding of a water supply from pollution should be supplemented by the supervision and sanitary control of the bodies of water from which an ice crop is to be taken. Under these circumstances, the use of polluted ice will be prevented by the protection of the ice at its source.

Legislation which aims to prohibit the use of natural ice is too general in character and fails to take cognizance of the possibilities of infection and contamination of artificial ice, the use of which becomes imperative when the natural product is unavailable. The method of protecting a community against the danger of polluted ice is more successfully accomplished thru sanitary control than by prohibitive legislation.

From the standpoint of national efficiency, there is greater safety in the use of natural ice than in the production of artificial ice and the needless resultant waste of the ammonia necessary for its production.

The Physical Power of Women.—The mobilization of industrial power has involved the introduction of thousands of women to industry from what hitherto have been regarded as comparatively unproductive occupations in the home. The protection of women in industry is a matter of serious consideration and regulations have been suggested whereby the standards of employment and the condition of environment shall safeguard their physical, mental, and moral welfare.

The weakness of women has been a favorite theme for numerous writers and various men of scientific attainment have sought to prove the inferiority of women to men in every phase of development. When the facts and theories appeared to be contradictory, the facts were ignored and general credence was placed in the thought that generalization from special cases marked the lack of logic of those pretending to believe that the disabilities of the sexes were not due to sex itself.

The muscular strength of women has in general been assumed to be less than that of males, tho for the most part the success of women in occupations requiring moderate expenditure of effort and continuous employment has failed to disclose the inability of women to cope with their male competitors.

Mosher and Martin, *Journal of American Medical Association,* January 19, 1918, report their studies of the muscular strength of the college women, as a result of which they conclude that sex is not necessarily a disability, but that some method must be found to adjust work to the individual strength under proper hygienic conditions. Under this circumstance, which incidentally should obtain in the employment of men, there is no reason to believe that the utilization of the potential power of women will in any way endanger their racial efficiency.

The constant protection of women, together with the limitations arising from their inadequate physical education and the restraint of their conventional attire, has resulted in an interference with their complete natural physical development. Certain variations in muscular power, such as, for example, those of the pectoral muscles, which are stronger in men than in women, may be explained by the vigorous character of exercise and play enjoyed by boyhood, but which is denied to girls because being a tomboy is deemed undesirable and because corsets, tight waists and dainty materials do not permit equal activity for the pectoral muscles during girlhood and young womanhood.

Some certain groups of muscles whose exercise is required for buttoning dresses up the back or putting up the hair, or for engaging in sewing, knitting and similar feminine occupations are more highly developed among women than among their brothers, and it would seem to indicate that the factor of use has more determining qualities in developing power than the mere fact of being either a man or woman. The potential muscular power of women has not been developed nor has there been adequate consideration of the necessity of developing the strength, activity and physical power during girlhood.

Lack of Development of Muscles and Viscera in Women.—Convention, ideas of chivalry, the attitude towards characteristics deemed womanly, have served to inhibit their muscular and visceral development. Madame Grundy, with her fetters of styles, conventions and esthetic camouflage, has successfully limited the muscular vigor of women because of some vague and indefinite idea that frailty is a virtue to be cultivated, while potential strength developed produces coarseness and unwomanly virility. Traditions are rapidly being cast aside in the light of practical experience.

With the utmost calmness, the methods of governmental organization are being transformed to meet temporary conditions. Individuals are patiently and willingly submitting to the limitation of their rights along lines which a year ago they would have regarded as inalienable and incapable of repression. Keeping apace with this tightening of the reins of government, there has been an expansion of individual possibilities which has been particularly marked in the increased opportunity for women. Their entrance in large numbers into shops, factories, the commercial world and in occupations demanding physical strength, application, and continuous effort, thus far has proven successful insofaras the output is concerned. There have been not unexpected accidents and diseases incident to the sudden change in the lives of this particular class of workers, but on the whole they have been no greater than those which have ensued in the alteration in the lives of citizen-soldiers, who have come from the occupations into which women are entering.

It is too early to compile absolute data, but it is fair to conjecture that after a due period of probation, during which women may become accustomed to the greater exercise of their muscular power, they will make manifest that the reason weakness has been attributed to women lies in the fact that a certain measure of emotion and sentiment has retarded their physical development.

The necessity for physical education has never been more patent than today. No plan for raising the physical standards of the nation may be regarded as satisfactory or complete unless provision is made to correct the past errors that are now evident to the unthinking. The physical education of women is necessary and educational systems should take cognizance of this need and readjust their curricula so as to provide opportunities for girls as well as boys in the public schools that their vitality may be increased, their powers of endurance heightened, and their muscular potentialities realized.

Ulcers.—Strong solutions of permanganate of potassium are oftentimes of excellent service as a dressing in skin affections, or in slowly healing ulcers.

Constructive Criticism.—On numerous occasions we have expressed our regret at the all too-prevalent spirit of pessimism and hyper-criticism concerning the conduct of the war, and present day conditions generally. We have no sympathy or patience with any man so blind to the efforts of his fellowmen that he can see nothing to praise, and be proud of, in the wonderful achievements of the past ten months. Only a fool would have looked for the creation and equipment of an army of a million and a half of men, without the making of some mistakes, or the manifestation of some shortcomings. But it is the sum total of accomplishment that must be looked at, if any one is desirous of estimating what America has done—and is doing—to help free the world from militarism, and when one does this, the mistakes and shortcomings do not look so large and irremediable.

As a matter of fact, astounding things have been done, and it is hard, very hard, to understand how any broad, fairminded person can grasp what America has accomplished in the days since war was declared, and not glow with pride.

Opposed as we are to captious or destructive criticism, we feel nevertheless that it is the right, nay the duty of every American citizen to discuss, and, if need be, criticize the methods, deeds and reports of those "at the helm of affairs." Such criticism, however, should be born of patriotism and tolerance. Otherwise its effect will be destructive. At such a time, with our whole national structure menaced by the greatest danger in all its history, there is nothing that the real patriot should as earnestly strive to avoid as destructive criticism and its congeners, jealousy and intolerance. To be guilty of these in any of the manifold forms they tend to assume, is, as plainly and unequivocally as we can say it, nothing less than *giving aid and comfort to our country's enemies.*

When one's house is burning—and several neighbors rush to help fight the fire—one is not inclined to quarrel with the ways and methods of those who have thrown their full energy into the struggle. One may speak a kindly word to the earnest neighbor who is carrying water in a small pitcher—when buckets are at hand; one may courteously suggest to the stalwart friend—who is bringing one scant bucketful of water at a time from a remote brook—that he could accomplish much more at a great deal less effort by carrying two bucketfuls from the tank supply near by; or finally, one may advise the zealous fire fighter, who is in charge of the chemical apparatus, to withhold its use until it can be employed to greatest advantage. All these are forms of constructive criticism. One does not rush up and start in telling each of the foregoing helpers that he is an ass, that his efforts are a travesty on fire fighting, and that he should quit at once—even tho the fire is burning more briskly, and the aid of every man and boy is urgently needed. An owner of a house who followed such methods would surely be looked on as lacking in judgment, decency, or even the rudiments of ordinary common sense.

And, if a gale should happen to be blowing and many nearby homes are threatened, do those who own them lose courage and decrease their efforts? Not by a good deal. On the contrary, they redouble them and by kindly advice, words of appreciation, and here and there a judicious pat on the shoulder, strive to increase the labors and enthusiasm of every helper, from the humblest to the most useful.

And the bystanders—the great mass of

women, children, the invalids, old men and so on—who stand tearfully watching the struggle! Are these citizens told that there is no hope for saving their homes, that the conflagration is all powerful, that its ravages cannot be stopped; that those who are fighting the fire do not know how, are woefully incompetent, and apt any minute to make some mistake that will prove calamitous? Are the people, nervous and naturally apprehensive and ready to fly into hysteria, talked to by the police in this way? Not by those with sense. Instead, every effort is taken to calm them, to give them hope and courage. The dangers are admitted, but the forces fighting the fire are praised, and their bravery, skill and enthusiasm emphasized. No lies are told, but everything justifying hope and confidence is laid stress upon. Every effort is made by those "guarding the fire lines" to cheer the people up and instil in their minds the belief that the fire will be put out, that their homes will be saved, even tho the fight may be a long and hard one. In other words, the nervous tension, that makes a stampede possible any moment, is relaxed by bright, cheery words and the dissemination of all the information available warranting hopefulness, trust in the efforts of the fighters, and confidence in the ultimate result. As a consequence the bystanders lose their tense anxiety, their fears subside, and their joy and relief create an atmosphere of cheerful confidence, that is contributed to those who are fighting to save the burning house and the whole community. That this plays no little part in promoting their efficiency, stimulating their courage, and helping them to win the fight they are engaged in, is apparent.

A valuable lesson for America can be seen in the foregoing. With the country at war with a powerful foe who can command the most wonderful war machine the world has ever seen, is it good judgment to attack and quarrel with those who are conducting the fight to uphold and protect our national principles and ideals—all that makes life for a free people worth the living? We may see where mistakes are being made, where a simpler course may prove more effective. It is right and proper to help in every way we can to increase the efficiency of the nation. Honest criticism may be called for but it should be constructive criticism, the *criticism that not only points out errors but shows how to correct them.*

The problem of the psychology of the people is constant. It is right to tell them the truth, to give them a proper idea of the actual situation, the magnitude of the task before us, and the difficulties that must be met. It is right to urge economy, to impose all necessary restrictions and regulations, and to curtail needless travel and amusement in order to save fuel and conserve our resources. But let us not forget the dangers that attend dissatisfaction, unhappiness and unrest of the people—the progressive development of a state of mental depression, doubt and discouragement.

When the people are discouraged, hopeless and apprehensive of catastrophe, they constitute a volcano that may explode at any time—as witness the condition in Russia. While some object to "business as usual," there can be no question but that "the people as usual" is most desirable, and the nearer they can be kept to the normal, the better it will be for the country, for a cheerful, hopeful populace, trustful of their leaders and confident in the final outcome, will give an incentive to those charged with the conduct of the country's affairs that cannot be overestimated. *In the last analysis, in a war such as we are now engaged in, there is no single force that will contribute so surely to victory as the preservation of the morale of the people.*

The Hygiene of Swimming Pools and of Public Baths.—Cleanliness is an instinctive desire of civilized people and marks the beginning of culture. It is difficult for a dirty person to be cultured, and according to good old John Wesley, "cleanliness is next to godliness," altho at the same time, it must not be forgotten that many highly saintly individuals have been in the past—and are even in the present day—very averse to the use of water. In fact, dirt seems to be synonymous in their case with religious fervor, for the more religious fervor they evince the dirtier they allow their bodies to become. Brahmin fakirs of India are examples of this kind of ecstacy. However, in these days a dirty body is unendur-

able from the hygienic as well as the esthetic standpoint of civilized people, and it may be added that a craze for cleanliness has not only distinguished the acme of culture but, according to some, has served as an index of the commencement of decadence. It must be borne in mind that the fastidious care of the skin by means of public baths is of extremely ancient origin. Greece and Rome, when they had begun to decline, abounded in public baths. Those known as the baths of Diocletian accommodated hundreds. Personal cleanliness with the Roman and Greek, as with the modern cultured citizen of the world, denoted self respect. Slovenly habits supply evidence of an ill-balanced mind.

Nowadays, the bath is regarded as a necessity rather than a luxury and is looked upon as one of the important factors for maintaining good health. It keeps the skin in a healthy condition and tends to increase vigor. There is no intention here to elaborate the point that bathing in itself and under proper conditions is healthy. This may be considered proven. The object is to draw attention to the fact that in some instances, the public bath and swimming pool may be the agents for disseminating disease. In all big centers of population, the poor people flock to the swimming pools and public baths, because they have no facilities in their own homes for adequately cleansing themselves, and therefore it is of the greatest importance that these should be free from disease germs and pollution.

Hygienic Dangers Lurk in Public Baths and Swimming Pools.—While there is little direct evidence that public baths act to any very great extent as disease spreading foci, there is enough evidence to show that they are somewhat of a menace. According to a recent issue of the *American Journal of Public Health* the California State Board of Health has become interested in the relation of swimming pools to the spread of communicable disease, and reports that during the past summer several cases of communicable diseases, undoubtedly contracted in public swimming pools, came to the notice of the Board.

Atkin (*Proc. Illinois Water Supply Assoc.* 1911, 111, 73) has classed the so-called communicable diseases apt to be contracted in swimming pools as follows: (1) Intestinal; (2) Eye and ear and (3) Venereal. The diseases of the intestinal canal are obviously the most likely to be spread in this manner and therefore swimming pools should be regularly examined for colon bacilli as a matter of routine.

Manheimer in his article on Studies on the Sanitation of Swimming Pools (*Journal Infectious Diseases,* 1914, xv, 159) contends that because of large and promiscuous attendance and indifferent organization, these provide possible sources for the spread of disease. There are, in any event, pathologic potentialities in a swimming pool of unchanged water, used frequently by bathers. For financial reasons, as a rule, water in public swimming pools cannot often be changed, and after a number of people have bathed in the same water, more especially in baths or swimming pools used by persons who have no bath accommodations in their own homes, the water must necessarily become contaminated with organic matter, and, of course, with bacteria. Furthermore, as previously mentioned, it must be admitted that swimming pools or public baths may be used by persons who are suffering, unconsciously or otherwise, from communicable diseases. There are in fact several easy ways by which swimming pool or bath water can be seriously polluted.

It may be taken as established, then, that the swimming pool and the public bath are possible and even probable sources of danger to the health of the community, and it is consequently in the interests of the public health that every precaution should be taken to eliminate their dangerous properties.

In the article which appeared in the *American Journal of Public Health,* referred to previously, it is pointed out that the need of sanitation of such places is apparent and it is proposed that all public swimming pools be required to operate under a permit from the state board of health. A bill in which adequate provision for the safety of the bathing public is made, is now before the California State Legislature, and it is proposed that refiltration and chemical disinfection of every public bath or swimming pool shall be attended to in that state as often as needed. Among the means suggested to purify swimming pools and public baths is that of electrolysis, a procedure which was suggested by Dr. F. W. Alexander in the *Lancet,* Oct. 9, 1909. This

was carried out by the electrolysis, under certain conditions, of a solution containing magnesium chlorid, the result being the formation of a solution of magnesium hypochlorite, which substance is known to be an efficient deodorant, oxidizer and disinfectant.

Without question public baths, swimming pools and plunges should be under the constant supervision of skilled sanitarians, and it would be well if legislation to safeguard the public from the possible dangers of these necessary adjuncts to health were put into force in all parts of the country. California has set a good example in this respect.

The Death of Dr. Crothers.—Dr. Thomas Davidson Crothers, who passed away on Sunday, Jan. 13th, 1918, after a short illness, will not soon be forgotten in this country, nor, indeed, in any part of the civilized world. He has undoubtedly been for years one of the best known doctors in all America, certainly in medical circles. In fact, thruout English-speaking countries there are few supporters of abstinence from alcohol who have not known of Dr. Crothers as one of the most earnest advocates of prohibition on this side of the Atlantic. In many ways he has been compared to that able and scientific opponent of alcohol in England, Sir Victor Horsley. However, Dr. Crothers devoted his whole life to championing the cause of temperance, while with Horsley it was only an incidental part of his scientific work.

Dr. Crothers was a direct descendant of a family of surgeons prominent in Edinburgh for a century or more as teachers in the University. He was the grandson of Dr. Robert Crothers, who came to Canada as a surgeon of a Highland regiment in the early part of the last century. The young man, who was destined to win fame for his fight against alcohol, was brought up on a farm. He prepared for college at Fort Edward Seminary, but the excitement of the Civil War interfering with his college course, he entered directly upon the study of medicine in 1862, and for a time was a private pupil of the late Professor Armsby. Opportunity offering, he soon entered the Ira Harris U. S. Military College as medical cadet. In 1865 he graduated from the Albany Medical College, and continued his studies as interne at the Long Island College Hospital until the following year when he began the practice of medicine at West Galway, N. Y. In 1870 he removed to Albany, and a year later became connected with the college as assistant to the Chair of the Practice of Medicine, Lecturer on Hygiene and Instructor in Physical Diagnosis.

Early becoming interested in the clinical as well as social problems of alcohol addiction, Dr. Crothers organized the Walnut Lodge Hospital in 1875 at Hartford, Conn., a private institution for the medical treatment of alcohol and opium inebriates which he conducted until the day of his death and which provided opportunities for the scientific studies and investigation that have done so much to put the study of alcohol on a sound scientific basis.

In 1876 the American Association for the Study and Cure of Inebriety founded a quarterly journal devoted to the medical study of Inebriety and Dr. Crothers was unanimously elected editor, a position he ably filled until his death. He also served as secretary of the Association for many years. In 1867 he was one of the American delegates to the London International Congress for the study of Inebriety, a meeting which was attended by delegates from all parts of the world and which was the first convention ever held for scientific discussion of the subject. Dr. Crothers was a very active man, altho he had passed the three score years and ten, when the call which brooks no postponement came thru the "Captain of the Men of Death"—as Osler has termed pneumonia. Respected for his fine character and scientific attainments, admired for his achievements, and loved for himself, the death of Dr. Crothers leaves a gap in the ranks of the American medical profession which it will be hard indeed to fill.

The Nurse's Opportunity.—Never did the nurses of the country have such wonder-

ful opportunity for service as they have thru the demand created by war conditions.

The United States Army is in need of nurses for immediate assignment to duty and for reserve. According to a recent announcement it is confronted by the task of increasing the enrollment nearly 1,000 per cent. to procure 37,500 nurses, who will be needed for an army of 1,500,000. The present strength of the Army Nurse Corps is but 4,000.

The need for nurses in army hospitals in this country and for duty overseas is urgent, but the enrollment has not met the demands by a large number. Hospitals at National Guard and National Army camps still need 290 nurses to bring the quotas up to the necessary minimum of 65 nurses to each hospital.

Since the urgent need for more nurses was announced in December, over 2,000 requests for application blanks have been received, 400 nurses have applied for enrollment and many have been accepted. About 650 nurses have been obtained thru the Red Cross during the same period.

The call to duty is made to every one of the 80,000 registered and 200,000 other graduate and practical nurses in the United States. That the enrollment has not been larger is due, it is believed, to the lack of realization by American nurses of the immediate need of their services. The Army Nurse Corps impresses the profession in this country with the urgency of that need.

Besides the number needed for immediate assignment to duty, there must be a reserve for call when American casualties increase. As soon as the immediate needs of cantonment hospitals have been cared for, a reserve of 100 nurses will be organized for emergency service in the United States. The Lakewood Hotel at Lakewood, N. J., has been leased by the government for use as a general hospital and provisions will be made for housing nurses there.

Because of the immediate need of nurses and to encourage enrollments, a number of the requirements heretofore imposed have been waived. American girls who are qualified physically and by training to take up army work will find this a field of activity that gives a chance to prove their loyalty and take an active part in the world's greatest drama. Our readers who have nurses who have expressed a desire to enter the army should urge them to waste no time in writing to the Surgeon General, U. S. Army —attention of Superintendent Army Nurse Corps, Mills Building, Washington, D. C. or to the Director, American Red Cross Nurse Service, Washington, D. C.

British Medical Profession Approves Health Insurance.—How does the medical profession in England, after five years' practical experience, regard the Health Insurance Act? "Favorably," finds the British Medical Association after a painstaking inquiry among all local branches and panel committees. And, the Association's committee remarks, "the degree of unanimity so far disclosed is somewhat remarkable."

The report, which has appeared in the *British Medical Journal,* points out minor defects in administrative detail that may be easily corrected and suggests that the scheme, which is proving a distinct gain to the medical profession as well as to the public health, be still further expanded.

The most important improvements recommended by the Committee and adopted at the Annual Representative Meeting of the Association relate to provisions not found in the existing British Act but contained in the tentative health insurance bill prepared by the American Association for Labor Legislation in cooperation with the American Medical Association, and now being studied by official commissions in eight states in this country with a view to legislation. These provisions, now found desirable by the British doctors, include the extension, under certain conditions, of the advantage of medical care to dependents of insured persons, and also the extension of the scope of medical benefit to provide *all* necessary medical care—specialists and nursing services, institutional treatment, maternity attendance, etc.—instead of only that which can be furnished by the general practitioner.

Perfection of the existing panel plan and of the basis of payment for medical service is recommended, as against any immediate consideration of a new system in the direction of a state medical service, tho the Association recognizes the need for an extension of the number of salaried medical officers in the field of preventive medicine.

THE SCIENTIFIC BASES OF MODERN MEDICINE.[1]

BY

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The roots of medicine were placed in the soil of the universe at creation. The history and traditions of every nation and people mirror their sufferings, reflect their theories of disease, and reveal the constantly varying methods in their attempts to conquer death.

The earliest methods of attacking health problems were largely instinctive, empiric, and stimulated by chance observations.

The Code Hammurabi, 2250 B. C., points out the rapid development of medicine, surgery and hygiene at an age but little removed from the period of Accadian Medicine, when the physician was priest and the priest, physician. Astronomy, the oldest science of civilization, was being applied practically to human affairs thru astrologic observations and computations. Epidemics, diseases, pestilences, private disabilities and personal difficulties were considered and attacked in relation to the changes of the sun, moon, the stars, comets, eclipses and sundry other astronomic indications of good or bad fortune. Some relics of this practice exist today in folk lore, as for example, the lunar superstitions, or as modified by Christianity, the unluckiness of Friday.

This period of interpretation of omens and consequences at least gave rise to the phases of medicine dealing with prognosis.

The ancient Hebrews regarded disease as an expression of God's displeasure or wrath. To be cured God's favor had to be secured thru faithful prayer, sacrifice, and reformation. "For I am the God that healeth thee." (Exodus XV: 26).

The persistence of this idea is to be noted in Luther's statement: "Satan produces all the maladies which afflict mankind, for he is the prince of death." The slowness with which theologic influences are overcome is evidenced by the attitude of Abbe Feliatraut of Montreal in 1885 during a smallpox visitation when he said, "If we are afflicted with smallpox, it is because we had a carnival last winter, feasting the flesh which has offended the Lord—it is to punish our pride that God has sent us smallpox."

The Hebrew priests were health officers but not physicians as we understand them today and doctors were of little importance. You may recall that King Asa took counsel of physicians instead of the Lord and "slept with his fathers" in consequence. (II Chron. XVI, 12, 13).

The principal impress of Biblical medicine lies in the significant divinely inspired mandates which practically formed the foundation of public health and communal hygiene.

[1] Read before the Rochester Academy of Science; and the Manhattan Medical Society, December 21, 1917.

Greek polytheism recognized many gods as medical deities. Artemis, Hermes, Dionysus, Hera were capable of healing the afflicted but equally able to create the affliction.

The paramount health protector whose favor was sought was Apollo—whose far darting arrows carried death and pestilence to the unfaithful and the barbarians.

Esculapius, his son, became proficient in the healing art. In fact or fancy, he became too proficient and Pluto objected because the number of permanent visitors to Hades was greatly reduced. A thunderbolt of Zeus ended his pernicious activity and began his immortality. Temples of worship were erected in his honor and developed into the precursors of the modern health resort and sanitarium. Bathing, massage, catharsis, emesis and psychotherapy were administered by the priestly physicians.

It was natural for primitive men to regard disease as the result of an enemy's thought or action. His medicine and his religion were curiously intertwined. It was reasonable to expect the simple worshipper of the objective world to interpret the expression of intangible forces as a spirit or the result of the action of a spirit. It was a short step to image evil spirits, to seek to cajole or exorcise them and to protect the body with charms, amulets, shouts, rattles, sorcery, magic and wierd or startling emblems or devices that should have discouraged the most daring evil spirit. Nevertheless from the wild fantastic manipulations and emotional reactions of savagery developed the springs of psychotherapy and suggestive therapeutics. Mesmer could only partially civilize their ideas and Charcot, Braid and modern psychologists rationalize and interpret them.

The isolated facts in primitive medicine are interesting; their origin is shrouded in mystery. They do not constitute science any more than does folk lore. In the words of Neuburger "Collection and observations of facts constitute the first step in science, but not science itself."

Before the Hippocratic age, 460-370 B. C., Greek medicine partook of the characteristics of primitive medicine with the special peculiarity of interest in prognosis. Medicine had become specialized and surgeons were highly esteemed. Indeed surgery was the most progressive branch of medical science for several centuries.

The real beginnings of scientific achievement are bound up with the life of Hippocrates. He it was who first consistently applied observation, experiment, and deduction in his daily tasks. These three, Pearce regards as "the tripod of the method of medical science." His instruments were his own mind and special senses. He ceased to ascribe diseases to malignant deities or impious devils and sought the causes within the body. His methods are today the basis of scientific medicine tho his interesting fundamental theory of humoral pathology has long been discarded. Certain phases of it, however, have reappeared as part of the modern conception of immunology. His belief that diseases are due to disorders of the fluids of the body is all the more remarkable because it was evolved without the advantage of present day experimental methods and without the accumulation of masses of scientific data by others.

To his credit be it said in the words of Billings: "He seems to have written mainly for the purpose of telling what he himself knew, and this motive—rare among all writers—is especially rare among writers on medicine."

His descriptions of diseases, plan of his-

tory taking, notations of clinical symptoms continued to be patterns for succeeding generations. His treatment today would be regarded as most modern because he believed in the healing force of nature which he sought to aid in every manner. Personal hygiene was summed up by him in terms of air, aliment, exercise, and rest, sleep and wakefulness, repletion and evacuation, the passions and affections of the mind.

Thus, in the age of Pericles, he sought to crystallize medicine and to free it from the confining moulds of theologic influences. Medicine for the first time assumed some of the characteristics of a systematized science. Unfortunately, the foundations were not promptly or properly built upon and inevitable decadence resulted.

Galen, 131-201 A. D., was a student, traveler, botanist, teacher, and voluminous writer, whose mind was pleased with marvelous theories that thoroly satisfied himself and deeply impressed his colleagues. His life was given to infallible speculation and philosophizing. His descriptive anatomy was excellent, but inaccurate, having been based upon the dissection of animals other than man. He fused the Pythagorean doctrine of the four elements with Hippocrates' humoral theory and explained all pathologic data on this basis. While his contributions were regrettably stamped with the mark of finality, he had the spirit and traits of investigator and is the first example of a medical experimentalist. His experiments unfortunately were responsible for holding back medical progress for 14 centuries.

The doctrine of vitalism, with "natural spirits" in the liver and "vital spirits" in the left ventricle, which were transformed into "animal spirits" in the brain, marked the suspension of animation in physiology. The belief that blood passed thru septal pores from the right to the left ventricle was not destroyed until Harvey dared to run counter to Galenic ideas.

Most to be regretted, the teaching that pus is essential to wound healing did not die until the wonderful truths of Lister were expounded. It is strange, but not unusual, even in these scientific days, to hear erring brothers dwell with emphasis and apparent satisfaction on laudable pus.

With Hippocrates, medical science was born. With Galen, experimental medicine was begun, but the science of medicine was too young and it suffered an injury that practically was not healed until the 16th century.

The years after Galen were drear and empty. Internal medicine did not develop. Surgery deteriorated, was dissociated from medicine and was regarded merely as a secondary mode of treatment. It was under Galenic influences that the surgeon became a barber, a charalatan, an outcast. Operative treatment was discouraged and laudable pus was triumphant with fatality.

The Mohammedan physician, Rhazes, 860-932, theorized with Galen but followed Hippocrates in practice. Avicenna, 980-1036, called the Father of Geology, attempted the impossible task of harmonizing Galenic methods with Aristotelian philosophy. His attitude stressed the preference of thinking in solitude to direct observational experiences.

The Arabian school neglected surgery and anatomy but emphasized chemistry, pharmacology and therapeutics.

Alchemy was established after Geber, 702-765, had discovered nitric acid and aquaregia and described distillation, filtration and sublimation. It was natural that pharmacy should be aided under auspices

that sought an elixir of life made of potable gold.

The contributions of the Arabian school to pharmaceutic therapeutics were valuable and formed the most substantial part of materia medica for many centuries.

Part of this alchemic belief persisted thru the 16th century still tinctured with astrologic terms and ideas. It is difficult to believe that only a few hundred years have passed since men held that "the sun rules the heart, the moon the brain, Jupiter the liver, Saturn the spleen, Mercury the lungs, Mars the bile, Venus the kidneys."

The medieval centuries marked a struggle of surgery to rise to the dignity of a science. Lanfranc, 1295, sought to reunite medicine and surgery, divorced since the days of Avicenna.

Under Guy de Chauliac's anatomic aggressiveness, surgeons regained some caste tho surgical science itself was not greatly advanced.

Internal medicine could not be expected to take rapid steps while the monastic or intellectualist points of view dominated its development. What progress could be looked for during the 15th century when the College of Physicians of Paris during the existence of a plague were "of the opinion, that the constellations, with the aid of nature, strive, by virtue of their divine might, to protect and heal the human race?"

The rise of the medieval universities as Paris 1110, Bologna 1113, Padua 1222, Salamanca 1243, Seville 1254, Palermo 1312, Prague 1347, Crascow 1364, Vienna 1364, Heidelberg 1358, Leipzig 1409, Basel 1460, Tubingeñ 1477, Glasgow 1453, Aberdeen 1494, gave physicians standing among learned professions.

It must not be forgotten that philosophy was the end of study while law and theology were the excuses for philosophizing. Medicine was merely a branch of philosophy and the physician's degree was originally that of Doctor of Philosophy and Medicine.

During these dark ages plagues repeatedly swept over Europe but the underlying causes were not suspected. Astrologic influences sufficed to explain most of them. There was no possibility for sanitary science to develop in an age when filthiness actually betokened highly esteemed humility. St. Anthony had the distinction of never having washed his feet while St. Simon Stylites lived in stench and foulness—today deemed unhealthful for favored porcines.

With the invention of printing arose a new agency for education. Hippocrates and Galen were reincarnated thru the warm ink of sympathetic commentators.

Paracelsus, 1493-1541, learned in astrology and alchemy, wide in experience, a braggart and blackguard, a mystic, philosopher and heretic, rejected Galen and Avicenna, and taught the advantage of chemical agents in the treatment of disease. He preached a form of asepsis and urged that wounds be allowed to heal thru nature's balm. He was a pioneer in medical chemistry and gave to the world laudanum, and hazarded a belief in the descent of life from a primordial ooze. His influence on our age has not been felt but at the time he lived he was a forceful power in driving a wedge into the superstition, ignorance, and deadening inertia of medicine. His doctrine of signatures was not unnatural in a period saturated with herb doctrine and superstition and unreasoning mysticism.

The teaching of anatomy had been hampered because dissection was opposed on account of the sanctity of the body and the possibility of interference with its resurrection. Galen's simian anatomy held sway

until Andreas Vesalius, 1514-1564, dared to transgress the laws of his superstitious age and boldly dissected human bodies. With violent scorn he rent Galen's text and presented with truth and fidelity the human body as he found it from first-hand investigation. He was discredited by his teachers, pupils and friends, but his book had ushered in a new epoch in medical science and had pointed a way to freedom of medical thought.

He was more fortunate than Miguel Servetus, 1509-1553, who was burned at the stake for heresy at the instigation of Calvin.

The effects of Vesalius' example, writings and utterances were not lost on Ambroise Parè, 1510-1590, a French Army surgeon who entered into many a fray for country and for truth. He banished the use of boiling oil as a styptic and the heated iron as a cautery, tho he compromised with his convictions and superstition by substituting a salve.

If vanity is ever justifiable, surely Parè can be excused for this trait. He re-created surgery, added many instruments to its armamentarium, developed the use of the ligature, and various new procedures and boldly originated types of operations that would have deterred a man less confident and determined. To dentistry, medical jurisprudence, obstetrics and sanitary science, he made contributions of marked value.

The physicians were originally learned in natural science. In fact, medicine was the only true natural science taught in the university laboratories. Medicine in turn developed and fostered all natural sciences. The interdependence of sciences for the progress of each and every one has not always been recognized. Possibly, it is not too much to say that medical science was the Mother of Sciences. Today, the parent science is enriched and kept young by the cooperation of all the sciences she bore or sheltered during their period of infancy.

Medicine, up to the 17th century, was not imbued with scientific methods or ideals. There were here and there suggestions of the old Hippocratic methods of observation, experiment and deduction. At least, the light was dawning. The darkness was melting away. A new day for medical science was at hand when the 17th century opened with Gilbert's wonderworking volume on magnetism.

In the language of Garrison: "The seventeenth century, the age of Shakspere and Milton, Velasquez and Rembrandt, Bach and Purcell, Cervantes and Molier, Newton and Liebnitz, Bacon and Descartes, Spinoza and Locke, was preeminently a period of intense individualism, intellectual and spiritual."

The name of names of the century is William Harvey, 1578-1657. His great study De Motu Cordis exerted the profoundest influence on modern medicine. By experimentalism, and computation, he determined that the blood actually is forced by the muscular pumping of the heart thru the arteries and returns to the heart thru the venous system. He carefully applied mathematical measures to his biologic studies. By this profound quantitative investigation, he transformed physiology into a dynamic branch of medicine.

Mathematics has played an important part in the development of modern medicine as will be manifest later. It is not strange that at this very period Spanish physicians were called "Algebrista." In passing, credit may be given to Dr. Robert Recorde for publishing the first English algebra.

The single link missing in Harvey's chain of evidence was the demonstration of the

capillaries. The non-existence of the microscope explains this omission as well as his failure to establish his embryologic studies on a sure foundation.

Following the publication of his volume detailing the circulation of the blood there began a renaissance of anatomic investigation which served as the basis of progress in physiology.

Experimental science had had a rebirth under the auspices of Galileo, 1583, whose telescope revolutionized astronomic endeavors.

The microscope was to play a similar part in the unfolding of medical science. Kircher, a Jesuit priest versed in mathematics, physics, optics, music, and medicine began the microscopic study of disease. While he probably saw the blood cells, Swammerdam first described the red corpuscles. Incidentally, Swammerdam studied the movements of the heart and muscles by plethysmographic methods.

While Hooke had worked with a compound miscroscope of low power lenses on vegetal cells, the mind which first directed microscopic progress into well defined channels was Antonj van Leeuwenhock, 1632-1723. His description of bacteria was the forerunner of modern bacteriology in the development of which microscopy has played an important part.

From incidental microscopy it was a short step to the foundation of histology. Malpighi, 1628-1694, was a professor of anatomy, a capable biologist, morphologist, and founder of histology and modern embryology. His powers were enhanced and fortified thru his abilities as an expert microscopist. He completed the circle Harvey had postulated when he discovered the capillaries.

Without the optical principles involved in the structure of the microscope, medicine could not have advanced beyond the limitations of the human eye and these have ever been very restricting.

Science had made splendid progress in various fields and medicine shared the benefits, tho strife resulted. Astronomy, physics, chemistry and mathematics were flourishing. The advances of Copernicus, Galileo, and Kepler were followed by Newton's presentations of the law of gravitation (1682). Napier and Briggs had invented logarithms, Descartes had produced analytic geometry and Newton differential calculus. The barometer had been invented and the compound microscope.

Medicine was duly influenced and there arose the iatromathematical school which ascribed all physiologic phenomena as a consequence of physical laws.

On the other hand, Van Helmont, Sylvius and Willis championed an iatrochemical school which interpreted all reactions of life as essentially chemical in nature.

Descartes in De Homine presented a physiology based on mechanical principles which was elementary compared with the extreme mechanical point of view of Borelli who regarded respiration and digestion as purely physical problems.

The advantages to medical science from the physical school of medicine are found in the first efforts to introduce clinical thermometry and pulse counting.

Galileo and Kepler had devised methods of using the pulse count in astronomic observations. Indeed Galileo had produced the first spirit thermometer. Sanctorius built upon their studies and described a clinical thermometer and a pulse clock but they were forgotten. His claim to fame rests upon his original researches on metabolism.

The astronomer Kepler revealed the part

the lens plays in vision, the importance of the retina. In brief, the physical theory of vision had its origin in mathematics and physics.

To Sylvius credit must be given for his chemical studies of digestion, the saliva, and the pancreatic juice but more particularly on account of his firm belief in the identity of organic and inorganic chemical reaction.

It is unnecessary to enumerate the specific contributions of the brilliant students and investigators of this school, including Willis, de Graaf, Bohn, Peyer. Sufficeth to state that every phase of medical science was enriched and the foundation laid for advances in theory and practice in every department of physical science.

It is patent that the beginnings of modern medical science are to be found in mathematics, astronomy, physics, chemistry and microscopy, all of which were principally developed by physicians. It is an impressive tribute to the fertility and versatility of physicians.

During the 18th century, the advances in medicine were isolated and developed into static systems. Garrison points out this characteristic of the age in frank style.

"In this regard, the most characteristic figures of the age—Kant and Rousseau, Voltaire and Hume, Swedenborg and Wesley, Linnaeus and Buffon, Racine and Pope —speak for themselves. Even the music of Mozart, Haydn, and Gluck, altho in sheer beauty like something Greek strayed out of place and time, seems of precise and formal cut if compared with the sublime polyphony of Palestrina or the splendor in infinite detail of that seventeenth century giant Bach; while Handel is absolutely squaretoed, silver-buckled, and periwigged in style. The best scientific work of the period was still in physics and chemistry, as witness the names of Lagrange and Laplace, Cavendish and Priestley, Scheele and Lavoisier, Galvani and Volta, Franklin and Count Rumford, Fahrenheit, Celsius and Reaumur, Watt, Fulton and Stephenson. For medicine, aside from the work of a few original spirits like Morgagni, Hales, Hunter, Wolff and Jenner, it was essentially an age of theorists and system-markers. Linnaeus established the vogue of classification in medicine as well as his own science and seems to have set the pace everywhere. In this respect, eighteenth century medicine is as dull and sober-sided as that of the Arabic period."

It is unnecessary to dwell upon the unfolding of facts in zoology, botany, paleontology, geology, ethnology, physical science, mechanics, in all of which medical men were well represented as leaders and pioneer investigators.

Linnaeus, 1707-1778, originated his "sexual system" of classification which flourished for at least 100 years while his conception of the fixity of species since creation only died under the urge of Darwinian revelation. His nomenclature set a fashion in classification which was not without effect on medical minds. Here was evidence that he had properly classified man as Homo Sapiens.

Thru Albrech von Haller, 1708-1777, medical bibliography was established but this systematization is as rarely recalled as his physiologic experimentation on the irritability of living tissues. He represents the advance guard of the modern physiologists.

The subject of industrial disease and the hygiene of occupations received thoughtful study and description for the first time since the days of Paracelsus at the hands of Bernardino Ramazzini, 1633-1714.

The most modern phases of medicine involved in public hygiene were covered in four volumes by Johann Peter Frank, 1754-1821. He anticipated the modern hygienists and enthusiasts in preventive medicine. As has been said, he ran the gamut of man's life "from the womb to the tomb" not forgetting school hygiene, meals for children, and health squads of policemen. His work is fundamental in public health.

To omit reference to Galvani, 1737-1798, would minimize the importance of his relations to medicine thru the founding of electrophysiology. Where is the laboratory that does not repeat his earliest experiments on muscle-nerve preparations?

Under the influence of physics and chemistry, the modern theory of physiology of respiration was established. Here a physiologic problem became solvable only by virtue of the discoveries of Black, Cavendish, Priestly, Lavoisier and Rutherford who isolated carbon dioxide, hydrogen, oxygen and nitrogen from the atmosphere. Lavoisier, 1743-1793, proved the nature of the interchange of gases in the lungs and began to make quantitative analyses.

The complete demonstration of the physiology of respiration did not occur until 1837 when Magnus demonstrated both oxygen and carbon dioxide in arterial and venous blood.

The scientific bases of modern medicine are well illustrated in the origin, development and demonstration of the physiologic theory of respiration which involved the cumulative efforts of numerous mathematicians, physicists and chemists.

From the days of de Chauliac, surgery had sought to secure recognition as a branch of scientific medicine. It required the genius and commanding personality of John Hunter and his students to raise surgery to a plane of scientific achievement. Under his direction and largely thru his own experiments, researches and observations he established surgical pathology and explored the fields of comparative physiology and experimental morphology. His biologic studies covered the dissection and description of more than 500 species of animals with particular emphasis upon the relation of structure of function. Thus it is evident that while the firm foundation of modern surgery lay in anatomy, its greatest opportunity for advancement along modern lines arose from biologic science and comparative morphologic investigations.

The theory of sound and practical autopsy experience provided the necessary data to enable Auenbrugger, 1722-1809, to establish the value of percussion as a diagnostic aid in diseases of the chest. This meritorious method was totally obscure, however, until Corvisart in 1808 rescued it from oblivion.

The characteristic feature of modern medicine is pathologic anatomy which owes its origin to Morgagni, 1682-1771, who correlated his post mortem observations with the clinical findings during life. Because of his stupendous contributions, all humoral theories of pathology died and medical progress was thus hastened.

Towards the close of the 18th century Edward Jenner laid the foundation of preventive inoculation and made a most practical contribution to medicine and public health. It is admitted that the origin of his discovery was folk lore but that does not militate against the value of his experimental work in securing satisfactory proofs of the merits of the principle involved in vaccination. He forced the growth of public preventive medicine and succeeded in arousing the popular mind to its importance.

The success of vaccination augured well

for the growth of a new idea in medicine. Prevention came to be recognized as of greater consequence than cure. The protection of the masses from the inroads of disease began to supersede the idea that the cure of an individual is of maximum importance. Public health gradually appeared to be manifestly transcendant to individual sufferings. This idea did not reach its ascendancy until the 19th century and is now dominating the most modern conception of medicine in the present era.

The nineteenth century found physics, chemistry, and biology well established as special sciences and thru their development the essential steps for modern medicine were built. The physician and surgeon had only to accept and climb the steps in order to unlock the doors to a veritable treasure house.

Let me suggest the debt of modern medicine to the theories and practical demonstrations of Ampere, Ohm, Faraday, and Wheatstone in electricity, and the later demonstration of the X-ray by Roentgen.

Progress was fostered in electrophysiology by Du Bois Reymond while the work of Helmholtz in acoustics and physiologic optics opened a new world in medicine.

The splendid studies of Ludwig, 1847, on the Kymograph made possible the principal methods of graphic registration and representation now utilized in physiology, psychology and pharmacology.

Most important contributions to pathology resulted from the formulation of the cell theory of plant life by the botanist Schleiden, 1839-1843, after his interpretation of the significance of the cell nucleus. When Schwann, 1837, accorded identity of structure to animal and plant cells, cell morphology became the main interest in living tissues until the time of Pasteur.

The generalizations of Schleiden and Schwann were applied to pathology by Virchow and placed pathology on its modern basis to the improvement of medical science. Virchow's *omnis cellula e cellula* is today the prime factor in pathology and studies in heredity and immunity.

Charles Darwin, 1809-1882, stimulated biologic thought and the theories of evolution promulgated by him and Wallace revolutionized biology and cleared the way for comparative physiology, psychology and biologic pathology. His marked influence was heightened and extended and made popular and accessible to the masses thru the contributions of Spencer, Huxley and Haeckel.

Abbot Mendel, 1866-1867, had determined a mathematical law governing the appearance of dominant and recessive characters among hybrids but it was buried in an obscure journal to be rediscovered in the 20th century. Weissmann, Galton and Pearson threw their genius into the problems of heredity and by biologic and mathematical methods furthered the biometric social movements today revolving about eugenics and its congeners.

Pathologic anatomy had been systematized by Rokitansky who studied viscera as organs but its most vital principles were enunciated by Virchow in his Cellular Pathology, 1858. He conceived pathology to be the study of life under abnormal circumstances and saw in the cell the basic tissue element of life to be studied by all the methods available from sciences collateral to medicine.

The university of Giessen had established the first chemical laboratory under university control and here in 1826 Liebig began his celebrated investigations that led to the foundation of biologic or physiologic chemistry. His researches and those of

Wohler at Gottingen, resulting in the production of synthetic urea, gave rise to modern organic chemistry to which industry and medicine are alike indebted for marvelous developments for the betterment of living conditions.

It was a promising day for medicine when Claude Bernard, 1813-1878, forsook playwriting and entered into medical research. He was pre-eminently a physiologist with an imagination that worked constantly except during the hours devoted to definite laboratory experimentation. His chemical studies constitute the basis of the modern scientific study of metabolism. The present-day ideas of the physiology of digestion were established as a result of his studies on the pancreatic juice, the glycogenic function of the liver to a greater extent than on Beaumont's celebrated direct observation, 1833, on gastric movements. The contributions of Voit, Pettenkofer and Pavloff to dietetics and the chemistry of digestion had Bernard as a background as did the work of Sajous on internal secretions.

The tendencies in medicine shifted toward the study of causes rather than the mere analysis of symptoms and their possible meanings, and the age of medical specialism was a natural consequence.

Helmholtz's doctrine of the conservation of energy, 1847, the use of the microtome by His in 1866, were the starting points of rapid improvements in medical technic.

Percussion was revised by Corvisart, 1808; Laennec devised his simple paper cylinder for auscultation in 1819, von Helmholtz produced his ophthalmoscope and Emanuel Garcia (1855) introduced the laryngoscope and Kussmaul, 1867, presented the stomach tube. These valuable instruments and methods of precision revolutionized medical knowledge of disease and profoundly influenced modern medicine in every phase of its expansion.

The stage had been properly set for the entrance of several stars, the brightest of whom was Pasteur. Under the influence of the methods of physics, this chemist founded a new biologic science. His epoch-marking investigations of bacteria in putrefaction, fermentation and disease put in place the keystone of modern scientific medicine. They are distinctly fundamental in our modern conception of infection, pasteurization, antisepsis and quarantine.

The steps in his famous discovery of the nature of fermentation are characteristic of his method of attacking a problem. He had noted that one of the tartaric acids was inactive to polarized light and found the cause to be the coexistence of two isomeric constituents. If a mould acted upon the tartaric acid, the right constituent was destroyed and optical activity resulted. This might have satisfied most laboratory minds but Pasteur judged that the cause of this alteration of optical character was due to the action of the living mould. On this hypothesis began the studies on fermenting beef juice, sour milk and numerous other fermented and putrified materials which culminated in his announcement "The chemical act of fermentation is essentially a correlative phenomenon of a vital act, beginning and ending with it."

The theory of spontaneous generation was soon dealt a fatal blow thru the celebrated experiment with sterile yeast infusion in a flask with a long double curved neck. Tyndall's work on floating matter in the air and Cohn's writings on spores aided in winning the day for the new concept—*omne vivum ex vivo*.

The study of microorganisms and their life history soon led to research into the

part they played in the causation of disease. In fact, Pasteur's belief in specific ferments suggested the possibility of specific causes of disease. The science of bacteriology was born and quickly flourished. Its progress has been remarkably rapid and its benefits to mankind have been incalculable. His conquest of pebrine, a disease of silk worms, indicated the economic worth of his conception of specific infective agents. It also pointed the way to the modern theories of the etiology of infectious diseases and laid the foundation of preventive medicine that is slowly overcoming the scourges of humanity.

In 1867, he originated the process that today bears his name *i. e.,* Pasteurization. In an investigation as to the causes of the failure in the wine industry, he determined that by heating at 55°-60°, a form of partial sterilization, destroyed the destructive microorganisms in wine without destroying either its taste or bouquet. To the economist, this was an important factor in founding the canning industry but to the physician it represents the preservation of food against the attack of disease-producing germs which has resulted in the life-saving of untold thousands of infants, children and adults.

Following closely upon Pasteur's discoveries, Lister began to apply these theories to the treatment of wounds. The curse of "laudable pus" still hovered over surgery; and gangrene, erysipelas and septic infection took fearful toll in every hospital.

Lister sought to prevent the growth of bacteria in wounds. Obviously, pasteurization could not be utilized to living tissues wherefore recourse was had to chemical antiseptics. Carbolic acid had been used for the disinfection of sewage and Lister chanced to try this agent to eliminate or destroy the putrefactive organisms in infected wounds. Modern surgery again burst into flower as it had budded after the dentist Morton had administered ether for Dr. Warren at the Massachusetts General Hospital, in 1846.

The antiseptic method was quickly tried but was not fully accepted until 1883. Today, the theory and practice of modern surgery demands the maintenance of asepsis, but this was a Listerian ideal which was slowly achieved.

In justice to Semmelweiss and our own Oliver Wendell Holmes be it recalled that they had perceived the truth of obstetric infection and, despite abuse, contempt and persecution had insisted upon the importance of cleanliness in the care of parturient women as the antiseptic method of lowering the maternal death rate.

Bacteriology, chemistry, biology and microscopy had slowly acquired new methods and instruments which aided the germ theory of disease to receive a willing acceptance, tho somewhat tardily.

Abbe had developed the condenser for illumination; Weigert was busily staining bacteria and body tissues; Ehrlich was studiously applying dyes to blood cells; Cohn had morphologically classified bacteria; Klebs had succeeded in filtering bacteria from culture media by means of animal membranes, when Koch in 1881 introduced solid media for the growth of bacteria which made possible the isolation bacteria in pure culture. This was the biologic method essential for bacterial cultivation, differentiation, identification and classification.

Robert Koch pyramided the value of Pasteur's discovery of the bacterium causing swine erysipelas when in 1882 he announced the discovery of the bacillus causing tuberculosis. In 1883, the cholera vibrio was

described. Pasteur's doctrine of specific causes grew in the estimation of scientists and interest in the causation of disease intensified.

With the knowledge of specific causes, it required only a second thought to appreciate the importance of preventing the occurrence of infective diseases. Prophylaxis became a reality and public health measures were soon proposed and received warm and merited advocacy.

This was a prompt conclusion to the valuable studies of Pettenkofer on the relation of water supplies to epidemics of cholera and typhoid fever.

While protective health measures were encouraged by the new found truths of bacteriology, another valuable principle evolved.

If there are specific causes of disease, are not specific cures possible? In 1886, an old culture of the bacteria causing chicken cholera was discovered to be of such low virulence that it failed to kill hens to which it was administered but conferred immunity upon them. Jenner's empiric and experimental inoculation was receiving its explanation and the theory of vaccination by cultures of attenuated virulence was almost established. It required the attenuation of anthrax bacilli by cultivation at 42°-43° C. to demonstrate the possibilities of creating an artificial immunity to anthrax and inferentially any other diseases of known bacterial origin.

Modern scientific medicine had arrived. The prevention of disease, the attack upon the underlying causes affecting communities has developed by leaps and bounds. Biology, chemistry, physics, mathematics, sociology, economics, vital statistics have brought to bear innumerable facts indicating the points of departure for conquering disease. The scientific bases were practically existent in the latter part of the 19th century.

The special developments of modern medicine are combinations and variations of known principles and facts, which almost daily are resulting in new revelations in the interests of social welfare.

The cure of disease has not been relegated to the background but the methods hallowed by tradition and sanctified by antiquity are subjected to scientific tests to determine their real worth.

Imagination is still alive, but it is inspiring investigations instead of constituting the experiment.

Immunology and chemotherapy represent triumphs of the scientific imagination of well informed and systematically ordered minds.

Let me hastily sketch the growth of these two infants among modern medical scientific developments.

It has been demonstrated that bacterial toxins have specific action as a result of the study of symptoms and anatomic lesions following infection. Pasteur and Koch had demonstrated methods of developing immunity.

In 1890 Behring immunized a horse with a weak diphtheria toxin and ascertained that serum of this type cured toxic symptoms in animals similarly infected. In 1894, he produced diphtheria antitoxin for curative purposes. Protective immunity was soon introduced to reinforce the natural resistance, possibly weak, to diphtherial infection.

To demonstrate the scientific bases of modern medicine, it is not essential to indicate all the lines of development. I cannot avoid, however, pointing out Nuttall's determination in 1884 of the bacteriacidal power of the body fluids and especially the

blood serum and its application by Pfeiffer, 1894, which led to the introduction of antibacterial sera as opposed to the antitoxic sera.

The peculiar phenomenon that a serum which had been affected by a specific bacterial invasion could agglutinate such bacteria formed the basis of Widal's test for the diagnosis of typhoid fever, 1896, and the fact has since been applied in various other infective conditions with satisfactory results.

In 1890 only two diseases, malaria and dysentery were suspected to be due to protozoal infection. Today there are more than twenty diseases thus accounted for.

Protozoology is no longer merely morphologic. It is a growing branch of public health medicine and forms an important branch of parasitology.

Since Smith and Kilbourne found that Texas fever of cattle was due to a tick transmitting the infective piroplasma, and Ross proved the mosquito guilty of being the intermediate host bearing avian malaria and the American Yellow Fever Commission convicted the Anopheles of transmitting yellow fever, the evolution of our knowledge in medical entomology has been astonishingly rapid.

Treatment has been transferred to the mosquito, for example, while the cure of the individual patient has been relegated to a position of secondary significance.

As the last expression of the influence of chemistry, chemotherapy is enlightening and promising.

Bacteria yield toxins—protozoa do not produce toxins, and therefore cannot be attacked by antitoxic sera. Quinine empirically was known to cure malaria before it had been proven that the result was due to an amebicidal action of the blood stream when bearing quinine in solution.

Prof. Ehrlich perceived the relation of this fact to the general form of attack essential for the destruction of invading protozoal organisms. Arguing that "a specific chemical affinity exists between living cells and specific chemical substance" he built up a theory of chemical sterilization of the body against specific organisms by means of chemicals that would have affinity for the organism but none for the vital tissue cells of the host. Such was the origin in theory of the celebrated 606 which has been more successful in curing relapsing fever than in overcoming lues.

The conception of a sterilisatio magna is not a dream. It is a vision such as can emanate only from a mind richly endowed in imagination and fortified by wide knowledge.

At the present time, there are about one dozen drugs used specifically for the cure of specific diseases that indicate that Ehrlich, the father of a most remarkable theory of immunity, also formulated a promising principle for future therapeutics.

Let me summarize the main facts of my thesis in a final paragraph.

Modern scientific medicine is firmly established upon the bases of physics, chemistry, biology and mathematics. Botany, zoology, bacteriology are offshoots of biology as economics, sociology and vital statistics are developments of mathematics. The future of scientific medicine is to be determined by the constant application to medical problems of every discovery and advance in every field of science.

230 West 97th Street.

Arthritis.—Because an arthritis does not clear up after the extraction of a diseased tooth root does not prove that the original infection of the joint was not due to the tooth root.—*Medical Times.*

BLOOD CHOLESTEROL IN PERNICIOUS ANEMIA.

BY

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It is unquestionable that cholesterol plays a significant part in the immunologic defenses of the body. Its reaction with many injected poisons to form antitoxins, its effectiveness against lytic agents, its apparent activity in serologic tests of complement fixation, are all evidences of the importance of this colloid in phases of biochemistry which deal with immunity.

Saponin is a powerful hemolysin. Its action, so says Ransom, is dependent upon the presence of cholesterol in the blood serum on the one hand, and particularly upon the presence of cholesterol within the erythrocytes upon the other hand. The cholesterol of the serum protects the erythrocytes from being attacked by saponin. Explaining on a chemical basis, Ransom suggests that the red cells are permeable to saponin but not to the hemolytic compound formed by the combination of saponin with cholesterol. When the saponin is introduced into the blood it is divided between the red cells and the serum in proportion to their content of cholesterol. If the quantity of saponin-cholesterol compound formed ultrapasses a certain threshold, the erythyrocytes are hemolyzed; otherwise, not. It is the poison dissolved in the blood cell that exerts an action; the poison on their outside is without effect.

Modern physiologic chemical analyses would indicate that cholesterol is partitioned between the serum and the red cells in the ratio of 55 to 45. It is further known that cholesterol occurs in the blood in a free and in a combined or esterified form; but the exact proportion of each kind is not yet determined with sufficient precision to warrant discussion.

Recently, much attention has been directed to the pathologic significance of hypercholesterolemia, more especially in cases of cholelithiasis. In a communication which will appear subsequently, it will be shown that uncomplicated cases of gallstones do not at all times show a hypercholesterolemia; but that in every case wherein the clinical symptoms are incident to biliary calculi, and regardless of whether a hypercholesterolemia does or does not obtain, the distribution of cholesterol between the serum and the cells is always altered. Instead of showing the normal ratio, 55 to 45, in gall-stone cases one finds the proportion to vary between 55 to 30 and 55 to 20. It will be indicated too that the disturbed equilibrium is due to the presence of bile in the blood in quantities sufficient to hemolyze some red cells thereby liberating small amounts of cholesterol; so that the total quantity of cholesterol in the whole blood may be normal, yet the proportional amount in the serum has been increased at the expense of destroyed erythrocytes. This phenomenon it was found desirable to call "occult jaundice."

There chanced the observation that the whole blood of patients suffering from "pernicious" anemia showed a markedly decreased cholesterol content; and that a peculiar change in the distribution of cholesterol between cells and serum occurs. The following table of sixteen cases of "pernicious" anemia wherein the cholesterol partition was determined, indicates the finding:

TABLE 1.

Cholesterol partition between the serum and cells of the blood of cases of "pernicious" anemia. Those cases marked with stars were subjected to splenectomy. The clinical diagnosis was made on the basis of a profound anemia, high color index, and lack of whatever clinical sign for a primary cause.

Case number	Cholesterol; Milligrams per 100 cc's. Whole blood	Serum	Cells	Ratio
Normal	150	160	140	55:40
1	110	35	95	55:149
2	120	30	110	55:201
3*	90	40	90	55:124
4	110	35	95	55:149
5	85	40	50	55:68
6	90	35	80	55:126
7	90	60	45	55:74
8	70	20	60	55:165
9*	125	50	90	55:91
10*	140	60	100	55:91
11	90	20	85	55:233
12*	100	25	95	55:209
13	95	30	80	55:146
14	110	30	105	55:192
15	110	20	95	55:261
16	90	35	80	55:126

It will be noted that the striking feature, besides the diminished serum content, of cholesterol is the normal, or even increased cellular content of cholesterol.

Berger has suggested that "pernicious" anemia be regarded as due to chronic catarrhal inflammation of a portion or the whole of the gastrointestinal mucosa, in the course of which inflammation a markedly hemolytic substance is developed. While much evidence must yet be introduced before finally accepting the correctness of Berger's contention, certain it is that gastrointestinal mucosal extracts obtained at autopsy from those who have succumbed to "pernicious" anemia possesses a violently hemolytic activity, whereas the normal bowel, or that from the dead from other causes than "pernicious" anemia, fails to occasion hemolysis.

No effort is made here to insist that the etiologic pathogenesis of "pernicious" anemia is found to reside in the hemolytic bodies generated in the bowel mucosa; but it is suggested that the lowered serum content of cholesterol would offer fertile field for virile attack upon the unprotected red cells by whatever lytic substance which invades the blood stream of anemic persons, whether the substance be an endogenous mucosal hemolytic product, or an exogenous toxin incident to bacillary infection.

In lieu of the above, it would appear to be more than speculative conjecture to argue that much therapeutic benefit might be expected to accrue from the introduction of cholesterol into the blood stream in cases of "pernicious" anemia. The experiment was made of prescribing lanolin inunctions together with the internal administration of lanolin given suspended in warm milk, salted, as an emulsion. Following is the record of progress of an individual who had "pernicious" anemia and who was submitted to the treatment outlined in table 2 on p. 94.

On the last date given, the patient left the city. One year later he wrote that he had continued the lanolin inunctions, tho discontinued the internal medication with the same; that he had gained some weight; that the edema which he had occasionally noticed about his ankles had practically disappeared; and that, altho still too weak to resume office work, he had improved greatly in his general physical condition and mental morale.

Three changes must be noticed in the observed history of the laboratory examinations. First, the increase of red blood cells, from less than one million to practically three million. Secondly, the coincident rise in hemoglobin (and lowering of color index). Finally, the gradual readjustment of the cholesterol partition, reassuming its normal ratio when the corpuscles reached their highest level, and when the patient was improved subjectively.

Of course, the administration of cholesterol in cases of "pernicious" anemia is not wholly without precedent. Matthews, in his book on physiologic chemistry, refers to this measure. But it has not heretofore appeared what is the exact change in cholesterol metabolism and distribution in these cases.

There have been conducted many determinations of cholesterol partition in cases of secondary anemia incident to nephritis, infections and some industrial poisons. Without registering the results, it is desired to record here that the findings in each case indicated no such change in the cholesterol partition as is evidenced in cases of "pernicious" anemia.

Following are the tentative conclusions offered:

(1) In "pernicious" anemia, the relation of the cholesterol in the serum and in the cells is altered in that,

a the serum content is diminished;

b the cell content is increased;

c the whole blood content is decreased.

(2) Such marked alteration is not evidenced in cases of secondary anemia.

TABLE 2.

A case of "pernicious" anemia treated with lanolin in the form of inunction, and internally, one teaspoonful emulsified in a glass of warm, salted milk, t. i. d.

			Cholesterol			
Date	Cells	Hemoglobin	Blood	Serum	Cells	Ratio
June 11	980,000	26%	110	35	95	55:149
18	1,020,000	27	...	...	...	.....
25	995,000	29	...	...	...	.....
July 2	1,200,000	27	125	80	140	55:96
9	1,100,000	30	...	...	...	.....
16	1,400,000	26	...	...	...	.....
23	1,325,000	28	...	...	...	.....
30	1,340,000	28	...	...	...	.....
Aug. 6	1,620,000	32	160	170	110	55:36
13	1,730,000	26	...	...	...	.....
20	1,720,000	28	...	...	...	.....
27	1,950,000	32	...	...	...	.....
Sept. 3	1,400,000	40	155	155	155	55:55
10	2,200,000	42	...	...	...	.....
17	2,680,000	48	...	...	...	.....
24	2,490,000	47	...	...	...	.....
Oct. 1	2,810,000	40	150	160	140	55:45
8	2,800,000	48	...	...	...	.....
15	2,925,000	43	...	...	...	.....
22	2,800,000	48	...	...	...	.....
29	2,750,000	50	...	...	...	.....
Nov. 5	2,900,000	49	165	170	130	55:42
12	2,960,000	51	...	...	...	.....
19	2,850,000	48	...	...	...	.....
26	2,920,000	50	...	...	...	.....
Dec. 2	2,910,000	51	160	180	120	55:37

This patient, at the time of writing, is still living. The case has been under observation two and one-half years.

(3) Therapeutic administration of cholesterol, in the form of lanolin is indicated and appears to effect positive benefit.

195 Broadway.

Delirium Tremens.—Stir together 40 grains of capsicin and 16 ounces of sweet milk and administer this mixture freely until the patient is relieved.—*American Jour. of Clinical Medicine.*

ANCIENT MEDICAL MYSTICISMS.

BY

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The pristine Hebrew considered health and disease as originating from the same divine source. "I kill and make alive; I wound and I heal" (Deut. xxxii. 39), said the Lord thru His servant Moses; and therefore they who minister to the health of their fellow-beings are regarded as the messengers of God, as the executors of His will. Altho a physician of Israel is mentioned, nevertheless the practice of medicine is sanctioned by the Law: "If men strive together, and one smite another . . . and . . . he keepeth his bed . . . he shall pay for the loss of his time, and shall cause him to be thoroly healed." Joseph employed house physicians, and Isaiah mentions especially a surgeon or wound dresser. Among the Jews, unlike other primordial nations, the priests did not monopolize the art and science of curing. Moses assigned to them only the labor of police supervision in instances of contagious diseases. The Bible does not speak of a single instance of a priest having performed the duties of a physician. The Prophets, however, practiced occasionally the art of healing. Elijah brought to life a child apparently dead; and his disciple Elisha executed a similar miraculous cure. A man of God restored the paralyzed hand of King Jeroboam, and Isaiah cured King Hezekiah of an inflammation by the application of a plaster composed of figs.

At a later period physicians were held in high esteem by the people, as may be gathered from Ben Simra: "Honor a physician with the honor due unto him for the uses which ye may have of him, for the Lord hath created him. . . The Lord has created medicines out of the earth; and he that is wise will not abhor them. . . And He has given men skill that He might be honored in His marvelous works. . . My son, in thy sickness be not negligent; . . . give place to the physician; . . . let him not go from thee, for thou hast need of him." Afterward the status of the medical profession became still more exalted. The court of justice employed in certain cases the services of a doctor, whose expert testimony was decisive in criminal litigation. In cases of assault, for instance, it was his duty to give his opinion as to the danger to the life of the assaulted. Corporal punishment was inflicted under the supervision of a physician. No physician was allowed the privilege of practicing medicine without a license issued by the local judicial council. Every city was required to have at least one physician, and to live in a city that had none was considered extremely hazardous.

The medicine of the ancient Hebrew scholars was based on tradition, the dissection of human bodies, observation of diseases, and experiments upon animals. When making their rounds physicians used to take their apprentices with them. In the majority of cases the art of healing was transmitted from father to son. The many medical apothegms preserved in the ancient law books, and the fact that physicians participated in the discussion of many important religious questions by the rabbis, indicate that the latter were not unacquainted with the science of medicine. That the demand upon the skill of doctors was considerable, may be adduced from the statute prohibiting the part owner of a house from renting his portion to a physician on account of the noise and disturbance caused by the visiting patients. Physicians received for their services comparatively large fees. A current saying was: "A physician who takes nothing is worth nothing."

Folk-Medicine.—The ideas and remedies common among uncultured people with regard to the prevention and the cure of diseases. They are found among the ancients of all ages. Even in the Old Testament the use of mandrake to produce fertility is referred to as being efficacious. Elsewhere is recommended the use of smoked liver, heart and gall of a fish for casting out a demon or evil spirit. In the old Jewish records there is ample evidence of the spread of folk medicine in Babylonia. Probably as a protest against this, it is stated that Hezekiah had concealed a book of medical remedies. The tertian fever was to be cured by an amulet consisting of seven sets of seven things hung around the neck. Amulets were also used against epilepsy. The idea of transferring a disease to animals, found so frequently in folk-medicine, is found also in the archaic law records. In fever the patient

was recommended to go to a cross-road and seize the first ant with a burden that he saw crawling along. He was to grasp it and place it in a copper tube, which was to be covered with lead and subsequently sealed. Then he was instructed to shake the tube and say: "What thou carriest on me, that I carry on thee."

In the middle ages there is substantial evidence of a much wider spread of folk-medicine among the Jews. One author gives a number of folk-recipes that occur in the "Book of the Pious" of the thirteenth century. A great number of these recipes were derived by the Jews from their Christian neighbors. Thus against premature birth, the wife was encouraged to carry a portion of her husband's stockings or girdle, a procedure that is highly commended by the German folk-medicine also. Against epilepsy, which, owing to its mysterious character and unknown origin, seems to have attracted the attention of the folk-doctors, the following remedy is offered. Place several crabs in a pot, pour some fine wine over them, and bury them for three days and three nights; then give some of the sauce thus made to the patient morning and night for a period of nine days. In more modern times, the following recommendations have been given to counteract this disease: Let the patient carry a golden peacock's feather under his shirt; or let his shirt, after having been pulled over his head and taken out thru the chimney, be buried at two cross-roads.

Fever is also a favorite topic of modern folk-medicine. The remedies are at times quite simple; as, to spill a can of water suddenly on a patient, or to allow him to eat something he does not like, or to place a kreuzer on the bank of a stream at sunset, and whoever finds it will take the fever away with him. Curiously enough, the Christian peasants of Galicia seem to trust for the removal of fever to water in which a "mezuzah"[1] that has been stolen from a Jewish Home has been placed. Similarly, the Polish peasants firmly believe that the hand of a dead Jew is effective against typhus fever, and a case occurred in which some peasants exhumed a Jewish corpse for this particular object. Dust from the grave of a saint is also recommended by many.

[1] Lit.-door post.

Jaundice is another disease with regard to which manifold remedies, probably derived from their neighbors, are more or less current among the Jewish folk. Drinking water in which something of a yellow nature has been cooked is an obvious method, based upon the principle of sympathetic magic; still another corrective is to swing a dove around the head of the patient twice, saying at the same time: "Dove, take this illness from N. ben N.," and then letting the dove fly.

Strangely enough, blood, which is so frequently used in general folk-medicine, is rarely, if ever, employed among Jews, except in cases of nose-bleeding when the actual blood thus lost is sometimes used, baked into a cake, and, on the well-known sympathetic principles, given to a pig.

Of Jewish popular views, in these early periods, as to the cause of disease, it is difficult to speak. There were three current conceptions among the folk in general:

The anger of an evil spirit.

The supernatural powers of an enemy.

The ill-will of the dead.

The first impression can definitely be traced in Jewish folk-thought and then only thru the power attributed to spells and exorcisms.

Exorcism.—Exorcism also played a part, a minor one however, in the curing of disease, thru the expulsion of evil spirits by means of spells. In the Bible the melancholia of King Saul is ascribed to an evil specter, which David, by his harp-playing, is instrumental in driving away. The word "bi'et" (terrify) was still used in the fourth century as a term to exemplify the troubled state which precedes that of being possessed. The angel Raphael teaches Tobit how to ban the evil spirit, as narrated in the following epitomized portrayal.

"Tobit, a pious man of the tribe of Naphtali, who remained faithful to Jerusalem when his tribe fell away to Jeroboam's cult of the bull, was carried captive to Nineveh in the time of Enemessar, King of Assyria. There together with his wife, Anna, and his son Tobias, he gave alms to the needy and buried the outcast bodies of the slain, keeping himself clean and pure, moreover, from the food of the Gentiles. He was in favor with the King, however, and so prosperous that he was able to deposit ten talents of silver in trust with a friend in Media. With

the accession of Sennacherib, the situation underwent a radical change for the worse. Accused of burying the dead slain by the King, he was compelled to flee, and his property was confiscated; but when Sarchedonus came to the throne Tobit was allowed to return to Nineveh at the intercession of his nephew,who was the king's chancellor. Here he was permitted to continue his charitable ministrations and his works of mercy; but accidently losing his eyesight, he fell into great poverty, so that in his dire distress he prayed that he might die. On that same day, a similar prayer was offered by Sarah, the daughter of Raguel of Ecbatana (in Media), in despair because she had been married to seven husbands who had each been slain by a demon on the wedding night. The same day, Tobit, recalling his deposit of money in Media, determined to send his son for it. A companion and guide (who turns out to be the angel Raphael) being found for him, the two proceeded on their journey. At the river Tigris, Tobit caught a fish and was instructed by his companion to preserve its heart, liver and gall. Conducted to Raguel's house, he asked for Sarah's hand in marriage, drove away the demon by burning the heart and liver of the fish in the bridal chamber, sent Raphael (whose assumed name was Azarias) for the money, and returned with him and Sarah to Nineveh, where Tobit's eyesight was restored by smearing his eyes with the gall of the fish. Father, mother, and son reached a good old age, and died in peace."

An early student, a contemporary of Josephus, alludes to the practice of exorcism by saying: "Has an evil spirit never entered you? Have you never seen a person into whom an evil specter had entered? What should be done with one so affected? Take roots of herbs, burn them under him, and surround him with water, whereupon the demon will flee." According to the statements in the ancient law books, cures by exorcism were especially common in Judaeo-Christian circles. Mention is several times made of a certain Jacob of Sekanya, who desired to effect a cure in the name of Jesus on one who had been bitten by a snake; R. Ishmael, however, would not permit it, preferring rather to let his sister's son die. Origen says that he saw people healed of dangerous diseases—of possession, madness, and other ills—simply by calling on the names of Jesus and God, and that otherwise neither men nor demons could relieve them. Christianity has preserved this belief up to the present day, for exorcism still forms a part of the rite of baptism. An interesting recipe is given in a Greek papyrus. In order to drive out a demon one must procure an unripe olive, together with certain designated plants, and murmur some magic words over them. The exorcist says: "Go out ('demon') from ———." Thereupon a phylactery is made from a piece of tin and is suspended from the neck of the one possessed. The exorcist places himself in front of the one possessed and begins as follows: "I conjure thee in the name of God of the Hebrews, Jesus, Jahaia, 2," etc. The spirit is then conjured by a god, whose epithets are chiefly taken from the Bible.

Mysticism existed in all ages as an undercurrent, but in the thirteenth century it came to the surface. While in Spain, southern France, and Italy wide circles were opposing superstition and exorcism, German Judaism, saturated with ignorance and occultism, adopted with other fanaticisms and exorcistic methods of working cures. The "Book of the Pious" states: "Whoever wishes to heal one possessed must repeat the magic formula nine times, as is done in Germany, where they count nine knots; or else he must cure him with rods of nine kinds of wood, or with turnips, which should be hung around the invalid."

Curtiss relates that a few years ago a woman was exorcised in Palestine, and that the evil spirit, when questioned, replied that he was the spirit of a Jew murdered in Nablius twelve years before. The belief that the possessing specter is very frequently the soul of a wicked or a murdered person unable to find rest is repeatedly held.

In these times medicine did not disdain the use of amulets, as a means of warding off disease and curing illness. Abraham wore a jewel on his neck which was supposed to heal every sick person he looked upon. The egg of a grasshopper was said to protect against earache; the tooth of a living fox against sleepiness, and of a dead one against insomnia. A nail from a gallows protected against wounds. Children owing to their feeble powers of resistance were held to be much exposed to the danger of magic fascination; they were, therefore, protected by means of knots, written parchments, etc.,

tied around their necks. The use of amulets was very extensive from about the first century B. C. until about 600 of the common era; consequently there are copious details concerning them in literary sources.

The use of the Bible for magic or superstitious purposes was quite a common procedure among many and varied peoples. The practice of employing sacred books, or words, and verses for divination or for magic cures is universal alike among pagans and believers in God. What the Vedas were to the Hindus, Homer to the Greeks, and Ovid and Virgil to the Romans, the Old Testament was to the Jews, the Old and New Testaments to the Christians, and the Koran and the Hafiz to the Mohammedans. The desire of man to discern the hidden future, or to obtain the mastery over nature in hours of great anxiety, by some superstitious resort to superhuman forces, is never altogether extinct in the multitude.

THE INDICATIONS FOR HYSTERECTOMY.

BY

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My remarks on this operation must be understood at this time to apply to the removal of the uterus through the vaginal canal. It is not my purpose to provoke a controversy upon one route as opposed to another, or upon any other question. In a series of cases, covering almost every condition from surprising ease to the most desperate and determined efforts, my mortality rate is below one per cent., one patient with cancer being lost from uncontrollable bleeding twelve hours after the operation. The outcome of that operation determined me to provide superior clamps, which were duly presented to the profession at the time (*Medical Record,* New York), but I have again modified these to provide additional safeguards, and I shall soon be ready to give these modifications to the profession.

It may be stated at the outset that a merely useless organ that is provoking no trouble should be left alone by the surgeon. Ulceration of the uterine cervix, unless of syphilitic origin, must be accepted as cancerous, and the entire removal of the organ carried out without the slightest delay. That cancer may begin in the cervical canal is no longer debatable, but its presence in that locality may prolong its identification until the time for any helpful operation has passed. Under no circumstances should a suspected cancer, however small, be cut or bruised, or mishandled in any other way, in order to procure a specimen for laboratory confirmation. Such practice is full of danger and cannot be too rigidly condemned. My object in ringing up this point is to confirm by convincing practical experience what others have long ago demonstrated to be sound surgical principles. Any poisonous reptile ought to be attacked by a well-directed blow aimed at the head and not irritated by pricks and pinches directed to the tail.

Next to cancer, incurable procidentia, in all well selected cases, demands, and ought to receive, proper treatment of the radical sort. In many cases of labor the pelvic structures of women are frightfully torn which escape observation except when subjected to a rigid and systematic examination, a procedure which there is excellent reason for saying is far from being overdone so far as I am acquainted with obstetric practice as it is pursued in most regions of the United States. Enormous tears of the uterus occur, involving the body and even the fundus of the organ, tears so extensive as to invade the broad ligaments, without detection until the removal of the uterus dis-

closes the old wreckage. And, just here, it may as well be stated, once for all, that until we provide some adequate penalty for those who speak of "Laceration of the Cervix" and base their half-baked efforts upon that misleading phrase, there is not going to be much improvement in the present death rate from uterine disease and its numerous and terrible complications. That the uterine cervix is torn, and frequently torn, in cases of delivery, is only too well known, but when did uterine lacerations starting at the neck begin to stop at that precise point? Generally speaking, the womb is a muscular organ, and it would be of deep interest to learn when muscular tissue, subjected to violent force following the trend of its fibres, began to set limits to the extent of the injury. As a matter of fact, all accidental tears of tissue of variable powers of resistance are subject to all the freaks of chance, be they great or small. Frightful lacerations of the body of the womb do occur during or coincident with delivery, and fatal bleeding may occur without detection as to its origin, but it would be as sensible to apply the term of "post partum hemorrhage" to such a case as it would be if the woman had recovered from the labor without incident, and had bled to death six months later from a rupture of the meningeal artery, altho it may be conceded to those who are more devoted to controversy than they are to the facts of pathologic anatomy that, after all, the patient did pass away from hemorrhage at a later period than her delivery. The expression post diluvian would be quite appropriate in either case. Procidentia is sometimes very distressing and in exceptional instances utterly disabling to the patient. Frequently the uterus belongs almost wholly to the outer world, the neck being nearer to Hunter's canal than to either sacrum or the public arch. Women in such a helpless and pitiable condition ought to be relieved and ultimately cured by a hysterectomy, the question of the particular surgical route being solved almost automatically in favor of the lower one, the abdominal method being passed over to those whose imagination appears to assign to that cavity the boundaries usually approaching the hold of a ship rather than those of a single cavity of the human body. Some of the ponderous contrivances designed to resist this dreadful deformity illustrate admirably the exquisite flights of the human imagination, but they have no practical value in surgery. Woolen tampons, supported by elaborate systems of mixed cantilever and truss span bandages, often testify to the desperate but aimless and utterly hopeless efforts of the patient to modify her sufferings by piece meal methods.

And what of those mysterious nervous reflexes in which all the trouble is attributed to an easily demonstrated cervical scar? It may be inquired by what precise methods of investigation it became known that the cervix, and the cervix only, is involved in such a scar? Many years ago a western practitioner, having a far deeper interest in the propagation of speculative pneumatics than in the evolution of rational pathology, wrote and spoke with prodigious volubility of the deplorable misdoings of imprisoned terminal nerve fibres. In so extensive an array of written and spoken words even the dullest reader must have found some fragments of truth. It never one time appeared to have occurred to the writer and speaker to pursue imprisoned nerve fibres above and beyond the limits of the cervix, where in truth they may be found often in great abundance. Some of his excursions into the

operation of hysterectomy ought to have taught him this had his mind been trained to practical demonstrations rather than to those fantastic flights of fancy which barred his works from acceptance by men of science. That reflexes of a serious character do often arise from scar tissue in the uterus no experienced surgeon would deny, but no surgeon of thoro training and ripened operative experience would limit such conditions to a small area in order to build a house of straw upon a treacherous island of shifting sands. The man of science pursues under all conditions the revelations of science, wherever they may lead, and bases his practical work upon them. The world of thought could not well dispense with either sublime poetry or rational surgical teaching, but the man who would confound the labors of Sir Astley Cooper or John Hunter with the writings of Lord Byron is out of place as a practitioner of surgery.

A progressive myoma ought to be removed before it becomes a menace to life, either thru unbearable pressure or from malignant degeneration. Pure fibromata imbedded in the walls of the uterus are generally extremely difficult of detection, but their presence when brought to light can hardly be looked upon with indifference. No uterine tumor, in fact, can be regarded as other than a possible menace to life. The fact that many, possibly most, of them may exist for many years without their presence being even remotely suspected by any unfavorable symptoms of the patient has no bearing upon their dangerous character.

In all cases where the question of hysterectomy is raised, the advisability of that procedure, like any other serious operation upon the human body, must be left to the determination of the well-grounded man of science, of abundant training in safe and rapid operative work, and such a practitioner will rarely go astray in whatever he may advise or do.

Surgically speaking, the human uterus must be dealt with precisely as we deal with any other operable tissue that becomes burdensome or dangerous to life. The organ should be weighed carefully and honestly in the scales of pathology, aided by ripened clinical knowledge, and if the balance is against it its removal should follow without the shadow of doubt or hesitation. The absurd belief on the part of some senseless people that the removal of the uterus is a mutilating procedure, or that its absence will bring about the development of certain masculine traits in women, may sometimes be set at rest by the simple statement of fact to the effect that the uterus has no more to do with the sexual function than the gall-bladder or the vermiform appendix.

But this paper is too long, and it must come to an end. A word, and a very serious word, must be said in favor of early and thorogoing examination. Many conditions cannot be examined with any possible degree of satisfaction unless the patient is placed under full anesthesia. It happens more frequently than may be supposed that complete anesthesia will fully demonstrate that no operation whatever is indicated. There is so much confusion of mind, and meaningless talk, upon the part of both patients and practitioners, that they utterly fail to grasp the meaning one of the other. But the dreadful mortality amongst women from the ravages of cancer of the uterus reminds us daily that we cannot overdo ourselves in our efforts to reduce suffering and prevent premature death. That our efforts ought to be carried out with systematic diligence and unwavering determination is taken for granted.

PSYCHOTHERAPY.

BY

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As a definition, we may all regard psychotherapy as that form of medical treatment in which the therapeutic agent is the mind. This particular kind of therapy is as old as history itself. In order that it may be properly understood, it is perhaps wise to clear our thoughts definitely, and differentiate two forms of illness that are frequently confused—an imaginary disease, one that does not exist, one that is not present, an hallucination of sickness, etc.—in contradistinction to a real, genuine disorder whose cause, pathology or diagnosis is not discernible by the examining physician. Too often a patient of the latter group is regarded as a sufferer of the first and an improper diagnosis is directly responsible for wrong treatment—in some cases for a life of prolonged misery. Some of the more modern opinions regarding certain tics, paralyses, hysterias, melancholias, convulsive seizures, obsessions, acnes, and a score of other states of mind and body are ample proof of these statements.

It is needless to state that it is impossible in a short paper to cover a subject on which so many volumes have been written, but a summary, even brief and incomplete, may be interesting. Faith cures, which include the various religious sects and fads, the fetishes or good luck objects either carried around or applied in a definite way to some part of the body, the laying on of hands, many of the electrical, mechanical, hydrotherapeutic and dietetic treatments, all have their place, especially in that group of ailments which we call imaginary. These, according to the type of patient, may be of most value in public or in private, either at home, in a hospital, in a sanitarium, in a church, or in the administrator's office.

These treatments are not dishonest in premise or purpose; they are not "fakes" so-called, as charlatany or quackery of licensed medical practitioners. The latter group set out to deceive their patients. They are after the fee, no matter what the progress of the patient's malady. They steal, and too frequently are not punished. As an example may be mentioned the poor unfortunate drug addicts. They go to one of these imposters and receive a solution of the drug which they are taking, disguised in taste or color, or both, and gradually become worse than before. They pay the quack for their hastened downfall. They get their dope at a fancy price from the easiest source.

The bona fide faith cures seek to overpower the patient's uncontrollable mentality, *i. e.*, the subconscious mind, which in some cases troubles the patient so that his higher mental powers fail to act as they did before his attack. Let us recall briefly what is meant by the subconscious mind. In ordinary divisions of mental functions we recognize our powers as conscious, unconscious and subconscious. Conscious mentality, or conscious mind, is controllable thought, reason and judgment. When this is entirely absent we are said to be unconscious. It is not difficult to perceive a state of mind which is intermediate between these two places. The brain has so many centres, and so many fibres and association tracts which connect these and intermingle, that in certain conditions the higher coordinating or collection centres for the lower association centres become confused or subservient to the association or subconscious centres. This actually occurs when a per-

son dreams, is hypnotized, is bewildered, becomes delirious, shocked, hysterical, etc.

Faith depends not on reason at all, but only on the recognition of a belief so-called. Here we have subserviency of the conscious mind to the subconscious mind. It is usually impossible to reason with a man why he should change his religion. Tell him that his particular belief is founded on a false premise, and his judgment and higher reason may lead him to admit it. But deep in his mind against all reason he still will have faith in his belief. This man who could not be reasoned with, or argued out of his particular idea, at some religious meeting, where his intense awe, *i. e.,* subconscious mind, not his reason is appealed to, may at once change to become a faithful servant of an entirely different creed.

Most of Billy Sunday's converts know he uses language and similies far from what one might expect to hear at a church meeting, yet they accept his views when their reason is not consulted. His character and conduct have been depicted so many times in the newspapers that one is amazed at his success in fighting the devil. He does not permit debate, he does not want his audience to think carefully, he does not desire sound philosophy. No! he gets his audience bewildered and confused. Each one says to himself, "sure your are right." "We're with you," and before opportunity to think it over is granted the individual is "converted." If he were to stay long in one place and the people given a chance to study and think him over carefully, his powers would sooner or later vanish. It is this kind of faith treatment that every physician uses with his patient, whether he does it consciously or not. The expression, his talk, his demeanor, etc., is what the patient notices much more than most of us realize. These patients know, when reasoned with, that these trifles about their doctor have nothing to do with a case of infection, for instance, yet the activities of the subconscious mind of the sick person which the laity call hope or faith are affected, and the patient feels accordingly. Dr. H——— of Cleveland sent his wife to me for a facial paralysis only because he had this kind of faith; he could have given his wife the same treatment, as he is a skilled neurologist who knew the diagnosis quite well.

We as physicians must not permit a patient's faith or subconscious self to mask the symptoms of the real malady so that the diagnosis may become obscured to us. There is no doubt that some people, when they become more ill and less alert in their higher mental activities, often permit the subconscious mind to rule their actions and feelings, and give the impression of improvement to their family. This probably accounts for the statement that many people feel better just before death. Their highest functions are entirely dominated by the subconscious mind. All psychotherapeutics depend for their virtues on the basis of an attack on the patient's subconscious self, and only so may their workings be explained. The laity is too easily led to believe in superior powers, spirits and other ridiculous things. Supernatural, or in plain language unnatural, powers do not exist in this age except for ignoramuses.

Psychoanalysis is the study of the subconscious mind of the patient. The theory of treatment based thereon is that many psychic disorders are due to mental conflicts of the subconscious and conscious minds. After frequent conversations the psychoanalyst is able to judge his patient's innermost feelings and thoughts. After each visit the important points are written

down, and, in the course of study pursued, a conclusion by an experienced observer has much value. As an outsider not interested in the same way in the patients matter of mind, it is often possible to determine the cause of the patient's suffering. Subconsciously the patient may dislike very much, even be disgusted with, some person or some activity, etc., while perhaps consciously the same individual may have to carry out a pretense of liking for these things because a family strife is to be avoided, or the earning of one's daily bread depends upon it, or life itself. These may not manifest their influence at once, but after a long continued series of psychic conflicts the person is psychically overcome, and the condition may even end in insanity. The repression of those things which law and society hold sacred, or secret, such as sexual perversions, hate of one's wife, brother or sister, love of another man's wife, etc., are all fundamental factors in many cases in which psychoanalysis can often be used to great advantage.

The analyses are not quite as simple as one is likely to believe; one thought leads to another and where the original cause for the conflict has long been forgotten by the patient the symptoms are often the worst. For example—an individual, as a child, is caressed by his mother, and after frequent embraces the child's sexual appetite is aroused. As with most children masturbation then ensues. The thought of the mother's embrace is associated with the masturbation. Years later this individual becomes married and in his relations with his wife in her daily routine of the household she may do something which the mother long ago resented, even such a trivial matter as putting too much sugar in the coffee at breakfast, or the like. For some reason at the next embrace of man and wife, a conflict starts in the man's mind. If we follow such a case and the man should visit his home, and a pleasant recollection be brought to mind, while another cause for mental combat be instituted, say by one of his children, after days, months, weeks or even years a break-down or abnormal mental life may develop. He finally succumbs, it may be to a series of business worries. He has forgotten many things. He is old now and probably never gives conscious thought to his dead mother's embrace. Yet all these rough spots in his mental road must be laid bare to him. If this is done he will adjust himself properly, or, in other words, a cure will be effected.

Suggestive therapeutics are another agent of psychotherapy. In this form of treatment the administrator suggests to the patient how he is to think, feel or act; often this suggestion is given to the patient in the form of regular conversation. He is reasoned with by the psychotherapeutist, and may accept the thought submitted to him. A more profound plan of suggestion is one in which the patient is unaware of the suggestions as, for example, those derived from seeing a play with a given lesson, or from ideas gathered from reading a book, etc. These are usually much more acceptable and persistent to the subconscious mind than those made by a direct appeal, which always encounter the conscious mind, so much that the subconscious mind is not able to overcome the controlled judgment of the higher centres.

Suggestive therapeutics may be administered to some persons by hypnotism. This word means the sleeping state. When we dream we are subconsciously active; only the conscious mind is at rest. In hypnosis this dream state is induced. The brevity of

this paper does not permit of detailed discussions of methods to induce hypnosis; suffice it to say that drugs which are not narcotic, but only hypnotic, are often of value. Just as the drugs are causing the patient to slumber, and before deep sleep has taken place, suggestions, positive and definite in purpose, may be successfully made and have much value in some cases. Before the patient wakes up—as the sleep is becoming less deep—these same suggestions will often bring good results in a few cases. If we wait until the patient is unconscious from the drugs he cannot hear the suggestions, and it is useless to give them. The purpose of this method is to get closer affiliation with the subconscious mind unmolested by the conscious mind. In other words, we go directly to the sick member, unhindered by any extraneous influence. It is possible to weary the conscious mind by work overstrain, so-called concentration; thus it becomes tired, rests, and the subconscious mind then predominating can be influenced by suggestion. This method of suggestion is also termed hypnotism. Certain types of hysterics, somnambulists, obessionists, etc., are constantly in this state, and in consequence are most easily treated by hypnotism. Their subconscious mind is to the fore, and does not have to be sought out of a general mental cosmos as in most normal individuals. That is why these persons are said to be more susceptible to suggestion. The most unstable periods of life are the best time for suggestive treatment, as during puberty and menopause. It is true that most criminal, prostitute, drunkard or other freakish careers start at these ages from suggestions which may come from environal conditions. These are also the periods of life when religious converts are obtained most easily.

Rest cures are other types of treatment associated with psychotherapy. These may be carried on in or out of hospitals or sanitariums. The Weir-Mitchell treatment employs complete rest with overfeeding. The object is to give comfort to a tired mind, and isolation is employed to keep any environal influences from the highly nervous.

The author has used in the last few years an original and a much more powerful type of rest treatment which must be carried out in a hospital. It is particularly useful for those persons whose minds are what the Germans call "uberspannt," that is, in an "overbent," or overstrained condition. The idea is to overcorrect the mental infirmity. As in a physical condition we do more than just straighten a crooked leg, so this plan also seeks to do more than really rest a weary mind. As this method is well known it is hardly necessary to spend time to discuss it in detail at this moment.

In conclusion—psychotherapy has a definite place in medicine, but to have it carried out by the laity or the unskilled is criminal. Many persons have become mentally deranged and psychically worse from improper treatment of their subconscious minds. Psychoanalysis has also done much harm; it has been used to interpret dreams, and some of the most ghastly, indecent and immoral translations have resulted from uneducated and unpracticed psychoanalysts.

Hypnotism—or induction of a dream state—has made hysterics more hysterical, and has increased misery very markedly when improperly used. It is not possible to go into detail at this time. Suffice it to say that harmful as it would be to treat consumption, cancer or poliomyelitis by faith, it would be equally disastrous to apply improper psychotherapeutic measures to serious mental disorders, for thereby weak and

perverted minds may be permanently injured.

A well-trained neurologist, who is able to make a proper diagnosis, and who is at the same time a man with a good psychologic understanding, should be the only one permitted by law to delve into these delicate matters. Only then may we expect some good to come from this kind of therapy, and then only will public health be protected from charlatanry, whether in the guise of religious teaching, pseudophilosophy or quack medicine.

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TWO CASES OF PSYCHOLEPSY OF EMOTIONAL ORIGIN IN WHICH PSYCHOANALYSIS PROVED OF SERVICE IN INDUCING SOCIAL RE-ADJUSTMENT.[1]

BY

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It is important that all persons who are interested in the subject of epilepsy and its treatment should make themselves familiar with all the conditions which simulate epilepsy yet which are really of a different sort. This is especially important in view of the fact that these conditions are usually more amenable to treatment than true epilepsy is. But, for that matter, the pathogenesis of epilepsy itself is by no means so clear but that the study of these symptomatically similar conditions may throw light upon it, different in essential nature tho they perhaps are; and, indeed, one circumstance that makes it particularly important to take the whole matter up again is that the recent researches into medical psychology have rendered it possible to look at both of these conditions from a new and very important angle.

The first case is that of a lady, fifty-two years old, who consulted me eight years ago for the following symptoms, which had been present for three years—that is to say, since she was forty-one years old. Her main trouble was that she was liable, under certain circumstances, to a sudden loss of automatic and voluntary control over her muscles, so that her head would fall upon her chest, her eyes close, her lower jaw drop, and frequently her whole body collapse in a heap upon the floor. The duration of these attacks varied from one to three or five minutes, but they would be shortened if some one took hold of her by the hand, thus giving her a sense of protection and support.[1] Sometimes, instead of falling to the ground she could guide herself to a chair, but even then there was almost complete relaxation of the muscles of the trunk and limbs. Indeed, further investigations, which were made repeatedly and carefully by myself and verified by a colleague, showed that both the knee-jerk and the pupillary light reflex would instantly disappear when this relaxation came on, both phenomena returning gradually as the attack passed off. At the time I saw the patient she was liable to have several such attacks as these a day, but the number varied greatly according to the conditions of her environment. Thus, anybody who could induce in her a fit of laughing—to which she was easily moved—could throw her into an attack at once. This happened often, and it was noteworthy that a jocose remark by her brother (with whom she lived alone, and whose sense of humor was acute) was especially apt to have this effect upon her.

[1] A large number of conditions have been brought together under the heading of *psycholepsy*, amongst which these cases can properly be classed. Janet has described a number of these in his book, "Les Obsessions et la Psychasthénie." Others were recorded by Dr. George A. Waterman and myself in the *Boston Med. and Surg. Jr.*, 1905, Vol. CLII, p. 509, and still others by Dr. Wm. G. Spiller in the *Jr. Nerv. and Ment. Disease*, 1907, Vol. 34, p. 411. It seems unnecessary to bring the bibliography up to date.

[1] Perhaps vaguely reminiscent of a special form of protection and support which she had craved so long (see below) and which had been hers in childhood.

One is reminded of the very severe results induced by tickling—especially with certain persons, at the hands of special tormentors —and also of extreme muscular relaxation that sometimes attends prolonged fits of laughing ("die of laughing"). The analogy of these phenomena with those here recorded is indeed closer than one might think (see below) because in both cases there is probably a personal "abandonment," of hysterical character, which has a deep emotional and even sensuous root. A tendency is also occasionally noticed, especially among children, as a true epileptic symptom, to "catch the breath" and even to lose consciousness altogether under conditions of excitement.

My patient's attacks generally occurred indoors, but sometimes, also, on the street, tho never unless she was startled, as happened once when she was accosted by a friend coming up unexpectedly from behind. The result, under these conditions, was strangely disproportionate to the manifest or apparent cause, suggesting former situations when to be surprised by someone coming unexpectedly would have been annoying and distressing. As time went on, these seizures tended to occur somewhat independently of the special causations that had appeared necessary at first, tho scarcely ever except on the basis of some emotion, which might be of a trivial sort but which always, or nearly always, was induced suddenly, and ostensibly thru some other person. Occasionally they would come on when she was alone, but then apparently in consequence of a thought which would connect her with a person. The further study of the history showed, indeed, that, from the psychologic standpoint, these attacks implied a peculiar longing for a personal relationship, the type of which was illustrated by a special series of experiences spread over a considerable number of years. In other words, the case seemed to be one of hysteria.

I did not, however, allow myself, at first, to accept this diagnosis, especially in view of the loss of knee-jerk and pupillary-reflex[1] during the attacks and of the fact that the patient was usually unable to speak at these times, so that it was difficult to be convinced that consciousness was not lost, or at least modified, for a brief space, in spite of her opinion to the contrary.

Another symptom from which the patient suffered, at about the same period with these psycholeptic seizures, was an extreme tendency to drowsiness, which might cause her to fall asleep at any hour of the day, provided she sat quietly in a chair, either with or without a book, and almost invariably made her drop off when riding in a train. Sometimes, indeed, she would fall asleep at table. This tendency also has been observed a number of times in what is called true epilepsy. The same symptom is met with, to some extent, in myxedema; but a careful examination failed to show other signs of this disorder in the case of my patient, nor did the thyroid treatment, which I instituted, have any effect in checking any of her symptoms.

A good many of her seizures occurred in my office, and I learned to detect their approach by a peculiar drawling which came in her speech, and by the dropping of the corners of the mouth and half closure of the eyelids, as happens with persons struggling against drowsiness. When these symptoms appeared I could sometimes help her to cut short the approaching attack.

One more symptom should be noticed, which I found later to be of considerable significance,—namely, a distressing set of feelings in the legs, not localized and not invariably associated with the attacks or with the loss of strength. These feelings she concluded to be of sensuous origin, and this conclusion helped to bring the true nature of her whole illness clearly before her mind.

As regards her personal history, I found, on careful inquiry, that this lady, altho ostensibly gay, really had a streak of profound sadness in her disposition, and that she looked back upon her childhood, which in all outward respects had been a very happy one, as a period of great inward unhappiness. The environmental conditions had been favorable, her parents were judicious and affectionate, and she cherished a great affection for them—which, perhaps, in case of her father, was too strong for her own good. The essential point was that she was overcome by passionate longings, which she repressed without understanding their meaning; and it may perhaps be reckoned as an indirect sign of this that the mysteries

[1] The observations of late years have shown that these reflexes may fail in hysteria, as is, indeed, well known.

of nature, especially strong winds, had a remarkable influence in bringing on a strong sense of fear and gloom.

I must abbreviate the history leading up to the psycholeptic seizures (which was gradually brought out through many interviews) and say, in the first place, that these repressed longings found a temporary expression in a prolonged homosexual friendship with a young girl of her own age, when both were in their adolescence, and later in a long, absorbing, and, in its results, a tragic relationship with a much older and married, man, an old family friend, who took advantage of his position to induce in her, thru constant and, one might justly say villainous and heartless repetitions of a sort of personal attention which he understood well how to use for his own pleasure, an almost complete subordination to his selfish will. These attentions—which, so far as her state of mind was concerned, had all the evil effect of a seduction—went on thru many years,—for a period, indeed, which began in her childhood and continued until circumstances broke them off, somewhat abruptly, not long before the attacks above recorded first appeared—leaving her mind emotionally void, except for family anxieties. These were prolonged and pressing and contributed indirectly to her illness, in general and in special ways.

I have recently studied at considerable length the case of another patient, who, in a series of recurrent dreams which began in childhood, imagined herself pursued and finally falling in a species of abandonment at the feet of her pursuer. The study of the case now under consideration made it clear that the attacks of muscular collapse here studied were virtually of the same nature, and that their continuance served to keep alive a sort of organic memory of a series of events by which her emotions were overpowered and her chances for happiness thru the establishment of a new home were swept away. The situation was made worse by the fact that the patient's brother, to whom she was devotedly attached, was for many years a drunkard and a source of terrible anxiety, which was all the more intense from the fact that she felt obliged to conceal it from her friends. Many a time she has stood with trembling limbs, waiting for him to return in the middle of the night, and prepared almost to "faint away" in anticipation of what she was to see.

Again, her father, to whom she was so much attached, was a man of fine and strong character, but probably not unlike herself in temperament, tho with chances for self-expression and sublimation which had been denied to her. She took him in many respects as a model for herself, and was consumed with fear lest he should suspect what was passing in her mind. She believes, however, that had he not been able to turn his passions into work, it might easily have happened that they would have consumed him as they did her, or found expression in some subtle symbolism.

The patient's dreams deserve careful study, and so, too, do certain other temperamental symptoms, from which I will select the following:

There seems little reason to doubt that the sort of anxious sadness, accompanied with a causeless sense of distress, that marked her earlier years, was a species of anxiety hysteria. She recalls, indeed, that even in the cradle the rolling of her head from side[1] to side gave her a passionate excitement. Crowds affected her strangely and unpleasantly, so that she had to go away from them —a hint at the strong, one might say electric, nature of the personal bonds that established themselves so readily between her and others. I have spoken of the strong impression made on her by storms and wind, and will add that the same was true of death, and indeed everything that savored of mystery and fear. She recalls that after a severe snowstorm, when she was a little girl, on an occasion when her brother was sent to bring her home from school in a sleigh, she was overcome by terror lest she should not be able to get into the house.[2] She was subject to night-palsies, so that on waking she would be unable to move. There can be little doubt that these, too, contained an erotic element which lay in wait for her under many circumstances and gave a special color to many forms of excitement, as it did to the rolling of her head in the cradle. In frequent nightmares she would feel as if some animal or vaguely defined person was trying to climb onto her bed. Until eight

[1] A form of muscular erotism characteristic of early childhood.

[2] These fears, like that of crowds, were, of course, "phobic" in their nature.

or ten years old she suffered from incontinence of urine, and would sometimes dream of the dripping of water from the faucet that she was not able to control.[1] In later years she dreamed occasionally of her attacks, which is rather rare; but in these dreams there were people around who would protect her, just as in reality she longed for someone to touch her and bring the spell to an end, or, again, just as one might suppose that Andromeda and Brunhild longed, after their fashion, for some young protector to release them. For my patient, however, there was no satisfying joy; only desire, not to be appeased, but still to be endured better when understood and faced. In one of her many dreams she seemed to see a team of horses, strong and vigorous, trying to drive into the entry of her house, while she denied them entrance. This tells, after a fashion, the story of her life.

I have said that this patient was fifty-two years old when she first came to me for treatment. She lived out of town and could not attend with regularity, and, in spite of being intelligent, her temperament was not such as to make the case an easy one for treatment. Nevertheless, she improved considerably, and her attacks lost their worst features. If her life had had more outlets of a congenial sort she might perhaps have lost them all.

The second case of which I wish to speak is that of a young man of about twenty-seven years of age, of fine training and intelligence, who suffered from singular fainting attacks that occurred whenever he was called upon to come prominently before others, especially other people of his own sex and older than himself,—that is, of an age to excite especial deference. His brother had suffered from similar attacks under like circumstances, and neurotic symptoms of an analogous, tho not the same, sort had been present in the case of one or more male relatives on the father's side.

No real difficulty in differential diagnosis between this condition and true epilepsy might ever have arisen, especially if all the conditions had been taken into consideration. Cases of fainting do occur, however, where the diagnostic difficulty is great, and on that account it is worth calling attention to the fact that this young man, in spite of his intelligence, suffered greatly from an overwhelming sense of self-abasement, attended by a longing for the affection and protection of those who stood toward him in a position of authority. Such persons were generally of his own sex, and the longing which he showed for their affection and protection, attended as it was with lack of confidence in himself, showed itself likewise in the recognition of a strong attraction toward younger boys, with reference to whom he in his turn could assume the attitude of protector.

Dreams bore out, in an interesting way, the evidence given by his waking experiences, and showed, moreover, more strongly than one would have otherwise been led to believe, that altho manly and courageous in his principles he found himself forced to struggle against a species of effeminacy, partly based on an inadequately defined sex-development in early years. The fainting attacks were so frequent and so serious, at one time, that they bade fair to mar, if not wreck, a promising career. But under an analytic treatment of no great duration a satisfactory improvement occurred all along the line, and it is fair to anticipate that he will meet with a success reasonably commensurate with his abilities, which are above the average. Thorogoing recognition of his handicaps, on the one hand, and an emphasis on social obligations and interests of all sorts, small and large, are likely to prove, in the future, as they have during the treatment, the main factors in his progress.

[1] Cf. Aus dem Seelenleben des Kindes. Von Hug-Helmuth; soon to be had in English translation.

Preservation of Cut Flowers.—The flowers are first well sprinkled with fresh water, and then placed in a vase filled with a solution consisting of hard white soap, 1 ounce; sodium chloride, 50 grains; water, 34 ounces. The soap is shaved and dissolved in the water, and the salt is then added, this causing a slight gelatinization of the solution. Finally, a very little boric acid is dissolved in the liquid. The flowers are taken out every morning, the foliage washed, and then put back in the vase. The solution is renewed every three days.—*Pharmaceutical Journal.*

SHOULD CHRONIC PEPTIC ULCER BE TREATED MEDICALLY OR SURGICALLY?

BY

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It is generally understood by physicians and surgeons that while the acute ulcers of the stomach, like those occurring in chlorotic girls, usually require medical treatment; the chronic peptic ulcer which leads to stenosis of the pylorus or duodenum, hour glass stomach, perigastric or periduodenal adhesions, requires surgical procedure. Further all agree that surgical interference is indicated for perforation, but not necessary for hemorrhage. The majority of the profession admit that a hemorrhage from the stomach or duodenum, setting in acutely, in the course of a peptic ulcer, hardly ever requires surgical interference, as a fatal result is not common from such hemorrhage. In some instances, however, the bleeding does become so dangerous that an operation is seriously considered. However, operative measures must be instituted in all cases associated with recurring hemorrhages which lead to chronic secondary anemia.

It is, therefore, not difficult to determine the limits of medical and surgical practice in the treatment of ulcer in the presence of complications or sequelae, but there is a difference of opinion in the case of the simple uncomplicated chronic ulcer. Should such simple chronic peptic ulcers be treated medically or surgically?

The arguments advanced by the advocates of medical measures in such instances may be briefly stated as follows:

1. A large proportion of cases are reported cured by thoro treatment. These cases were treated for ulcer by dietary and medicinal means or by feeding thru a duodenal tube and subsequently did not show symptoms or signs of ulcer for months or for years. Since the recurrence of symptoms was not evident for shorter or longer periods of time, the supporters in favor of the medical procedure declared their patients permanently cured and therefore out of danger of the well-known complications which may occur in the course of a chronic peptic ulcer.

2. Many ulcers heal spontaneously in man. Just what particular factors interfere with the healing of so many uncomplicated ulcers are, as yet, unknown, but that healing does actually take place may be verified by the scars noticed in the stomachs examined at autopsies. Deep scars in the walls of the stomach or duodenum may be also seen at operations or, occasionally a scar from a healed ulcer, and a recent soft ulcer may be found in the stomach at the same time. When such scars are found their presence suggests that nature directs the healing process of ulcers. Therefore it is claimed that since ulcers tend to heal themselves, this tendency to cure is enhanced and more successful if assisted by medical measures.

3. Numerous patients afflicted with chronic peptic ulcer show a disturbance in the equilibrium of the vegetative nervous system. They present vegetative stigmata, either of the vagotonic or sympatheticotonic groups. Such patients belonging to either division are rarely benefited by operative intervention, because the tendency to reformation or the cause is not removed.

4. Many cases fail under surgical treat-

ment. The symptoms persist even after the best operation and repetition of surgical interference is necessary. Even after the second operation there is no improvement in the condition of the patient on account of the occasional formation of new ulcers. Pain, even in patients not belonging to the neurotic group, for which the surgical measures were especially instituted, is frequently not relieved and is, perhaps, in a large proportion of cases particularly responsible for the repeated operation. In other cases at the second laparectomy a jejunal ulcer may be detected. In some post-operative adhesions or stenosis of the gastroenterostomic opening necessitated repetition of the operation. In others on reopening the abdomen none of the mentioned conditions are found, and the surgeon, not discovering any fault with his original technic, admits that he cannot explain the persistence of symptoms. Occasionally patients submit to a third operation on account of their suffering for years.

5. Furthermore, the advocates of medical treatment point out the dangers of operation and declare surgical interference to be extremely grave especially in certain instances. They claim pneumonia occasionally develops after operation and that a latent tuberculosis may become active as a consequence of the anesthesia.

6. Finally, those who claim the superiority of medical over surgical methods add that since violence has been done to the body by operation, nervous symptoms existing before the operation become more pronounced.

For the six reasons mentioned the advocates of medical procedures insist that the simple and uncomplicated ulcer in the great majority of cases is a medical disease. However, they admit that there are some selective cases of chronic ulcer which must be treated surgically and they refer such cases, under certain circumstances, to the surgeon, not because they are convinced of the absolute success of surgery, but because they find that medical treatment has its limitations.

On the other hand those who advocate surgical intervention in uncomplicated chronic peptic ulcer present the following arguments:

1. Statistics of medical cures are of no great value and are unreliable. Patients suffering from chronic ulcer change their physicians often and consequently are lost sight of. In many of the statistics compiled they are usually counted as cures because they do not return. Again the diagnosis is often uncertain. There might have been hyperchlorhydria, an acid dyspepsia and so forth.

2. The best medical cure is often only temporary. It is admitted that medical measures can bring about relief.

3. The ulcer occasionally runs a latent course and the quiescence of symptoms does not signify a cure.

4. Even after a long period of inactivity of symptoms, the ulcer being apparently cured, perforation or hemorrhage from stomach or duodenum may occur suddenly as an acute complication.

5. In cases of simple ulcer the pain may be so severe that it cannot be even temporarily relieved by dietary and medicinal treatment.

6. Better results are obtained by excision of the ulcer wherever this is available or by gastroenterostomy with pyloric exclusion. These means remove the complications of ulcer such as hemorrhage and perforation.

7. Finally, surgical therapy does remove

the danger of malignant degeneration. There is a possibility of cancer developing on the base of an old ulcer and this it is claimed must be taken into consideration in favor of surgical intervention.

The surgeons, too, find that their treatment has its limitations and that their inability to cure is due mainly to the fact that in some patients the stomach cannot adjust itself to the new conditions created by the operation, and that in other cases nervous symptoms are so predominant that the patient does not remain well even after the most successful of the various surgical procedures. In some instances their symptoms actually become aggravated.

It seems to me that there is no criterion by which to judge medical cures. It surely is curious that some physicians after medical treatment has been instituted for weeks or months with good results are apt to claim that their patients are cured from ulcer. One hears also of the rapid disappearance of symptoms brought about by feeding the patient by means of a duodenal tube. All of us have seen that the severest pain or persistent vomiting ceased in patients by either of the methods, even those who had been told to undergo an operation immediately; then we have also seen them return after some years with the same symptoms and occasionally with complications, perforations, or intestinal hemorrhages.

Even patients who according to Bettmann's[1] dictum have not only been treated, but have been "well treated," show a recurrence of ulcer after longer periods. For example, case 1:

Patient S. John. Male. Age twenty-three years. Was first seen April 7, 1912. He gave a history of having been ill for four years with pain appearing two hours after meals which was promptly relieved by the ingestion of food. During the month of February the pain was severe enough to awaken him every night. On one occasion he vomited. He was obstinately constipated, but he never noticed blood in the stools. He complained of frequent urination and of many other nervous symptoms. This case distinctly belonged to the neurotic group. A diagnosis of duodenal ulcer was made. Under ulcus therapy for a period of six months he was free from all symptoms and felt perfectly well, until July, 1917. He had observed all dietetic rules and hygienic measures. On August 17, 1917, he consulted me again. On physical examination the right half of his abdomen was rigid. The liver dulness could not be determined. There was marked flatness to the right at the fourth rib. The anemia was marked. Red cells 3,080,000 and 23,000 leucocytes. The fluoroscopic examination pointed to a subphrenic abscess on the right side. From the physical and laboratory findings a diagnosis of perforated duodenal ulcer and subphrenic abscess was made. The patient was operated upon by Dr. A. A. Berg and the diagnosis was thus confirmed. He died on the fifth day following the operation.

This patient was according to Bettmann "well treated." For about five years he was apparently cured. There probably would have been a better outcome if the patient had been operated when the diagnosis of ulcer was first made five years previously.

If statistics showed more of such cases we would have criterions by which to judge medical treatment. Musseur[2] says that one may speak of medical cures only when there is no recurrence of symptoms after ten years. Since peptic ulcer may run a latent course, then even such a period of

time is not conclusive of a permanent cure. I must admit that during my twenty-two years of practice I have probably freed from symptoms hundreds of patients afflicted with ulcer, but I dare not give the slightest assurance that I have cured them. Two of my patients have come back to me with the same symptoms, one after twelve years and the other after fourteen years. Many of my patients with "cured ulcers" have probably changed physicians a dozen times or more, but many others have undergone an operation without my knowledge. From these facts it is evident that statistics about medical cures of peptic ulcer are unreliable. But no one can deny that subjectively and temporarily the majority of ulcers may be cured. Even sometimes those with pyloric obstruction and often those with intestinal hemorrhage.

Boas' criterion by which to judge a cure, namely, when occult blood is absent from the stools for a long time, is not a sufficient guide for the majority of cases, since in chronic simple ulcer the guajac test is usually negative. This was the result in two-thirds of my cases, altho I repeatedly searched for occult blood in the stools on numerous occasions in the same patient.

The spontaneous cure of an ulcer no one can deny. On this fact, the second argument of those who advocate medical treatment is based. This proves nature alone sometimes takes complete care of the healing process. Hence my view expressed in a recent paper[3] based on clinical and experimental results is substantiated, namely, that the primary lesion of ulcer is probably due to anomalies in the constitution. It therefore happens that nature corrects these anomalous constitutions, thereby removing the underlying cause of the ulcer, which subsequently heals.

It certainly is strange that while the stomach is subjected to trauma more than any other internal organ, ulcers are rare in consideration of the injuries this organ receives. Experimental ulcers, as is well-known, heal rapidly, possibly because the constitution of the animal experimented upon cannot be changed. If this were possible we would probably know how to produce chronic ulcer or to prevent the ulcers experimentally produced from healing.

An excess of hydrochloric acid in the stomach probably does not prevent the ulcers from healing, since an acidity and hypoacidity are frequently found in peptic ulcers. Therefore it is possible that a constitutional anomaly which nature has failed to correct is mainly responsible for the non-healing of ulcers. The fact that deep scars from healed ulcers are found in the stomach and the duodenum does not speak against surgery. A deep scar may very often cause the same symptoms as the ulcer itself.

The third argument advanced against surgery is that numerous patients with peptic ulcer are neurotics and that they are rarely benefited by surgery is correct. Elsewhere I have mentioned that the younger the individual afflicted with peptic ulcer the more numerous are the vegetative stigmata. But even in old people, in whom the first symptoms of ulcer date back twenty or twenty-five years, one will elicit a history of previous nervous symptoms which may be interpreted as evidence of vegetative stigmata. A complete absence of symptoms and signs pointing to a disturbed equilibrium of the vegetative nervous system may be noticed chiefly in the fifth or sixth decade of life.

The vegetative symptoms and signs of patients with peptic ulcer are practically

similar to those found in vagotonia and sympatheticotonia, the underlying causative factor being the same, namely, a disturbance in the vegetative system. Furthermore, the patient with peptic ulcer responds to the pilocarpine or adrenalin test, or to both. Westphal and Katsch[4] state that the reaction to either of these drugs was negative only in middle-aged people suffering with ulcer. The advocates of medical treatment rightly state that in the neurotic ulcer group, the surgical treatment, even by the method of pyloric exclusion, is frequently of no avail.

The findings of multiple ulcers in the stomach at a subsequent operation would suggest that the ulcers are due to anomalies in the constitution. Since the vagus and sympathicus are also the nerves of the vegetative glands, thyroid and adrenals, a disturbance of these nerves causes some degree of hyper- or hyposecretion of these glands without necessarily showing pathologic changes in the latter. The type of secretion circulating in the blood stream is sufficiently altered to cause deviation from the normal constitution and since ulcer is probably a systemic disease, surgical procedures as well as medical are only palliatives. The medical procedure would probably be the ideal method provided we knew how as nature occasionally does to manage these abnormal constitutions.

The danger of operation connected with the various surgical procedures for peptic ulcer must not be minimized. Most of us have seen patients die shortly after operation for ulcer as a result of pneumonia and in some instances, especially where surgery was not so strictly indicated, I have observed on several occasions a dormant tuberculosis become active. We should have more statistics of the occurrence of the serious post-operative complications.

Since violence is done to the body during surgical interference, it is evident that preoperative nervous symptoms often become more marked, not speaking of the persistent pain, which the knife frequently fails to stop. The bad results of surgery are observed more often after operations for gastric ulcer, than after duodenal ulcer. Fortunately, the latter condition is more common than the former. The statistics of Mayo[5] show that for twenty-seven ulcers in the stomach, there were seventy-three in the duodenum. In my own series of cases there were sixteen gastric ulcers to thirty duodenal. I believe that the majority of physicians in this country have had similar experiences regarding the frequency of duodenal ulcer over gastric. The better results of surgery in duodenal ulcer are, perhaps, due to the presence of less disturbance in the gastric motility in duodenal ulcer than in ulcer of the stomach. However, I should say that I, too, medically succeed better in the duodenal ulcer cases than in the gastric ulcer. For while a disturbance in the motor function is more apt to occur in gastric ulcer, the secretory disturbances are more often found in the duodenal ulcer. This perversion in secretory function can therefore be the more readily corrected by medical measures.

Several reasons for surgical treatment of the chronic uncomplicated peptic ulcer have been discussed previously while analyzing the arguments in favor of medical procedure. A few words should be said in regard to surgical statistics which should also not carry much weight. Altho some surgeons believe that they have better control of the patient after operation and that their statistics of cures are therefore more

reliable than those of the internist, still this statement should be accepted with some reservation. The surgeon may know more about the patients whom he really cured, but he does not know much of those who were not benefited by his surgery since it is to the physician or internist to whom these patients go for relief after the unsuccessful operation. Frequently, the physician has to institute ulcus therapy after operation and often without beneficial results even as a temporary relief, and, if the patient belongs to the neurotic group, he remains a burden to the physician for an indefinite time. If he consults a surgeon again, the latter, as a rule, is not the surgeon who operated upon him previously.

Such cases as these are numerous and make the internist hesitate as to advising an operation. There are physicians with large practices who have never referred a patient to a surgeon for operation of a simple ulcer. It is not strange then that the opponents of surgery have no faith in surgical statistics, tho they may come from Mayo's or Deaver's clinics. No matter how enthusiastic Dr. Deaver may be about his excellent results obtained by surgery in chronic peptic ulcer, for the majority of my patients were not cured even tho they too were operated upon by excellent surgeons and it mattered little whether the ulcer was excited or whether gastroenterostomy with pyloric exclusion was performed, those who subsequently will see Dr. Deaver's patients will probably tell you that Dr. Deaver has lost sight of many of them and, therefore, his statistics could not be beyond reproach.

The reason why surgery is often without benefit in the simple uncomplicated chronic ulcer has never been found. The assumption that the stomach cannot adjust itself to the new conditions created by operation may be true for some cases. The bad results in neurotic ulcer are admitted by the majority of surgeons, and I know personally, several well-known conservative surgeons who are not eager to operate for ulcer when the neurotic element is conspicuous. It is true that severe pain in a patient afflicted with peptic ulcer may be an absolute indication for surgical interference, whether you are sure of a successful operation or not. Operations, moreover, are not free from complications and perforations and hemorrhages may occur after operation.

In recent years we have been warned by surgeons and pathologists of the frequency of carcinoma developing on the base of an ulcer. According to Wilson it is not the base, but the margin of the ulcer, from which cancer develops. These new teachings have reached the layman and have been credited by him to such an extent that when I told a patient a short time ago that he had a gastric ulcer and advised him to go to a hospital for medical treatment, he replied that he would prefer to be operated upon as he had heard that when ulcer was not treated surgically cancer developed. "Tempora mutantur sed nos mutantur in illis." While we are accustomed to the view entertained in previous years, namely, that cancer of the stomach develops in middle-aged people who have been perfectly well in regard to their digestion, we have recently learned that in a large proportion of patients suffering from gastric cancer, there is a history of previous ulcer. While Moynihan, Wilson, MacCarty[7] and others, point out the frequency of cancer developing in people with ulcer, Ashoff[8] claims that such malignant changes are rare. As for the

history of ulcer in cancer cases the statistics are also conflicting. Thus, while Smithie[9] elicited in 712 cases of gastric cancer a history of ulcer in 61 per cent., Friedenwald[10] gives in 1,000 cases a previous ulcer history of but 7.8 per cent.

My opinion is, tho I have not compiled statistical data, that a history of ulcer can often be elicited in gastric carcinoma. It requires direct cross-examination frequently of the patients to elicit the history correctly and this is especially true of dispensary patients. In regard to the frequency of cancer developing from ulcers, one has to rely upon the statistics of the Mayo school since their material is large. Statistics from pathologic specimens certainly have a different value than statistics from medical or surgical success in the treatment of peptic ulcer.

The extreme rarity of carcinoma developing on the base of an ulcer in the duodenum is generally admitted. If it be true that carcinoma does develop frequently on the base of an ulcer or from a scar in the stomach, there must be other reasons for the growth in that organ than the predilection for a mere ulcerated area. Were it correct, as I have pointed out in a recent paper, that gastric and duodenal ulcer are due to anomalies in constitutions, then the anomalies which are somewhat different in both conditions, may be perhaps, one of the determining causes. In such a manner one would ascribe to the constitution of the patient with gastric ulcer a predisposition to cancer.

The following cases illustrate that cancer in patients with ulcer does not necessarily develop on the base or margin of the ulcer.

Case II. Male. 40 years of age. Gave a history of chronic indigestion for a period of ten years. Several months before I first saw him he began to vomit. From his family history it was elicited that two brothers and one sister died from gastric cancer. On examination moderate stasis of food was found in the fasting stomach. After Ewalds test breakfast was found Free HCL 64, total acidity 130. A diagnosis of gastric ulcer was made. Dr. Blake operated upon the patient and found an ulcer at the pylorus. The patient made an uneventful recovery and remained perfectly well for three years when he again consulted me for loss of appetite and slight pain in the epigastric region. A hard mass could now be palpated in the region of the fundus. The laboratory findings pointed to carcinoma. The exploratory incision was made by Dr. A. Gerster, who found there was a carcinoma of the anterior wall of the stomach, but no growth at the pylorus, where the original ulcer had been demonstrated at the first operation.

Case B. Male. Age 53 years. This patient gave a typical history of gastric ulcer. At the operation, Dr. Gerster found an ulcer the size of a silver dollar at the lesser curvature, near the cardia. The ulcer could not be excised. The patient remained well for over a year when he began to complain of loss of flesh and epigastric pain. My diagnosis was ulcus carcinomatosum. At operation the cancerous growth was found at the lesser curvature near the pylorus.

Case III. Record lost, but I distinctly recall the case. A male patient gave a typical gastric ulcer history with intestinal hemorrhages and in addition complained of difficulty in swallowing. At times an esophageal bougie would reach the stomach. Carcinoma at the lesser curvature, near the cardia, was suspected. However,

I decided to institute ulcus therapy. He recovered completely in about eight weeks. He was not seen for about six years when he called at the office complaining of anorexia, vomiting and loss of weight. The laboratory findings pointed to pyloric obstruction, due to a carcinoma, altho a mass could not be palpated. At the operation, Dr. A. A. Berg found a carcinomatous mass at the pylorus. No metastatic glands were found in the neighborhood. Dr. Berg considered this case an early carcinoma. However, after the operation, he developed rapid metastasis and died sooner than some of those who show early metastasis. I am almost certain that the original ulcer in this man which had simulated carcinoma six years previously was near the cardia, since esophagismus is not common in ulcer of the pylorus.

These cases lead me to suspect that cancer develops in patients with gastric ulcer because of their anomalies in constitution. The constitutions are so altered as to make them receptive to cancer, which is not the case in the patient afflicted with duodenal ulcer, whose constitution is also abnormal, but different from that found in gastric ulcer. The frequent difference in the blood picture consisting of polyglobulia and eosinopenia in duodenal ulcer, and a mild anemia and relative eosinophilia in gastric ulcer, which I have first described,[11] suggest a variation in the constitutions of each group of patients. I have also mentioned elsewhere that the stigmata in patients with duodenal ulcer correspond to the status of the sympathicotoniac, while in gastric ulcer to the status of the vagotoniac.

Gastric ulcer cases respond readily to the pilocarpine test while duodenal ulcers react more often also to the adrenalin test.

From all that has been said one may doubt whether the surgeon can save his patient from cancer of the stomach by operation for ulcer, tho I do believe according to teachings of the Mayo school that carcinoma often develops in patients with chronic ulcer.

Discussions will not lead to any certainty until we learn the etiology of peptic ulcer. The etiology of ulcer is probably a manifold one. It may sometimes, as Rosenow claims, be due to infection. I do not believe that the majority of ulcers we see are primarily of an infectious origin. The last word on the treatment of peptic ulcer cannot be stated at present. If it is true that ulcer is a systemic disease in the majority of cases, we should be able in time to treat this disease medically. Since we do not as yet know how to manage the anomalous constitutions medically, we must frankly admit our medical limitations and resort to surgical procedures, only where strictly indicated. Aside from sequelae and some complications, one should always advise surgical interference in severe abdominal pain, provided it is not amenable to strict medical treatment. Even in the neurotic ulcer for the severity of pain and the failure to respond to dietary and medicinal treatment, there should be surgical interference.

Intestinal hemorrhages and hematemesis are rarely indications for surgery. Duodenal ulcer cases should more readily be submitted to the surgeon than gastric ulcer cases, since the surgical treatment is better in the former than the latter. Patients suffering from gastric ulcer, when the diagnosis is absolutely certain, should never be told that they have to undergo operation because of the possibility that cancer may develop.

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Rational Organotherapy

Internal Secretions and Eye Diseases.—Schirmer in *New York State Journal of Medicine* (Jan., 1917) thinks that all diseases due to hypophyseal trouble refer to the optic nerves; rarely to the motor nerves of the eye. All these nerve affections are the consequence not of disturbed internal secretion, but of direct pressure of the enlarged gland; the enlargement of the gland may go with hyperfunction as well as with hypofunction.

Many of the endocrine symptoms are not due to the gland primarily affected, but to one of the other glands which becomes atrophic or hypertrophic. Certain tumors of the adrenals are capable of producing a polyglandular syndrome which centers in a hyperfunction of the adrenals, especially the cortex, as far as we know.

The character of optic nerve affection is descending atrophy from direct pressure, sometimes papillitis or choked disc, a symptom of the intracranial pressure. The fields are mostly contracted after the type of temporal hemianopsia. The pressure may paralyze the fibers for a long time and abolish the vision without destroying the life of the fiber.

After the pressure has been relieved by operation or by internal treatment, the fibers recover and the vision is restored more or less completely.

The eye complications in diseases of the pineal gland are not due to a disturbance of the pineal secretion; they are neighborhood symptoms. The close position of the corpora quadrigemina accounts for the frequency of eye-muscle symptoms (paralysis, deviation conjugee, mystagmus, ophthalmoplegia).

The only positive eye-symptom in myxedema is the scarcity of hair on the eyebrow. It is a part of the general disturbance of the hair growth which is conspicuous on the head.

The most prominent symptom of tetany is the tetanic spasm. It occurs on different muscles. The eye-muscle cramps come and go together with the cramps of the other muscles and form a part of the general disease.

In cases of corneal dystrophies, unless otherwise contraindicated, glandular extracts might be given with advantage for their stimulating nutritional effect as also in cases of chronic uveitis.

A sign which can be elicited early in many cases of hyperthyroidism consists of a widening of the palpebral fissure upon forced fixation of an object, held midway between and upon the same plane as the eyes and close to them. It is a result of the excessive response to innervation, sent to the levator during the act of convergence, in those cases with insufficiency of convergence.

In cases of multiparae with enlarged hypophyses, we may find an explanation for the cases of optic atrophy found after pregnancy without nephritis and in which heretofore the etiology has been obscure.

The Internal Secretion of the Ovary.—Williams in *Interstate Medical Journal* (Jan., 1918) reports that altho the internal secretion of the ovary was among the earliest of the hormones whose existence was recognized, little exact knowledge concerning this importance substance exists. The existence of an internal secretion of the ovary is established beyond dispute by the definite and constant train of symptoms which follows operative removal of the

ovaries or their atrophy at the physiologic menopause. Following removal of the ovaries during sexual activity there is a decrease in metabolism, a gain in body weight, cessation of menstruation, and the development of certain nervous and vasomotor symptoms.

The internal secretion of the ovary is in part produced in the corpus luteum, and probably in part in the interstitial cells. The corpus luteum controls the menstrual cycle and presides over the development of the decidua and formation of the placenta. It probably has some connection with the nausea and vomiting of pregnancy. The interstitial cells probably produce a secretion which controls the development of the secondary sexual characteristics.

Ovarian hormone therapy with ovarian and corpus luteum extract has on the whole been disappointing largely because of the unreliability of the various preparations. A good preparation of the whole gland acts almost as a specific in the vasomotor disturbances of the menopause.

The symptoms of the post-operative menopause where the uterus is removed occur with equal frequency whether the ovaries are removed or left *in situ*. Heterotransplantation of the ovaries has met with complete failure. Homotransplantation has met with some success in animals but is only occasionally successful in the human subject. Autotransplantation in the human subject has met with a considerable proportion of success, but is not of much help to the patient if the uterus has been removed.

Enlargement of the Thymus.—Gismondi (*Gazetta degli Ospedali e delle Cliniche,* Dec. 28, 1917) outlines the ills apt to develop from hypertrophy of the thymus not only from direct compression of the trachea and of the jugular blood vessels but of the veins supplying the brain and arm, thus impeding the circulation in the veins in the thymus which are already suffering from the fact of the hypertrophy. Congestion in the thymus follows, setting up a vicious circle, and increasing the mechanical disturbances. The bronchial mucosa is also certain to be congested, and compression of the pulmonary veins interferes with the aeration of the blood. Severe asphyxia may develop at any moment and possibly prove fatal. The functional and physical symptoms that point to hypertrophy of the thymus are readily recognized if the possibility of the thymus being responsible is thought of. He describes a few typical cases to show that painting with iodine may induce the retrogression of the thymus, especially in young infants, without alarming symptoms compelling haste. In older children prompt results can almost be counted on under Roentgen exposures. This treatment, however, should not be too violent, as he reports a case in which a mild tendency to rachitis was converted into a more severe type by excessive Roentgen exposures. His experience indicates that a dose of 5 to 6 H units is the extreme limit for a sitting, to a total of 20 units, using an aluminum filter. Franchetti and Pende have successfully employed epinephrin in small daily doses. Pende combines it with hypophysis, having noticed that the combination of both preparations seems to have a special inhibiting influence on hypertrophy of the thymus.

Pituitary Extract to Regulate the Intestines.—Pimentel (*Brazil Medico, Rio de Janeiro,* Aug. 4, 1917) holds that it is possible to regulate bowel functioning with pituitary extract even in cases of habitual constipation or exaggerated peristalsis, as with dysenteriform enteritis in infants. He states that pituitary extract is harmless while its action on the bowel is prompt and pronounced. His patients were adults from 25 to 72 years old and, with one exception, none displayed any by-effects. The exception was a man of 42 who did not have constipation but took the extract as an experiment. Six minutes after the injection the bowels moved, for the second time that day, and peripheral vasoconstriction was noted, while the pulse dropped from 84 to 70. The dose was 1 c.c. of a pituitary extract administered by the usual technic. Some required three injections at a week's interval before bowel function was restored to normal. The treatment failed in one case, a woman of 72 whose bowels for fifty-four years had moved only after rectal injections. No effect was apparent from three subcutaneous injections of the extract on successive days.

Treatment of Fainting.—Fanguier says, in *New York Medical Journal*, Feb. 9, 1918, that the head should be lowered a foot or more below the level of the body and maintained so for a few minutes. This tends to relieve the cerebral anemia and may be sufficient. If no response follows, the medullary centres should be stimulated reflexly. This can be done by application of cold water to the face, or inhalation of some irritant as the ammonia compounds. With advent of consciousness, and only then, the aromatic spirits may be given by mouth, one to two drams in water. Ether inhalations are inferior in action to ammonia, and their prolonged use is contraindicated here. Inhalations of camphor are not as strong as ammonia; they can be given by subcutaneous injection, ten drops of a ten to twenty per cent. solution in ether or cottonseed and olive oil. Patient should receive 0.3 gram of camphor sodii benzoatis. For a stimulant of more permanent effect I have found hypodermic injections of ergotin. Inhalations of strong solutions of alcohol are not superior to ammonia; they can be given by mouth as whiskey or brandy

[Photo by International Film Service]

PENNSYLVANIA STATE HEALTH DEPT. NURSES GET WAR TRAINING—GAS BOMB VICTIM BEING RESUSCITATED.

Dr. Samuel G. Dixon, State Health Commissioner of Pennsylvania, is training all the nurses in his Department as part of a scheme to use the organization in case the war makes demands on home forces. In Harrisburg, Philadelphia, Pittsburg, Williamsport, Oil City and Wilkes-Barre as centers, the department nurses are being gathered in to receive instructions in emergency treatment from doctors who have had army experience.

This picture shows nurses in one of the Dispensaries being instructed by the doctor in a method of resuscitation for a soldier found overcome by the effects of a gas bomb.

The Pennsylvania Health Department is the first in the country to begin these instructions.

in water when partial consciousness is attained. If no response is in evidence and diagnosis is clear, other potent and more reliable remedies should be used alone or in combination. Strychnine sulphate hypodermically has a beneficial effect on the nervous system and indirectly the circulatory apparatus. Dose should be 0.004 to 0.006 grain. Adrenalin is best given by intramuscular injection. Give one c.c. of a 1:1,000 solution. The blood pressure is increased, the heart is slowed by vagus stimulation, and fills more completely and more arterial blood is given to the cerebrum. The heart condition should be known. If cardiac pathology exists and the patient is in poor condition injection into the heart muscle often acts as a direct cardiac stimulant and tonic. Where intestinal paresis is present one c.c. of pituitrin hypodermically is valuable. Having revived the patient a careful history should be taken and physical examination made. Where patient is subject to fainting and is undergoing surgical treatment, the head of table should be lowered and in urgent cases the legs bandaged or a pneumatic suit may be worn, to support the splanchnic circulation. In hysteria the tincture of valerian in one dram dose may be used. Where emotion is concerned the following is useful:

℞ Strychninæ sulphatis .....gr. ⅔;
Cinchoninæ sulphatis .....gr. xxiv;
Acidi hydrochlorici diluti .....ʒii;
Syrupi rubi ideo, q. s. ad. .....ʒiii.
M. Sig.: ʒi in aquæ ½ hora a. c. t. i. d.

Successful Treatment of Anthrax.—Dudley in *Journal American Medical Association*, Jan. 5, 1918, declares that anthrax is not always fatal and that if treated properly, few, if any, patients die. The anthrax is not difficult to destroy or inactivate, but the spore resists the ordinary antiseptics and disinfectants even in highly concentrated solutions. It also resists boiling for thirty minutes and drying indefinitely. Therefore, if disinfection is done thoroly before spore development occurs, an epidemic can be avoided; but after spore formation has taken place, the best that can be done is to destroy the bacilli as fast as they form. Spores are derived from the bacillus. Thus, while disinfection of hides and tanneries cannot affect the spore itself, it may prevent the formation of spores by breaking the cycle. In view of the fact that a suitable medium is required for spore formation, and that the spore does not form in the animal's blood, it is reasonable to assume that there are no spores in the hide of the animal dead from anthrax and that a dry, hairy hide is not a "suitable medium" for the formation of spores. Therefore, it is possible that disinfection of hides is successful owing to the absence of spores. This should be done before spore formation takes place. One can never be certain that the disease will not break forth even sporadically years after.

There are three methods of treatment: 1. Treatment by excision. After excision, the base and edges of the wound are painted with pure phenol (95 per cent.) and immediately neutralized with absolute alcohol. The surface is cleansed with alcohol and a wet dressing applied.

2. Treatment when excision fails. Injecting three or four syringefuls of 8 per cent. phenol into the edematous zone may effect a cure. An ice bag should be applied, altho some physicians have successfully used heat.

Antianthrax serum. This serum is furnished by the U. S. Bureau of Animal Industry, Washington, D. C. The first dose is 35 c.c. injected, intravenously, followed from eight to sixteen hours by a second dose given intramuscularly or intravenously. This dose is repeated if necessary.

In case the lesion is near the larynx, an attempt should be made to excise the major portion from the side toward the larynx, as patients have been known to be choked to death by the edema.

In conjunction with this treatment, salts are given in full doses, strychnine, 1/30 grain every four or five hours. The patient should have plenty of fresh air and should be kept quiet. A tracheotomy tube should be kept handy in case the edema reaches the larynx.

Treatment of Catarrhal Deafness.—A supplementary statement on hot air and calomel vapors in the treatment of catarrhal deafness is here given by Brown in the *Med. Record* (Oct. 6, 1917). "I have found the hot air and calomel vapors incomparably superior to any other means of treatment of Eustachian and aural catarrh and other inflammations of the mucous membranes. In the treatment of catarrhal deafness a gentle current of the hot air is passed thru the nares and the patient is directed to swallow every few seconds. In case the swelling of the Eustachian tubes is such as to prevent the sensation of air flowing into the ears upon swallowing, after a few minutes of the hot air, the nares should be closed and a sufficient current (minimum) permitted to pass to inflate the ears. The tubes are generally opened with slight if any extra pressure after one or two treatments. In some cases the catheter is used and the hot air applied directly to the tubes. The calomel vapors are then applied to the nasal chambers or directly thru the catheter to the tubes and middle ears. My hot air apparatus is a section of half-inch gas pipe about a foot long placed vertically over my diagnostic gas burner, connected at one end with the compressed air service pipes and at the other with one-fourth-inch iron tubing and one-eighth-inch brass tubing bent as required to connect by rubber tubing with a glass nasal tube.

My calomel vaporizer is a three-inch section of half-inch gas pipe, over a Bunsen burner, connected at one end with the compressed air and at the other with a ten-inch section of quarter-inch pipe. The thread of both ends of the latter is filed off to make the ends slightly conical, one to fit tightly in the reducer and the other to serve as a nose piece. One having only electricity could have the tubing wound with a resistance coil, which would be as effective.

No current of air is required for ordinary use of the vaporizer, or a minimum at most. Two or three grains of calomel are sufficient for the usual local treatment, the dosage being regulated by the time spent in the inhalation, from one to fifteen minutes. A patient who may have an irritative cough from a one-minute treatment at first will generally take from three to five minutes at the second or third treatment without complaint.

For constitutional treatment I have lately been using gray powder instead of calomel, as it is less irritating, allowing the patient to inhale the vapors from 15 to 30 grains for thirty minutes or more."

[Photo by International Film Service]

MEALS SERVED STEAMING HOT TO WOUNDED IN AMERICAN HOSPITAL IN PARIS.
The Hot Table making its rounds. It travels around the various wards supplying with hot soup the wounded unable to move. The food is kept warm by a small electric stove on the buffet itself.

Goiter.—Watson in his article on the Diagnosis and Treatment of Goiter in the *Ill. Med. Jour.* (Nov., 1917) gives the following conclusions:

1. The importance of early diagnosis and treatment of goiter are to be emphasized if the best results are to be secured.

2. Goiter occurs at an earlier stage, and the symptoms of intoxication are more severe in goiter districts, than in localities in the western states where the disease affects only a small per cent. of the population. In sections where it is infrequent, the exophthalmic type seems to develop more often.

3. In a group of one hundred and twenty-five cases, I believed that the quinine and urea injections were not indicated in twenty-five of the number, the method being used only in the one hundred cases with the following results: The symptoms were relieved in eighty-five per cent. of the exophthalmic, and in eighty-four per cent. of the toxic non-exophthalmic patients. Fifteen per cent. of the exophthalmic patients were improved and ten per cent. of the non-exophthalmics were benefited. In eighty per cent. of the exophthalmic patients the goiter entirely disappeared within an average period of five months; in fifteen per cent. the tumor was reduced in size and in five per cent there was no change. The tumor disappeared in seventy-five per cent. of the non-exophthalmic patients; it was reduced in twelve per cent., and in thirteen per cent. there was no change. These patients have been under observation from two to four years and there has been no recurrence of

goiter or symptoms in any patient who was once cured.

4. The number of patients cured is highest in the group of those who came for treatment early in the disease, the benefit received by those who came later being in proportion to the degree of damage done the circulatory and nervous systems. If the best results are to be secured, hyperthyroidal patients must have at least a year of mental and physical rest after treatment.

Cardiac Failure.—Intravenous injections of strophanthin may be used in urgent cases of cardiac failure, when it may be advisable to obtain a more speedy result than is possible by the administration of one of the digitalis series of the drugs by mouth. Price (*Practitioner*, Nov., 1917) employs one dose of 1/100 of a grain, or two or three doses of 1/250 of a grain every two hours. This may be followed by the administration of tincture of digitalis by the mouth, when advisable.

When auricular fibrillation is not accompanied by a rapid pulse, no decided result usually follows the administration of digitalis; indeed, it is often difficult to be certain how far the improvement may be due to the rest in bed and other measures adopted, apart from the effect of the drug.

Treatment of Chronic Bright's Disease.—Anders in *Therapeutic Gazette* (Oct., 1917) states there are two principal criteria which should serve to guide us in the treatment of chronic Bright's disease. They are the general condition of the patient as it is influenced by the progress of the affection and the rate of metabolic excretion as determined by modern methods of examination. The amount of urea excreted in the twenty-four hours is an indication of the outcome of the case and should be carefully and repeatedly estimated. It is essential that substances which, like urea, creatinine pigments, hippuric acid, and phosphates are excreted with difficulty should be allowed in minimal amounts in Bright's disease. To avoid the ill effects of phosphoric acid, Von Noorden recommends that calcium carbonate be added to substances containing it.

While seeking to afford protection to the diseased kidney by extreme moderation in diet, especially in proteins, due attention is to be paid to the matter of avoiding deleterious effects to all other organs—to the metabolism.

A mixed diet will be of advantage, proteins in quite limited amounts.

Drugs, while not curative may counteract certain dangerous tendencies resulting from interference with kidney excretion. Mercury in all its forms is to be omitted, since it has been shown that this drug has a selective affinity for the kidney and is, therefore, harmful in its effect in Bright's disease.

Treatment by kidney organotherapy has recently received considerable attention. Sajous claims that favorable results have been reported in about one-half of the cases of chronic nephritis in which kidney preparations were used. One may use a maceration as have Page and Dardelin or more conveniently a tablet know as nephritin prepared in this country by Reed and Carnrick. The dose of the latter is ten to fifteen 5-grain tablets daily, preferably given between meals.

Salvarsan has yielded encouraging results in cases of syphilitic origin.

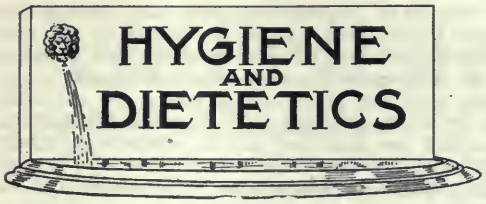
The percentage of cases in which surgery—*i. e.* incision of the capsule or cleavage of the cortex—serves a useful purpose is probably small and it is gratifying to note that the ardent advocates of these operative procedures are far less numerous than they were a decade ago. It is conceivable that a splitting of the capsule or mere puncture of the same will diminish normal tension and thus relieve the pain which may be present. Moreover, for hematuria, or particularly if practically limited to one side, the operation should be recommended as it has been frequently followed by cessation of the hemorrhage in chronic Bright's disease.

Varix and Varicose Ulcer.—Candler in *American Journal of Clinical Medicine* (Feb. 1918) writes that the pain in varicosed legs is by no means measurable by the extent of the varix. Sometimes the veins may be enormously dilated and yet the patient will state that he experiences little or no pain. Contrariwise, a few hardly discernible vessels will cause unbearable distress. The atrocious cramps which usually become worse at night may so undermine a patient's general health as entirely to incapacitate him for business. In many cases free purgation, the somewhat prolonged use of hepatic and circulatory stimulants and dilation of the anal sphincter have brought about a permanent cure. In every case in which operation is refused or temporarily not called for, some such procedure is indicated.

It is very essential that constipation be overcome and equally necessary that cardiac, renal and hepatic abnormalities be corrected.

Full doses of blue mass and soda, followed in six or eight hours by a laxative saline, materially relieve portal congestion. Then the patient should receive small doses of resin of podophyllin or chionanthus after meals, and hydrastine, or better berberine, with strychnine every four hours. Very good results have also been obtained from the use of hamamelin.

In every instance, the patient should wear a supporting woven bandage (elastic stockings are objectionable), but, if, despite everything a purple patch makes its appearance on the thin part of the lower leg, it is evident that an ulcer already is forming. It is wise to treat every case early and thoroly (even to the point of using the knife).



Importance of Sanitation and Hygiene.—To a great extent, the medical profession must be the educators of the people in the matter of public sanitation and hygiene says a writer in the December issue of the *Med. Summary*. Tell them the plain facts; tell them in every farm house, in every hamlet, in every village, in every city, in your office, in every walk of life; tell them in the newspapers, and in lectures: at the bedside of the sick, who are suffering from the lack of hygiene and sanitary surroundings. It is the highest duty of the State to enact such laws as will protect the people from diseases caused by unsanitary conditions.

The general ignorance in reference to ordinary laws of sanitation is lamentable. If there are those who know the laws of hygiene and sanitation, they are careless and indifferent. They not only risk their own health by disregarding these laws, but they endanger the health of others. It is surprising how persons who are educated and intelligent on all subjects should be so indifferent about the simplest laws of health. This ignorance, or indifference, is seen in factories, halls, theatres, picture houses, especially; and even in churches and some school houses. It may be impossible for the poorer classes to have hygienic conditions in their homes, but for those who can afford hygienic conditions it is inexcusable. The law should be invoked to compel landlords to see to it that their rented tenements are kept in a good sanitary condition. To be sure hygiene must be observed by the individual rather than the property owner. It is a wonder that people living in our large cities, huddled up in unsanitary tenements, do not spread epidemic diseases! In fact, they do! They generate them. Even in rural communities there is an utter disregard to hygiene. It is, in many cases, due to ignorance. They have no excuse. If you would strike a blow to the hydroheaded monster and thereby prevent thousands of deaths from preventable causes, tell the people that the remedy is in drainage of marshes, removing of decaying vegetables and making of good roads, and they will thereby prevent malarial fever and seventy-five per cent. of all diseases. Healthful conditions cannot be expected in unhealthy surroundings.

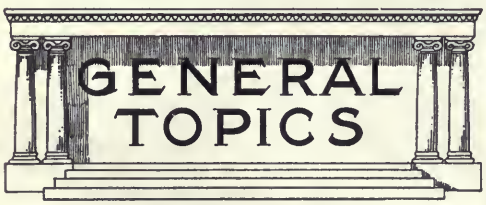
The Orange in the Infant Dietary.—The orange is probably capable of serving more useful purposes in the economy of the baby than any other fruit. The sugar of the orange, like its acid, has the advantage that it is prepared for immediate assimilation and requires no digestion. It is to the sugar which it contains that the orange owes its chief value as a source of nutriment, altho it contains, in addition to the sugar or soluble carbohydrates, nearly one per cent. of protein. The combined value of its food constituents amounts to 240 calories, or food units, per pound. A pint of buttermilk has a food value of 176 calories, one-fourth less than orange juice. A pint of orange juice contains nearly the same number of food units as three-fourths of a pint of full milk. Orange juice supplies the finest sort of pure, distilled water, absolutely free from germs or foreign matters of any sort. The acids furnish aid in satisfying thirst, and the agreeable flavor makes it possible for patients to swallow the amount needed. Orange juice contains elements needed to supplement the bottle-fed baby's dietary, resulting in immediate resumption of growth and a speedy return to health. A glassful of orange juice before breakfast has a decided laxative effect with many persons.—*Exchange.*

Scurvy.— Leebron in *Medical Council*, (Dec. 1917) reports that the treatment of scurvy is essentially dietetic. As a prophylactic measure the breast should be employed in all infants when possible as the main source of food up to nine months or one year. In artificially reared children, especially where milk has to be boiled, the addition of antiscorbutic foods must be insisted upon early. Fresh fruit juices, such as orange, grape or plum, as well as fresh beef juice, should be fed regularly to the infant between feedings. No consideration should be given to any foods that require boiling.

In the acute stage of an attack, the best sanitary and hygienic surroundings should be obtained. The infant should not be disturbed for any but the most important reasons. Even too frequent bathing or changing of clothes should be omitted. Once a diagnosis of scurvy is made, incision of scorbutic swellings, no matter how red or inflamed they appear, should under no circumstances be attempted, as such procedures may cause fatal hemorrhages or secondary infection. Where the mother cannot suckle her young, wet nursing should be obtained. If neither of these sources can be secured, properly adapted raw cow's milk is of primary importance in bringing about a recovery. The best fruit juices, especially orange, from two to three ounces daily, in between feedings, must be administered. Where orange juice cannot be obtained, apple, plum or grape may be substituted. Boiled potatoes, with or without cream or milk, is a good food in these cases. Fresh beef juice, from one-half to one ounce daily, is also necessary. Gelatine may be of some use. Medicines find very little to accomplish in scurvy unless it be in the form of tonics or to overcome the anemia. The hypodermic injections of iron citrate alone or with cacodylate of soda is recommended by H. Lowenburg.

Care of the Feet.— Field in *New York Med. Jour.*, Dec. 29, 1917, in an interesting article on the feet says that those whose duties require them to stand or walk much also frequently suf-

fer from aching feet due to the tenderness of their feet. The tenderness may result from infrequency of bathing, from the formation of callous spots, from blisters, from excessive perspiration, or from ingrowing nails. A person who suffers from tender feet should take a cold foot spray every morning and every evening, by standing in a bathtub for a moment or two and receiving the tonic effect of the full pressure of the cold water from the faucet. After the spray the feet should be thoroly dried with a Turkish towel, special attention being paid to the spaces between the toes. Conclude the operation by rubbing the feet with alcohol and boric acid and powdering them. Callous spots on toes or feet should be removed by rubbing with pumice stone and then softening the skin with vaseline or cold cream. This will be found safer and more effectual than the cutting of corns. Excessive perspiration is caused generally by lack of personal hygiene and should be overcome not by the use of lotions, but rather by careful attention to the cleanliness of the feet and of the footwear. When excessive perspiration causes blisters these should be treated with spirit of camphor administered by means of pieces of cheese cloth adjusted at the seat of the trouble. These applications will cause smarting at first, but will effectively heal all inflammations of the feet and the toes not amounting to genuine blisters.



To Obtain Alcohol.—Under the Revenue Act of October 3, 1917, which went into effect, December 1, 1917, hospitals, sanatoriums and physicians who use alcohol for non-beverage purposes are required to file a bond and obtain a permit from the revenue authorities. This law is being administered in connection with the Food Control Act of August 10, 1917, and applies to every one handling alcohol. Heavy penalties are provided for non-compliance with or violation of the law. Physicians should make themselves conversant with the requirements if they have not already complied with the law.

Every physician who wishes to buy alcohol U. S. P. for his own use must get a permit from the U. S. Internal Revenue Office, file a bond and state in his application blank for what purpose he intends to use the alcohol. This applies whether it is for washing his hands or for preparing stains for laboratory use, or for any other purpose for which he desires to use grain alcohol without having it medicated or in some manner denatured.

A physician cannot purchase more than one pint of alcohol that has been medicated without obtaining a permit. The revised regulations covering the use of non-beverage alcohol are as follows:

Hereafter, pharmacists who hold permit and have given bond will be permitted to sell non-beverage alcohol without a physician's prescription, to persons who do not hold permits and who have not given bonds under the provision of Treasury Decision 2559, in quantities not exceeding one pint, but not in advance of orders, provided they first medicate the same in accordance with any one of the formulae recited below:

1. Carbolic acid 1 part, alcohol 99 parts.
2. Formaldehyde 1 part, alcohol 250 parts.
3. Bichloride of mercury 1 part, alcohol 2,000 parts.
4. Bichloride of mercury 0.3 grains, hydrochloric acid 60 cc., alcohol 649 cc., water 300 cc.
5. Bichloride of mercury 1½ grains, hydrochloric acid 2 drams, alcohol 4 ounces.
6. Formaldehyde 2 parts, glycerine 2 parts, alcohol 96 parts.
7. Carbolic acid 1 dram, tannic acid 1 dram, alcohol 1 pint, water 1 pint.
8. Alum ½ ounce, formaldehyde 2 drams, camphor 1 ounce, alcohol and water each 1 pint.
9. Lysol 1 part, alcohol 99 parts.
10. Liquor Cresolis Comp. (U. S. P.), 10 c.c., alcohol 1,000 c.c. The container of such alcohol will bear a "poison" label.

In compliance with the regulations as to applications for permits, where the manufacturer desires to make United States *Pharmacopeia* or *National Formulary* products, the permits may be approved by the Collector of Internal Revenue without submitting the matter to this office, and as to such products a statement of the names by classes such as "tincture" "extracts," etc., and that they conform to the standards above specified will be sufficient without any further description or statement of formula.

In the case of alcoholic medicinal compounds which are not in conformity with the United States *Pharmacopeia* or *National Formulary*, the manufacturer will file with the collector when requesting a permit for the use of non-beverage alcohol the following data in duplicate:

The name of the preparation, by whom manufactured, for whom manufactured in cases where same is not placed on the market by the manufacturer, the advertising matter distributed with the preparation, the percentage of alcohol by volume contained in the finished product.

A sworn statement in duplicate must be furnished that the medicinal compound contains no more alcohol than is necessary for the purpose of solution or preservation, that it contains in each fluidounce a dose as a whole or in compatible combination of one or more agents of recognized therapeutic value, that it contains no agents either chemically or physiologically incompatible with the active medicinal agents upon which the medicinal claims are based, and that it is not a beverage and is not to be sold or used as a beverage. The Commissioner of Internal Revenue reserves the right, when in doubt as to the non-beverage character of the preparation, and the applicant accepts such reservation, to demand at any time the formula and process by which the article is manufactured.

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Smoking.—Information concerning the influence of tobacco upon the human organism has long been a requisite of elementary education, along with the mandatory teachings regarding the baneful effects of alcoholic indulgence. It is needless to discuss the reasons for the introduction of specific teaching of this character, but obviously there has been some powerful undercurrent of compelling opinion that the constant use of tobacco has widespread deleterious effects upon the physical, mental and moral characters of its users.

The various school textbooks on hygiene and physiology, now in use, point out the harmful effects of tobacco due to its nicotine content upon the heart, the digestive organs and the nervous system; not to mention the consequent stunting of growth, mental impairment, and a tendency towards moral degeneration.

The tobacco heart has long been recognized and its irritability has at times proven of seemingly serious importance. Smokers are not imbued with fear. Despite the fact that pedagogic information has emphasized the undesirability of the tobacco habit, the growth of tobacco consumption has been remarkable. Today every effort is being made to raise large sums of money for the purpose of sending cigarettes and tobacco to the militant forces of this country in complete disregard of the teachings that educational institutions have instilled with reference to the noxious weed with its dangers to bodily development and nervous control. Men who dare to do or die are not interested in the toxicity of tobacco that gives them good cheer.

Were one to ask for a mass of scientific data to prove the harmfulness of tobacco, stress would be placed upon the narcotic poison that it contains, as well as the pyridin, furfural and similar other substances whose toxicity develops during the process of smoking. The physiologic effects of tobacco smoking have been debated for many years, and types of evidence have been accepted which would be rejected in a consideration of problems that were not fraught with specific moral interests and possibly almost fanatic religious bias.

Some life insurance investigations point out the greater expectation of life of tobacco abstainers as compared with those who are temperate in their smoking habits. An occasional experiment on animals has shown marked effects upon the blood vessels. Irritations of the nose and throat, digestive disturbances, headaches, nervousness, tachycardia, arrhythmia and numerous other symptoms repeatedly have been demonstrated as occurring among particular individuals addicted to the worship of "My Lady Nicotine." The anti-tobacco zealot finds himself convinced of the curse of smoking. The smoker smiles patiently and pityingly.

The enthusiasm of temperate smokers concerning its sedative character and the delightful stimulation which it affords the higher psychic centers have been enshrouded in poetry, prose and song. No one doubts the truth and honesty of expression of those who are wont to speak of the joys of life derived from smoking. The vast majority of mankind sympathizes and understands. The fact that the annual per capita consumption of tobacco in the United States amounts to more than seven pounds attests the growing use of this commodity and preaches the far-reaching doctrine of dreams and happiness born of smoke.

The psychic effects of smoking include the comfort and solace, the companionship and sociability, which are derived or enhanced thru smoking intercourse. The smoker's mind relaxes during the state of peaceful concentration upon vocation or avocation, which ever affords a wholesome interest and adds to the pleasure in life.

The mere allegation of psychic benefits and hazy protestations of undoubted value cannot offset scientific data. What and where are the facts—the truth about tobacco? Banish sentiment! Wipe out intolerance! Abolish ignorance! Is tobacco harmful?

Fisher and Berry in their recently published volume on The Physical Effects of Smoking[1] (*Association Press*) present some experimental physiologic studies which tend to indicate that this popular custom is not based upon defensible facts. Their reported experimentation does not pretend to be conclusive, but the tentative results suggest the necessity for further inquiry into the physiology of smoking.

The suggestive effects deduced in their conclusions are: (1) Smoking increases the heart rate and raises the blood pressure; (2) Smokers have a normal heart rate, higher than nonsmokers and smoking itself delays the return of the heart rate to normal after exercise; (3) Smoking involves a loss in physical precision and smokers evidence a greater lack of neuromuscular control of exercise than nonsmokers; (4) Smoking reduces accuracy in muscular efforts requiring guidance and direction such as the pitching of a baseball.

The significance of these results, based upon an honest search after truth, cannot be dismissed lightly. It is impossible, however, to estimate the exact end results of such physiologic disturbances as are alleged to follow smoking. If the four factors of physical disharmony mean the loss of a year or two of life, possibly conscious selection would prompt individuals to prefer to smoke and accept the penalty than to deprive themselves of the joys which they believe smoking yields. It is a matter of no slight consequence, however, if continued moderate smoking involves a lessening of physical and mental efficiency with increased fatigue and impaired neuromuscular control.

The investigations supervised and summarized by Fisher and Berry do not include a sufficient number of control experiments to constitute a proper background for the interpretation of their experiences with the individuals studied; nor has a sufficiently large number of individuals been utilized

[1] The Physical Effects of Smoking. Preliminary Experimental Studies. By George J. Fisher M. D., M. P. E., Senior Secretary, Physical Department, International Young Men's Christian Association, New York City, and Elmer Berry, B. S., M. P. E., Professor of Physiology, International Young Men's Christian Association College, Springfield, Mass. Duodecimo 179 + 9; New York; *Association Press*, 1917.

as the basis of analysis. It would be interesting, for example, to test out the effect of gum chewing under similar conditions, card playing and various other forms of muscular and mental occupation, in which the existence of a narcotic or toxic substance could not be predicated. It is essential to exclude the psychic influences which are known to affect heart rate and blood pressure before accepting the results secured as due only to smoking. It is also necessary to make several other differentiations, as for example, the difference in effects due to smoking with and without the inhalation of the smoke, and the effect of the use of tobacco by chewing where relatively larger amounts of tobacco extract enter directly into the digestive tract. The type of study is interesting and merits the flattery of imitation, criticism, corroboration or rebuttal.

The prevalence of a custom by no means can be regarded as an indication of racial beneficence. The common and increasing use of tobacco since the sixteenth century constitutes no proof of its virtues. The praises sung of alcohol are paralleled by the imagery which has crystallized in immortal songs the delights of smoking. Physiology, sociology, economics, pathology and medicine have pointed out with scientific exactness the inherent hazards arising from the abusive consumption of alcohol. Possibly, tobacco similarly will fall from grace as a result of more exact knowledge. Certainly, it is time that the status of tobacco, as an accompaniment of social life, should be established.

John Fiske in his essay, "Does It Pay to Smoke," arrived at an affirmative conclusion. The future will determine whether his answer was the correct one. It is, of course, possible that it may pay to smoke despite all the proven deleterious effects of smoking, when all phases of the tobacco habit are considered. On the other hand, hygienic judgments cannot be sound until the basic facts are uncarthed and the physiologic effects of tobacco using are determined beyond argument and emotional reaction.

Vocational Guidance a la Freud.—At a time when thousands of men are being drafted for military purposes, it is rather a shock to read that the "sublimation of infantile exhibitions" often impels one to follow the career of the army. It is doubtful whether this point of view would meet with favor except by those who are thoroly dyed in Freudian doctrine.

Brill, discussing the Psychopathology of Selections of Vocations (*Medical Record,* February 23, 1918) applies a concentrated Freudian theory to the interpretation as to the reason for the selection of vocations. In his judgment, such a selection is not a matter of chance, but is governed by definite laws. In his words "Investigation shows that the normal individual needs no advice or suggestion in the selection of a vocation, he usually senses best what activity to follow, and, what is more, he is invariably harmed if advice is thrust upon him by a person of authority. For it is known that all our actions are psychically determined by unconscious motives, that there is no psychic activity which does not follow definite paths formed in the individual since his childhood, and as work or profession is nothing but a sublimating process in the service of hunger and love we may assume that it also must be guided by the individual's unconscious motives." Following upon this theory, he has sought

to determine motives which actuate individuals to take up specific vocations.

One is tempted to view critically his interpretation of the reasons why physicians find themselves practicing their profession. The various suggestions which he makes include the exaggeration of sadomasochistic components, which are sublimated in professional life for useful purposes. It is doubtful whether many surgeons would admit that they are surgeons because they have conquered their sadistic impulses and have sublimated them for social purposes. It is questionable if many physicians would agree that medicine was followed because of jealousy of the family doctor "whom they imagined stood in greater favor with their mothers than their own fathers." There may be a tendency on the part of sons to rival their fathers, but it is open to question as to whether that rivalry is due to the fact that their fathers were particularly admired by their mothers.

To regard every activity or vocation as a form of sublimation and to reduce vocational activity to the Freudian sex basis does not appeal to reason even where one is conscious of the prodigious benefits which Freudian analysis has conferred upon those interested in the study of unconscious motives.

The common experiences of childhood, involving lying, theft, brutality, exhibitionism and assertiveness, make it difficult to accept a single event or unconscious memory as the basis of vocational choice, which renders guidance and counsel unnecessary. It is true that there are many failures in medicine, but it is not true that such failures are essentially due to mental unfitness, which makes insight into ability impossible and prevents proper sublimation. There are, undoubtedly, many failures in medicine among those who failed to follow out their personal inclinations and entered into their profession because of the determination of their parents that such should be their end and aim in life.

Numerous factors entering into failure are a lack of financial means, poor choice of a field for practice, inability to follow out research because of limited means, a speech defect, an illness that may have incapacitated some of the senses, harshness of manner, lack of business sense, errors in diagnosis, and countless other elements which affect the progress of any practitioner. The interaction of such factors may arise, regardless of whether the selection of medicine is due to the sublimation of a sadistic element, or whether medicine is taken up to gratify the whim of a fond parent or because a young man has seen the vision of an opportunity of service in medical fields.

If jealousy, sadism, masochism and general unconscious memories of infantile experiences are the basis of vocational selection of medicine, then obviously the large percentage of failures in the world would indicate that something is lacking in this alleged natural choice of occupation because in all probability natural inclinations are followed insofar as circumstances, conditions and environment permit.

To suggest that law is selected as a reaction of some dishonest act "committed in childhood or early boyhood by one's self, by parents or by some immediate member of the family, as brother or sister" hardly seems reasonable motivation. Nor does it appeal to one's intelligence to read " 'Only' children and first-borns who, by virtue of their positions in the family become domineering and officious, usually select the vocations requiring leadership, such as teach-

ers, religious and political leaders, while the youngest child who was bullied and intimidated by his older brothers is generally satisfied with a subordinate position in life."

What a dangerous outlook for vocational choice is before an only child who has stolen apples during childhood, delighted in tormenting cats, enjoyed inquiring into the sexual literature of puberty, whose father is a doctor to whom his mother is most devoted, and whose life has been saved by a minister who dragged him out of the resurging surf! To be or not to be a physician, that would be a question.

One might well inquire, on the basis of Brill's suggestions; what motives impel a man to devote himself to psychoanalysis? One hesitates to think of the unconscious motives which may actuate an individual to devote himself to interpreting life in terms of sex to the exclusion of every other factor.

Munitions and Poisoning.—The promotion of industrial efficiency in the interests of military effectiveness is calling upon scientific resourcefulness. The technic of the laboratory is being supplemented by the method of hygienists, with a view to offsetting the hazards of industry, in order that the industrial army may maintain a high degree of personal health and freedom from preventable disabilities.

Unfortunately, man power, which is always a commodity in excess of industrial needs, has given rise to a degree of carelessness, which is at last being recognized, but which is difficult to overcome because of the prolonged inertia of a large proportion of employers.

The continuous attention upon output has blinded many men to the inherent relations between the welfare of the workers and their productive powers. On the other hand, many far-visioned employing concerns have maintained large laboratories, adequately equipped for the purpose of investigating the effects of a factory environment upon employees and for the purpose of preventing the wastage and scrapping of the human assets, so necessary for the highest degree of industrial success.

The country has suddenly had its attention drawn with unusual directness to a multiplicity of dangers which ordinarily would have been overlooked. The transformation of industrial systems and the application of the efforts of hundreds of men to processes in which formerly one had been engaged have multiplied the accidents and diseases in these fields of industrial occupation. Engineering, chemistry, hygiene, sanitation, physiology and medicine have brought new forces into play with a view to improving the welfare of workers without the sacrifice of output.

Frederick Lee has pointed out (*Public Health Reports,* January 11, 1918) the importance of physiologic science in the development of modern industry. He reiterates conclusions which have been known to hygienists for some period of time, but which now are being put to practical purposes. The necessity of avoiding fatigue, the six day week, the eight hour day, the elimination of the continuous night shift, the standardization of personal powers, the adaptation of the worker to his employment, and the adjustment of individuals to specific processes represent established principles in industrial hygiene which cannot be ignored by those interested in national advancement. Reduced to the last analysis, the strength, power and capability of the individual workman constitute the

only sound substratum upon which industrial hygiene can be established with any assurance of permanence. It is natural, therefore, that the Government, acting thru the Council of National Defense and various other commissions interested in stimulating production, should seek to establish factories, devoted to the production of governmental material, upon a scientific basis in complete accordance with the facts and principles already established thru the studies of industrial physiology.

In connection with these problems, one notes rules and regulations which have been proposed by the New York State Department of Labor (*Special Bulletin No. 86*) for the prevention of the deleterious effects upon health that results from the handling of wood alcohol. The industrial commission properly accentuates the fact that the publication of information *per se* is insufficient. It is necessary that employers actually institute the necessary improvements in order to protect their employees.

The immense importance of health conservation is further suggested by Archie Rice (*Monthly Review of the United States Bureau of Labor Statistics,* Volume VI, No. 2). Beginning the discussion of the risk and avoidance of TNT poisoning, he states: "Between 7,000 and 17,000 cases of TNT poisoning, resulting in between 135 and 475 fatalities, will probably occur among workers in American shell-loading plants, during the production of the 78,000,000 rounds of cannon ammunition already ordered by the United States Government for use in the European war. These estimates, based on two standards of experience in munition plants in the United States, may be expected to hold, unless radical improvements be made in health conservation practices.

About five per cent., or from 350 to 850, of the cases of poisoning will happen to workers within the first two days of their exposure: 75 per cent., or from 5,250 to 12,750, of the cases will become manifest after four to eight weeks of employment; and 20 per cent., or from 1,400 to 3,400, of the cases will develop after three months, five months, even seventeen months or more of apparent immunity in TNT department work."

If these figures are accepted as approximately correct, the interesting question arises why should not these poisonings and fatalities be averted? Medical supervision and reasonable precautions will suffice to safeguard the workers in munition plants. Part of the answer is reflected in the attitude of the munition makers at a conference designed to consider and perfect for the Council of National Defense a health and hygienic code for the munition industries. The munition makers, as a group, voted against a clause proposed to protect workers known to have had an attack of TNT poisoning. Despite the favor of Federal officials and health officers, it was impossible to act favorably upon a resolution "that would provide the worker with a definite memorandum that might aid him in illness later arising and after his leaving the company's employ."

The munition makers argued that "munition workers should not be told the real danger" as it would make them unduly apprehensive. The other objection was that workers should not be given any memoranda to be used for self-protection of health or as a valuable guide to physicians possibly called upon later to treat them at

places far from the plant, because such memoranda might sometime be used by adventuring lawyers as bases for troublesome suits for damages.

Contention was made for the employers that the proper procedure should be to educate all the doctors of the country in the diagnosis and cure of TNT poisoning.

While it is true that TNT constitutes a new medical problem, to wait until all doctors of the country receive adequate education on the subject would be to permit a needless increase of TNT victims. It is patent that the reduction of TNT poisoning demands the immediate medical protection of the workers, particularly those engaged in the processes known to possess the most serious hazards.

Susceptibility to the poisoning and immunity from it vary considerably. Certain types of men should not be permitted to work in an atmosphere tainted with TNT. Individuals breathing thru the mouth and those accustomed to alcoholic excess should be excluded in order to protect them and their families from the possibility of financial or health loss due to TNT poisoning.

While physicians may not be thoroly conversant with the symptomatology of poisonings due to TNT or other chemicals utilized in the manufacture of munitions, they should realize the prevalence and dangers of occupations involving the use of chemical substances employed in the manufacture of high explosive shells and similar death dealing devices.

If munition makers are not fully conscious of the dangers of their own industry, medical organizations might well devote a part of their programs to the enlightenment of the public concerning these occupational hazards, with a view to developing a coercive public opinion that will stimulate munition makers to reform their methods. The insidiousness of industrial poisoning and the sudden expansion of the industry are probably reasons for the failure to adopt adequate measures for their prevention.

Fortunately, a number of large plants, after an investigation of foreign experiences, have made adequate provision for the protection of employees. Their efforts must be supplemented by rational legislation or by specifications as to the industrial conditions which must obtain in plants filling Government orders. The continued exposure of employees to preventable hazards is indefensible. The increasing shortage of male workers and the substitution of women in industry afford additional reasons for increased attention to the problems of industrial hygiene and sanitation.

The penalties of war are severe, but there is no reason to condone the extravagant misuse of workers or the exploitation of their health on the basis of an alleged patriotic desire to speed up production. Patriotism is a form of altruistic thought, plus service, which recognizes national welfare as the most desirable end. The sacrifice of citizens and workers thru preventable causes is not to be tolerated on the plea that it was avoidable in the endeavor to aid in stimulating production for the purpose of filling Government contracts. The Government is made poorer thru every needless and useless sacrifice of those who man the munition plants. Preventable poisoning in industry should be regarded as a form of malpatriotism, despite the protestations of munition makers. Patriots do not destroy human life when it is possible to conserve it.

Warring Against Pediculosis.—Personal cleanliness occupies a preeminent position in preparation for military progress. The purpose of camp and field sanitation is the protection of troops. Under ordinary campaign conditions the ability of the uniformed forces to maintain bodily health is difficult, but owing to the tremendous handicaps of sustained trench warfare, personal cleanliness is attended with unusual and almost unbelievable difficulties.

As a consequence of surroundings insanitary, despite attention to details, the problem of pediculosis has achieved a prominence almost equal to that of aeroplanes or 75 centimeter guns. The numerous efforts constantly being employed to safeguard soldiers from the dangers of infestation by lice attest the interest of military sanitarians in overcoming a foe whose power for evil is entirely disproportionate to its size, tho possibly not to its numbers.

Under normal living conditions, human lice are easily destroyed thru the use of kerosene, turpentine and similar parasiticides, while clothes are readily freed thru processes of baking, boiling or steaming. The problem of fighting the clothes louse under martial conditions is discussed by W. Moore in the *Journal of Laboratory and Clinical Medicine* (February, 1918). Numerous methods have been suggested for the destruction of the lice but many of them, after thoro investigation, have proven to be inadequate or else are attended with an unpleasant irritation to the men, which actually interferes with their comfort and efficiency.

Methods of Destroying Lice.—Sachets of naphthalene, camphor, sulphur and various other chemicals do not appear to have been successful in destroying the lice or in preventing egg laying. The volatile oils as oil of wintergreen and thyme have been used, and while they serve to some extent as deterrents, they do not suffice to saturate the atmosphere under the soldier's uniform and the escaping vapor results in such a low percentage of saturation as to render the intended protective practically valueless.

On the Western front louse powders have been used, the most successful of which apparently has been the NCI powder consisting of naphthalene 96 per cent., creosote 2 per cent. and iodoform 2 per cent. Owing to the moistness of this preparation, which makes it difficult to dust it thru the clothing and because of its burning effect upon tender skin, this powder has been open to serious objections.

Moore, with the approval of the National Research Council, studied carefully a large series of powders with a view to meeting and overcoming the various objections and finally arrived at the conclusion that the most effective louse powder at the present time consists of creosote 1 c. c., sulphur ½ gram and talc 20 grams. This parasiticide will destroy 100 per cent. of the lice in five minutes. The skin is not subject to irritation, the clothing may be thoroly dusted with the preparation, the cost of the preparation is low, and the effectiveness is high. When one considers that practically two ounces of the powder are required every day or two for each man, the enormity of the problem of providing an adequate supply of louse powder is apparent, and for this reason such a method of control must be considered as a supplementary measure.

Fumigation is necessary to destroy the eggs and if the soldier's clothing can be subjected to heat and chemicals while he is taking a bath, there is an important gain

in time and an enhanced value to the measure in the control of the pest. There are numerous difficulties in fumigation by steam, and some chemicals such as carbon bisulphide, ammonia, sulphur dioxide and others are not able to penetrate all parts of the clothing with a short period of exposure, while formaldehyde is insufficiently toxic for insects. Moore has demonstrated that chlorpicrin or nitrochloroform is very toxic, tho quite volatile, and possesses unusual powers of penetration. With the addition of a small amount of heat to hasten the evaporation of the chlorpicrin, the eggs will be destroyed within half an hour. If the heat is increased, the egg killing period may be reduced to 15 minutes.

If, therefore, a system is organized that allows the soldier a bath every week or two, at which time clean underwear and shirts are received, while the outer garments are fumigated, with the additional use of a louse powder as a supplementary measure to prevent reinfestation, it should be possible to rid men of lice, and thus protect them from the disease hazards which naturally inhere in the presence of continued lousiness.

The practical application of this theory cannot be prejudged on the basis of laboratory experience, but the recommendations that Moore has made, merit careful trial among the forces at the front, where the pediculosis problem is most serious.

Stream Pollution.—The study of stream pollution is of practical importance in connection with hygienic legislation seeking to protect communities from unnecessary and preventable diseases. It is patent that the problems of water supply and sewage disposal are so closely linked that it is impossible to discuss the methods and worth of one without reasonable consideration of the methods and end results as affecting the other.

The United States Public Health Service (*Public Health Bulletin No. 87*) includes a digest of judicial decisions and a compilation of legislation relating to the subject of stream pollution. Stanley D. Montgomery and Earle B. Phelps have made a careful analysis of the trend of the laws and court decisions insofar as they affect the whole subject of the control of stream pollution. The interstate control of streams, their utilization for domestic and commercial purposes, their employment for human and animal consumption and their essential value as factors in industry point out the magnitude of the problems of justice involved in the general use of streams without inflicting damage or injury to other individuals or communities whose riparian rights are entitled to protection.

As a basic ideal rule of common law "Every owner of land thru which a stream of water flows is entitled to the use and enjoyment of the water, and to have the same flow in its natural and accustomed course without obstruction, diversion or corruption. The right extends to the quality as well as to the quantity." (Holsman v. Boiling Spring Bleaching Co. [14 N. J. Eq. 335], decided 1862.)

The rigid application of this basic law obviously would result in the complete nonuse of a stream, wherefore, the courts have held that each riparian proprietor has the right to have the stream flow thru or past his land that its quality be unimpaired and its quantity undiminished, except in such manner and to such extent as may result from a reasonable use of the stream by the riparian proprietor above him.

The natural use of water supplies for domestic purposes, or the watering of cattle, would appear to be favored by the courts to a greater extent than such uses as are required for manufacturing purposes. On the other hand, even natural uses if exercised immoderately or incessantly tend to become unreasonable, and thus may be held to be illegal.

The drainage of land may produce a certain degree of contamination, but unless the natural water course is diverted or the contamination involved creates a nuisance no injustice is regarded as having been committed. The discharge of waste from a manufacturing plant or mine into a natural stream is an artificial use and if material injury arises to lower riparian proprietors, liability to damage exists. Even tho the manufacturer be engaged in an important industry for the benefit of the public, he is not absolved from the responsibility for any stream pollution arising from the drainage of his plant into the public stream, if it works material injury to those thru or past whose property the stream must flow. The responsibility for the stream pollution rests upon the contaminator, even tho it might be possible for lower riparian proprietors to protect themselves at moderate cost.

Stream pollution by noxious drainage or by the disposal of sewage may create a public nuisance, threatening the health and welfare of communities making use of such natural waterways for the purpose of securing an adequate supply of drinking water. The conversion of a potable stream into one sanitarily unfit for human consumption is a violation of the vested rights of the community providing that the water course passes thru the confines of the city or village and is practically the main source of water.

The increase of population in urban centers has emphasized the importance of the sewage problem and has made it necessary to place more or less definite limitations upon the character and the amount of sewage and waste permitted to enter streams. The numerous studies upon the purification of sewage and waste fluids has made it practical to decrease a considerable part of the stream pollution which hitherto had been regarded as natural and inevitable.

Modern medical doctrine insists upon the protection of the public water supplies and the prevention of nuisances and contamination. The responsibility of the state for securing and protecting an available public water supply from the standpoint of public health is even greater than its obligation to deal with the sewage problem in a satisfactory manner. The state may, without provision of compensation, curtail the riparian rights of individuals in their use of any stream. Under the police powers of the state, the uses of riparian proprietors may be limited with a strict regard to cleanliness and sanitation. Numerous enactments are designed to protect from pollution the waters of creeks, brooks, rivers, lakes, etc., which are used as the feeders of reservoirs for public use, regardless of whether the pollution, in fact, appreciably affects the water as it arrives at the reservoir.

In numerous instances, states have delegated to commissions or boards the details of legislation necessary for the protection of water. Inasmuch as the power of the state is limited when it involves the discharge of sewage into a stream, it is patent that the state should hold municipalities re-

sponsible for such contaminations as might arise from failure to protect the stream or water supply against pollution by waste or sewage. Municipalities may not create nuisances that threaten the welfare of their own citizens or tend to impair the health and welfare of citizens of communities within the state lower down in the course of the stream.

The numerous state boards of health acting under the police of the state should be the arbiters in determining the existence of stream pollution. The necessity for safeguarding individuals from water-borne diseases is obvious. The carelessness and indifference of communities to the rights of other communities and their arrogant assumption of privileges, which in origin may have been normal, have given rise to a vast amount of litigation, which has created useful court decisions, but have also been responsible for the needless sacrifice of many lives.

Water and air are essential for health, and while both have been provided by nature in ample quantities, their quality has suffered thru the uncivilized practices of civilized communities. The transition from private wells to public water works has been exceedingly gradual but at the same time more rapid than the change in the public conscience with reference to the responsibility for protecting water supplies from unhealthful contamination.

The daily per capita consumption of water for domestic purposes is usually estimated at about 17 gallons a day, altho many American cities have a daily per capita supply of over 200 gallons a day. The water wastage is indefinite and cannot be determined until some system of domestic metering is established. Inasmuch as the use of water is to be encouraged, the actual amount necessary for domestic purposes should not be limited, save insofar as public funds interfere with the development of a complete public water system.

The sanitary protection of the water necessarily involves the reduction of contamination, so that the bacterial content may be kept quantitatively low and qualitatively free from pathogenic organisms such as typhoid bacilli, streptococci and colon bacilli.

If the state is charged with the responsibility of protecting streams against pollution and fails to enact specific legislation to this end and a water pollution epidemic arises, there is a serious question as to the liability of the state for such material damage as may have resulted thru loss of life by virtue of the state's failure to afford adequate protection.

Various typhoid epidemics arising from polluted river or lake waters have demonstrated the importance of carefulness in stream protection. Studies of the typhoid death rates as limited to the source of the water supply demonstrate that river water subject to pollution is the most serious factor in communities where typhoid fever is endemic or where epidemics are prone to occur.

The infection of public water supplies is preventable. The continuance of disease thru neglect to safeguard streams against pollution should be regarded as criminal carelessness. The scientific facts are known. The rational methods of safeguarding streams are understood. The failure to insure the safety of potable drinking water derived from streams is no longer to be condoned or supported. Were military forces to suffer from an epidemic of

typhoid fever as a result of a failure of military and medical authorities to protect the water supply, national criticism would be prompt, sharp, direct and bitter. The same attitude of mind should be developed towards the occurrence of water-borne epidemics among the citizens who form the army of civil and industrial life, where uniforms, drills and all the panoply of war are absent. Stream pollution involves sacrifices more needless than any that war can produce.

Reform Needed in the Ranking of Medical Men in the Army.—The response of members of the medical profession of this country to the call for volunteers to meet the exigencies of the military situation has been highly satisfactory. This is a fact which should be emphasized and driven home on every possible occasion. The circumstances are unprecedented, and the action of American medical men has been altogether in keeping with the fine traditions of their profession. They recognized their duty when it was made clear to them, and have played their part as true patriots.

When war was declared the army was small, and the medical corps was inadequate for even its diminutive size. Consequently, it was imperative that the Medical Reserve Corps should be enlarged so that the immense army, which had to be raised almost overnight, should be medically and surgically cared for in a fit and proper manner. This object, as said before, has been well accomplished. Twenty-one thousand, or thereabouts, civilian medical men have been enrolled in the Army Medical Reserve Corps. This is to say, as Dr. Franklin Martin pointed out in his eloquent plea for a fair recognition of the services of this body of men, made recently before the Brooklyn Surgical Society, thirty-nine out of every forty medical officers attached to the fighting forces of our army are civilian doctors. Indeed, nearly the entire medical and surgical work appertaining to the army will fall upon the shoulders of the members of the Reserve Corps. Their duties are identical with those of the regular army surgeons. Moreover, together with this enormous responsibility, the civilian practitioner in abandoning his practice in the cause of patriotism is, as a rule, sacrificing a great deal—sometimes all—from the material standpoint. The word "abandoning" is used advisedly, for in the large majority of cases, if he returns after the war his practice will have passed into other hands and he will virtually have to begin his professional life over again. Does he not then deserve full compensation, or as near to this as possible in return for these sacrifices? He assuredly does, and further, justice and the work he is called upon to do demand that he should be treated with the utmost consideration, especially in respect to official rank and power. As the matter stands at the present time, an officer of the Medical Reserve Corps cannot rise, however valuable his services may prove to be, to a rank higher than that of major. In other words, while assuming all the responsibilities that fall to the lot of the regular army medical officer, the volunteer is restricted as to advancement and authority. He is, to some extent, "the muzzled ox that treadeth out the corn." It goes without saying that this unfair and unwise discrimination bears more heavily, by far, upon some medical volunteers than upon others, altho this does not alter the injustice of the whole system. The distinguished surgeons and physicians who have joined the colors

in large numbers, as an editorial writer in the *Evening Sun* aptly puts it—"have become understrappers in this topsy-turvy service." In some instances, they are little better than "hewers of wood" and "drawers of water." A surgeon like Crile may be, if not at the beck and call, at least under the orders of an army surgeon of the rank of colonel who does not possess a tithe of his experience, ability or dexterity. A great volunteer surgeon or sanitarian, therefore, may not be able to make his knowledge and skill count as they should, because he has not been accorded the rank necessary to assert and maintain his authority. The menace of this, for it may be rightly termed a menace, has now reached to such proportions that Surgeon-General Gorgas has not hesitated to jeopardize his military position by taking a very definite stand against the evils of the present system of ranking in the army medical service. If any one is thoroly acquainted with the true merits of the case, it is General Gorgas, and when he comes out unreservedly and states that the army medical reserve officer should be given the same rank and privileges as the regular officer, the question admits of no controversy. There should be no further argument, and while the reform asked for may seem radical in the extreme, and according to long-held views subversive of army discipline, it must also be borne in mind that the world at large—and medical science particularly—has undergone great changes and that old views must "go by the board." Our only aim is to win the war. To do this our soldiers must be cared for surgically and medically in the most effective manner. If, therefore, General Gorgas, Dr. Franklin Martin and a host of other competent medical authorities are of the opinion that this result will be best brought about by placing the volunteer medical men upon the same status as the regular army medical men it should be done without demur or dissent. If red tape or army traditions stand in the path of this reform, there is only one thing to do—cut the red tape and forget the traditions. The present is no time for halfway measures. General Gorgas has appealed to Congress, and his appeal, backed as it is by the sense of the whole medical profession, should be heeded and acted upon promptly.

There is one point which appears to have been overlooked and to which attention should be called. This may be a long war, and several million more men may need to be drafted. Therefore, the services of several more thousands of civilian medical men may be required. If medical practitioners feel, as they certainly will unless the obnoxious restrictions are removed, that their services are not properly appreciated, or that they will not be treated quite fairly, burn their patriotism ever so brightly, there will be many who will hesitate to come forward. The problem has but one solution, let right and justice prevail!

Today is Ours.

This day is ours; the yesterdays
Are gone with all their good and ill.
No need their failures or delays
Should handicap or vex us still.
No need or use to brood or fret,
Or in repining waste our powers.
Life still has duties to be met;
Press on! press on! this day is ours.

This day is ours, for noble deeds,
For strenuous toil, for conquests won,
For larger love, and broader creeds,
And stronger hearts at set of sun.
The time, the place, is now and here,
Unscaled the height above us towers;
And tho our goal be far or near
Press on! press on! this day is ours.

—ELIZABETH CLARK GRADY.

A Serious Loss to Medical Science.— The death of Heinrich Stern in February came as a shock to his countless friends all over the country. It was known that he had been in poor health for some time but his interests were so many and his activities so great that no one suspected that his condition was at all serious.

Dr. Heinrich Stern was born in Frankfort, Germany, 50 years ago. Early in life he came to New York City and received his academic education in the local institutions of learning, from which he graduated with the degree of Bachelor of Science. Medicine as a science attracted him and he was graduated from medical college 22 years ago. After a few years of general practice he began to devote himself to studies of diseases of metabolism and soon became one of the best known internists in America.

As an organizer Dr. Stern showed great ability and thirteen years ago he planned an institution on the lines of the present Rockefeller Institute. This was two or three years before the idea was presented to Mr. Rockefeller. It was called "An Institution for Medical Diagnosis and Research," and was located in the City of New York. This was thoroly organized and a hospital founded, but thru lack of funds and other circumstances it was necessary to abandon most of the project. Who knows what might have been accomplished thru its agencies had the circumstances been more propitious?

About this time Doctor Stern became the permanent secretary and guiding spirit in the Manhattan Clinical Society. Two years later he founded successively the North Side Medical Society and the Manhattan Medical Society, the latter of which has been able, under his direction and guidance, to exert a pronounced influence on medical education. The next year he was made Chairman of the Section on Pharmacology and Therapeutics of the American Medical Association, a position which brought him much honor and prestige. At the meetings of the national organization he was always an active participant and his opinions were ever listened to with earnest and respectful attention. He was a member of many other medical organizations, among which may be mentioned,—The New York State and County Medical Society of Greater New York, American Urological Society, American Public Health Society, Fellow of the New York Acadmey of Medicine, and Director of the Society for the Relief of Widows and Orphans of Medical Men.

Early in his career Doctor Stern won the prize offered by the New York County Society for the study of diabetes. The scientific character and merit of this paper attracted much attention and his name has been associated with this disease ever since.

Ten years ago, recognizing that there was not a single American journal devoted to internal medicine, Doctor Stern founded the *Archives of Diagnosis,* a publication which he edited up to his death. This most altruistic journal never carried any advertisements, and was consequently always run at a financial loss to its editor. Its articles, however, were always by the masters of medicine, and it has unquestionably been one of the best and most ably conducted medical journals in this country.

From the beginning of his professional life Doctor Stern was a prolific contributor of articles of medical interest to the medical press in this country and in Europe, such contributions running close to 300 leading articles. During this period he found time to publish at least half a dozen books on medicine, which have been translated into several foreign languages.

At one time or other Doctor Stern was connected with many charitable institutions in the City of New York, among which were,—Metropolitan Hospital and Dispensary, Red Cross, Philanthropin, which he founded, The German West Side Hospital and Dispensary, and many others of prominence.

At the time of his death he was visiting physician to St. Mark's Hospital, Methodist Episcopal Home, consulting physician to Seney Hospital, Brooklyn, Central Islip Hospital, The Portchester Union Hospital, Glens Falls Hospital, and the Union General Hospital of Boston.

During his time of active work he was

HEINRICH STERN, B. S., M. D., LL. D.
Died, January 29, 1918

Professor of Medicine in the German West Side School of Medicine and in the School of Medicine of Boston College.

Three years ago he received the honorary degree of LL.D. and at the time of his death was a member of the Medical Reserve Corps of the U. S. Army.

Two years ago Doctor Stern was the moving factor in the organization of the American College of Physicians, an institution designed to give special recognition to physicians of conspicuous ability and standing. This has proven very successful and two convocations have been held for the election of Fellows.

The medical profession has suffered a great loss in the death of Doctor Stern. He was a man of strong likes and dislikes, but ever a great admirer of ability and good, conscientious work. To many a colleague he proved himself a faithful friend as well as an able counsellor. He was an indefatigable worker, an earnest student, a splendid diagnostician and a skilful practitioner of medicine. He has left an indelible imprint on American medicine and altho cut off in his prime, his work as a physician, medical investigator, author and editor will live and have its influence on the practice of medicine for many a day.

Stiff Joints and Their Treatment.—It seems almost a conclusion that so-called inflammatory rheumatism is caused not by uric acid retention, but most usually by some focal point of infection. The treatment for acute septic joint disease, the most common cause of stiff joints and bony ankylosis of joints, will call, as a writer in the *Kentucky Medical Journal* well points out, for the greatest skill on the part of the physician. Great care should be taken to guard against the mistake of treating the patient for rheumatism, since what is done in the early days of the disease will depend on whether the patient is to suffer irreparable injury from stiff joint, or whether he is to recover with the minimum of disability. If the onset is with a severe chill, high fever, followed by painful joint, whether one or multiple, the conclusion is inevitable that there is an infection. Early aspiration of the joint and injection of formalin-glycerine solution repeatedly was advised by Murphy, at the same time applying extension, offers the best treatment for the joint condition. Massage and passive motion, after all joint tenderness has subsided, should be carried out. This treatment should be undertaken in the gentlest manner, so as not to re-excite inflammation. With the knee joint, the patient should be encouraged to use the limb gently little by little. Increase the joint motion until such complete repair has been made as to enable normal movement.

No surgical treatment which invades the joint should be undertaken except under the most rigid aseptic technic, and in an operating room where it is the practice to do aseptic work.

The Soldier's Underclothing.—The Government has very generously provided thick, warm, woolen shirts for the rank and file of the army, says the *Amer. Jour. Electrotherapeutics and Radiology*. This generous attitude of the Government towards the young men, who are exposed to all kinds of weather, would be wise if it were not for the fact that during the days they are put to strenuous work from which they perspire freely, and, in consequence, will water-soak the woolen garments, which then, during the period of rest or in the cold or draft, expose them to the chilling effects of wet undergarments. It is a well established fact, we believe, that clothing next to the skin in those who are subjected to active exercise should be of thin material that will dry quickly in contact with the outer clothing, and also will not cause the wearer to perspire so freely. We would suggest to the men, thus provided for, that they use the flannel shirts at night and wear open mesh in the daytime. This is undoubtedly the proper scientific regime. Another mistake made, from the goodness of their hearts, by the ladies of the Red Cross is to have provided woolen bands to be placed about the loins of the young men. These are dangerous for the same reasons that the woolen undershirts are dangerous. The proper protection is the sweater, not to be worn during active exercise but in the trenches and when at rest.

OBSERVATIONS ON THE NORMAL CECUM AND COLON.[1]

Largely from a Radiologic Viewpoint.

BY

CURRAN POPE, M. D.,
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The cecum is called the "second stomach," there being a close relation between the two thru the vegetative nervous system. Cecal disturbances may cause stasis in the stomach. Normally, the cecum lies in the right iliac fossa, the lower border being crossed by the shadow of the brim of the pelvis.

The cecal haustra are often absent or poorly developed, and when food first enters there is no apparent movement. The cecal contents are soft and mushy. The function of the cecum is to abstract the liquid contents. Alternate contractions and movements in the cecum favor more active circulation in its walls, and hence absorption.

At the sixth hour about two-thirds of the bismuth meal, and at four and a half to five hours, two-thirds of the barium meal should have entered the cecum. The ninth to twelfth hour shows opaque meal diluted by subsequent non-opaque meals. At twenty-four hours there are noted shadows on the circumference showing remnants of the opaque meal around succeeding meals. At forty-eight hours the cecum is empty. In eight to ten hours it should be empty of a barium meal. The cecum retains the opaque mass longer than any other part of the colon.

In the cecum the most absorption of the toxins takes place. Stasis here may be due to angulation at the hepatic flexure. Concussion at the seventh cervical vertebra elevates the cecum; at the twelfth dorsal vertebra increases muscular movements.

In cecal disease there is a large area of pain and tenderness in the right lower abdominal quadrant with constipation as the usual concomitant. These symptoms may be noted in: (1) tuberculosis, (2) colitis (amebic, ulcerative, etc.,), (3) adhesions, (4) malignancy, (5) microcecum, (6) megacecum, (7) volvulus, (8) nonrotation and (9) transposed colon.

The contents of the cecum are gradually pushed into the ascending colon: the contents are soft and mushy, gradually losing water; here there are beginning haustrations; here the meal is retained longest. At the sixth hour, in a normal individual, part of the meal should be nearly at the hepatic flexure.

The hepatic flexure lies much lower than the splenic. It is usually three to five finger breadths above the iliac crest. This flexure must roll, be rounded and not angulated. At the sixth hour the meal should be about at the hepatic flexure. As the meal reaches

[1] An address before the Louisville Medical Club.

this flexure it usually encounters a small gas bag. At nine to twelve hours the flexure should be well filled; at the twenty-fourth hour only a collection of gas, and at forty-eight hours it should be empty.

The hepatic flexure may appear angulated on the plate with possible kinks, but we must remember that it is not an angle but a curve, posteroanterior in nature, thus causing an overlapping on the plate. This fact can be determined by the screen and steroscopic plates. Gas at the flexures may indirectly prevent the progress of the intestinal contents, producing a mechanical (not organic) obstruction. The flexures are normal suspension points, and suffer stress first when ptosis occurs. The presence of bands or adhesions can be easily shown by manipulation.

The transverse colon may be divided into two parts, both of which are concerned in the utilization of cellulose, (a) the proximal and (b) the distal. The dividing point is Cannon's sphincter. The proximal colon extends from the hepatic flexure to Cannon's ring. Its prevailing movement is antiperistaltic, that is, toward the cecum and ileocolic valve. If this valve is incompetent the movement drives fecal matter into the ileum and produces toxemia. If the valve is incompetent the patient can be nourished by nutrient enemata, if the valve is competent they do little good.

Antiperistaltic waves run at the rate of five a minute for four or five minutes, followed by a rest. The waves result (Cannon) from a pushing of fresh material from the ileum into the cecum and colon thru the valve. The antiperistaltic waves constantly return food to the cecum. Mass movement peristalsis occurs at frequent intervals moving contents long distances toward the distal colon.

In the proximal colon digestion and absorption take place. Just to the right of the center lies Cannon's ring. This ring when stretched begins to pulsate and with each pulsation there is sent off antiperistaltic waves. Cannon's ring is the dividing point from which there originate antiperistaltic in the proximal and peristaltic waves in the distal colon.

An enema reaching Cannon's ring and distending same stimulates antiperistaltic movements and hastens the enema toward the cecum. The antiperistaltic movements are definitely the result of distension. As a result of absorption the contents of the proximal colon become firmer.

The distal colon's type of movement is a peristaltic one. It extends from Cannon's sphincter or ring distally to the rectum. The distal colon is a magazine for the storage and removal of waste material. Its contents are normally firm.

Haustral colonic movements are slight but continuous. They knead, mix and churn the contents at the rate of twelve a minute in lower mammals. There is a periodic augmentation of activity. It is essentially a segmental movement. Haustral churning is constantly present and thoroly mixes the material with the fluids of the intestines, maintaining plasticity and assisting its onward progress thru the alimentary tract. Haustra (*plicae semilunares coli*) are due to the combined action of the circular fibres and accompanying effects of longitudinal bands of muscular fibre.

The large pendulum or swinging colonic movements of Rieder usually are precursors of mass movements. They are large, churning, turning and winding movements, but no movement of content. When seen they remind one of a baseball pitcher "winding himself up" before delivery of a

ball. When a mass movement commences the colon loses its haustral markings and becomes ovoid or sausage-like, rounded at the proximal and conical at the distal end. The movement starts suddenly and comes to a rest suddenly. Immediately the haustral indentations quickly reappear. It has been estimated that mass movements take place six times daily. Filling of the stomach may stimulate a mass movement.

Mass movements are hard to arouse by palpation, massage, vibration, or sinusoidal currents. These measures act indirectly by improving tone and reflexly, rather than mechanically. Behind the mass each circular haustrum closes and forces the mass onward, sometimes leaving none, sometimes a fine stream only, in the center or lumen.

Neurally mass movements may start from certain nodes as a reflex. Rapid movement from the transverse colon to the pelvic colon may result from a coordination between the vagus and pelvic nerve, controlling the proximal and distal colon. Except for a few minutes a day, mass movements are absent and the colon is seemingly at rest. Mass movements are infrequent. After an enema, or while it is entering or leaving, these movements may be observed. They occur much more frequently in colitis.

Rapidity of movement is regulated by the very simple law of liquidity of the colon contents. The more liquid they are the more rapid their progress and the greater the distance the contents are carried by each wave. It must be remembered in this connection that the action of salines, laxatives, oils, enemata, etc., increase the activity of colonic action.

Reverse peristalsis would not occur unless the lower parts of the intestines could be stimulated to an activity greater than ordinarily found. The introduction of food, or irritation from above, increases peristalsis. Irritation at the lower end would slow the current, check or reverse it. This has not infrequently been noted from the effect of anal fissures, hemorrhoids, etc. If irritation occurs in the middle, the flow may be either way: but the tendency is stronger downward. The contents seem to go downward more easily than they reverse or come upward.

Roith believes that from the hepatic flexure to Cannon's ring there is a zone without peristalsis, but proximately both peristalsis and antiperistalsis occur. He measured the capacity of the colon after death and during operation, and found the cecum and the ascending colon contained more than twice the amount of an equal length of the transverse colon, and three and a half times as much as an equal length of the descending colon.

Concussion of the twelfth dorsal and first, second and third lumbar vertebrae, especially the twelfth dorsal vertebra, causes contractions and movements of the colon, especially the cecum. Pleasurable psychic stimuli seem to increase colonic tone. Stronger psychic stimuli may cause diarrhea and vomiting by raising the tone of the upper jejunum where vagus branches are very abundant. Irritating lesions show progress of the food coming toward it, and hasten the progress of food that has passed it. Enemata, too, soon after a meal may cause colic, nausea and in some instances vomiting, due to reverse peristalsis.

The transverse colon rarely extends directly upwards from the hepatic to the splenic flexure, but usually festoons or droops below the umbilicus one to two finger breadths, dependent upon the amount of the meal and the tone of the intestine. Its scalloped outline is characteristic.

Radiologically it should present at the ninth to twelfth hour a completely filled picture, looking like a string of beads or scallops.

At the twenty-fourth hour the meal should be scattered all along the colon. At the forty-eighth hour the colon should be entirely empty. If the barium is employed, by the eighth to tenth hour the meal should have reached Cannon's ring.

The splenic flexure is much higher than the hepatic. It must roll, be rounded and not angulated. Its curve is anteroposterior. At the sixth to the twelfth hour we should find gas present; at the twenty-fourth hour the meal; at the forty-eighth hour the splenic flexure should be empty. The presence of a band or obstruction can frequently be shown by a deep inhalation, producing a downward drag on the fixed point. In the hepatic flexure it can be shown by manipulation.

The descending colon is much narrower, having become narrowed from the cecum to the pelvic colon. Its contents have become more consistent. Its haustra are sharply marked. At nine to twelve hours the shadows are small, thin, smooth, disconnected links like sausage. At nine to sixteen hours the barium meal has usually reached this portion of the colon. At twenty-four hours small opaque, elongated shadows should be present from large filling. At forty-eight hours the descending colon should be empty. J. T. Case has seen antiperistaltic movement in this colon. It is a good sign of duodenal ulcer if the opaque meal is in the descending colon by the sixth hour.

Quimby has estimated the time required for a complete period, that is to say complete evacuation of the entire colon and and rectum, to require the following time: In fifty per cent. of cases fifty-four hours; in thirty per cent. of cases seventy-eight hours; in fifteen per cent. of cases one hundred and two hours; in five per cent. of cases beyond.

One should always be on the lookout for the following: Jackson's membrane, contracted mesocolon, mesenteric bands, adherent omentum, contracted mesentery, adhesions or bands. These are most commonly found just above the cecum on ascending colon, near the hepatic flexure, just below the splenic flexure, junction of descending and iliac colon, junction of iliac and pelvic colon.

In the study of the colon I have been impressed with the fact that the administration of drugs in the attempted cure of constipation is a great mistake. The determination of the muscular activity of the diaphragm, the intestine and the abdominal wall, is the most valuable primary measure in combating the various forms of constipation. The question to my mind is one of diagnosis that we have to deal with as doctors, and we should try to deal with it by doing our best to try to find out exactly where and what constitutes the trouble. Then we will be in a better position to overcome the condition. Frankly, I am a visualist. I think I can do better and understand better when I can see things. I will admit that the classification of knowledge with me is much more marked and much more intense thru my visual organs than almost any other sense of the body, far greater than aural information. For that reason the radiologic method has been extremely satisfying to me and I am sure those physicians who are studying their cases along these lines have practically come to the same conclusion. These methods afford us a way of learning exactly

where we stand, and this certainty appeals to me. We have the patient under direct observation as a guide to us in our studies. I am very much opposed to enemata as a method of treating constipation unless you use the graduated cold enema, starting with moderately warm and gradually reducing the temperature until cold can be employed. These cold enemata will increase the muscular tone of the intestine and not leave it flaccid and weak as it would be if we gave any kind of a warm enema.

PARENT AND CHILD.

BY

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A little more than three years ago I published in a medical journal the report of a patient whom I treated for, and cured of, a very severe form of nervous disease by the method of psychoanalysis. In that report I gave a brief description of some of the handicaps which prevented him from being a normally adjusted individual. In a later article published in the same journal I showed the identical source of these handicaps (I called them "peculiar traits") and the nervous symptoms from which that patient suffered. I shall quote some of his characteristics as described in the first published article. "He was never sociable, made but few acquaintances and no friends. He was reserved, bashful, uneasy in company. . . . Thruout his life, from about the ninth year, he was conscious of the fact that there was something in him which made him do things he consciously opposed. He was jealous and envious of another's good fortune. He was considered quiet, even tempered, indifferent to women and acquaintances in general. To the casual observer he was so. In reality, however, he felt the opposite, but could not, for some unconscious reason, act as he felt. He was bashful, especially in the presence of women, to such an extent that he would cross the street to avoid meeting female acquaintances whom he actually wanted to meet. He kept away from people when he really wanted to be in their company. He hated his father and also other male relatives, tho he felt there ought to be some feeling for them other than hate—to sum up, he was conscious that thruout his life there was something unknown and unconscious, but present nevertheless, which prevented him from being his own, real, conscious self. This unknown factor influenced him more than his conscious will, more than his conscious judgment and determination. As a social human being, he was to a great extent but a show, a pretext, a make-believe."

An individual so constituted, in such almost constant emotional conflict is, we say, prone to a neurosis or a psychosis. Independently of psychoanalytic investigation it had been long known that people suffering from psychosis and neurosis showed some peculiarities even before the onset of the malady. However, it was psychoanalytic work that showed the relationship between these states, and at the same time traced them to a common origin.

The origin of these states takes us back into a very early period of the life of the individual. We learn that it is in that stage of his growth, even before the fifth or sixth year of his life, that the basis for the future welfare of the human being is laid. Our psychologic studies have shown the very

great importance of the early and the immediate environment of the individual on his character formation. For, in the patient cited in the introductory, we may say that the chief characteristic lies in the patient's apparent indecision and his doing that which he consciously does not wish to do.

A somewhat detailed investigation of the attitude of the parents of the patient to each other and their attitude to the patient, who was the first born, will explain, I hope, the choice of the title of my paper, namely "Parent and Child." The father was a rather indolent, self-opinionated, reserved, surly individual, who at no time supported his family, some assistance coming from a private income of the mother. Moreover, and this is a very important factor in the patient's development, there never was good harmony between father and mother. The latter was a very affectionate, motherly woman, who lavished on her son much of the love that under normal conditions would have gone to her husband. In this way she lavished on her boy so much affection that the little fellow considered his mother all his own, and resented her showing any attention to the other children. Especially did he resent any evidences of attention or affection between his father and mother. In a way, without his realizing it, he assumed an attitude of rivalry towards his father. This state of affairs was accentuated as time passed by. On many occasions the mother and her oldest boy would discuss his father's shortcomings, and make preparations toward running the household without taking the father into consultation. The patient began to work at about fifteen years of age, and thru his ability and energy made good progress. This enabled him to assume a large share of the burden of caring for the rest of the family. In fact, he was head of the house, tho his father was still alive.

The intense hostility on the part of the patient for his father had several causes. Chief in the eyes of the patient was the fact that the father did not assume his share of responsibility, but was ready to shift it to the shoulders of others. Another contributing factor was the frequent discussions between son and mother of the father's faults. Most important, however, was an attachment between mother and son that sprang into being very early in the life of the latter. As the years went by, unconsciously this grew into an attachment of a nature that carried with it a feeling of jealousy, of rivalry towards his father. Under normal conditions, would not one expect a feeling of keen disappointment, perhaps in addition to hate or anger, in the realization that one's father does not measure up to one's idea (or ideal) of what a father should be? Yet such a feeling was never present in our patient. On the contrary, in secret he rather enjoyed the fact that his father had so many shortcomings as to permit the patient to assume the position of head of the house. While ostensibly sympathizing with his mother, yet in secret he felt a pang of (guilty) joy at the apparent disharmony between his parents. How much like a successful rival who willingly listens to the recital of the shortcomings of the discarded suitor? Yet how unlike the attitude one would like to see between father and son? That this attitude, however, was one of which the pa-

tient tried to rid himself, but could not,[1] is proven by two severe nervous breakdowns which, when subjected to psychoanalytic investigation and treatment were demonstrated to have been caused by intense hostility of the patient for his father; the hatred caused by a (to the patient) wholly unconscious attachment for the mother. As a matter of fact the patient's intense hatred for his father caused him a great deal of anguish. His cure completely removed this hostility. While now, too, his father's faults are quite manifest to the patient, yet they no longer arouse in him any disturbing emotions.

Before such patients were treated pyschoanalytically, in taking a family history and obtaining the fact that the father of the patient was "peculiar," a direct connection between the nervous breakdown of the son and the "peculiarity" of the father would have been traced, and one of the causes of the nervous breakdown would have been labeled "heredity." However, when one examines psychoanalytically the components of this "hereditary influence" one finds that "heredity" is a convenient but very inaccurate term for a complex state of affairs, which is by no means inaccessible to investigation, and, incidentally, to remedy. For no one for a moment doubts but that had she known of the harm she might do her boy, the mother would have exerted more control over the display of her feelings, justified tho she may have been in her attitude towards her husband.

One may ask, in what way are the traits of the patient, quoted in the opening paragraph of this paper, connected with his bringing up? It took months to cure this patient and to trace to their source the various manifestations of the emotional disturbance or conflict. I shall try to condense all this work into a very brief space. For instance, the inability of the patient to be at ease in women's presence was due in part to thoughts such as "what will mother say if I get to like this or that girl?" Or he felt that if he met a girl too often, she would think he was serious and wanted to marry her. One might say this attitude was the result of a conflict between a desire on the part of the patient to meet women and at the same time to marry and an unconscious realization that he was already married. The feeling that he was unable to reveal his real self one can explain by the fact that an essential part of his real self—the deep-seated, unconscious self—contained so much of a nature he did not wish to show (*i. e.*, envy, jealousy, hate) that he was of necessity always on guard lest some of this should come to the surface. Therefore the hesitation, the doubt and the emotional conflict. And at the root of all this lay what one may designate as an improper bringing up.

An equally unfortunate result is evident in the following patient, tho a somewhat different state of affairs brought about the condition. In this patient, also, one may speak of heredity as one of the causes of the nervous breakdown; yet an analysis of this "hereditary" influence will show certain factors against which precautions could have been taken had they been properly understood.

[1] In this connection, to understand the statement I make, it is necessary to take for granted what the psychoanalyst has repeatedly demonstrated, namely, that a nervous disease (a neurosis) is the result of or the compromise between two unconscious opposing forces. One, an unconscious wish, of a nature not in harmony with our moral or ethical standards, strives for its fulfillment. Another force, also unconscious, arising from the unconscious realization that such a wish is wrong, attempts to repress the wish. Neither of these two is wholly successful and the result is the symptom or the neurosis.

It concerns a girl of seventeen, the youngest of a large family, the mother of whom is a worrisome, yet active and efficient woman, who assumed the position of head of the house because her husband would not.[1] As in the instance previously cited, the mother showered on her children the emotion that under normal conditions would have gone to her husband. The manifestations of this emotion were to a great extent in the form of solicitude, anxiety and worry on the part of the mother for her children, especially for the youngest child, our patient.

If I may digress a little, I would call attention to the interesting fact that a husband and wife who are well mated and happy as a rule do not manifest undue anxiety and worry over little things concerning their children. From our investigations, we conclude that much of this worry and anxiety is but a manifestation (what we technically call a displacement and conversion) of feeling which should normally find its outlet in the proper relationship between man and wife.

To return to our patient. She was reared in an atmosphere of dependence, extreme solicitude and anxiety for her welfare. In addition to the mother, the rest of the family took the patient under its protecting wing, and aided in submerging any attempt at the expression of a normal independence or self-assertion. Tho inwardly rebellious at the unnatural restraint, yet the patient submitted to all this as a state of affairs beyond her power to remedy.

As a sequence to the mother's usurpation of the position of the head of the house, the elimination of the father as a personage of importance naturally followed. The utter disregard and contempt in which the weak, inoffensive, yet on the whole, kindly man, was held, presented a very painful spectacle. Our patient at times in a vague way realized the injustice of this condition, but in line with her general submission to things at large followed suit in this instance also.

Our patient dared not express any opinion that differed from the rest. She always kept her own counsel, fearing either to express an opinion or to ask a question lest she be chided or ridiculed. She shrank from contact with anything new, for that necessitated a decision, which she felt unable to make on her own account. A condition of shyness and diffidence resulted that greatly hindered her in her ability to mix with people. Moreover, the rebellion against the subjection, the fear of causing ridicule thru some opinion at variance with the others, and her general sensitiveness, prevented any sort of intimacy between her and the rest of the family.

This tendency to secrecy and the feeling that everything she said or thought was a matter for adverse criticism by the rest of the family was a big factor in the production of a mild form of insanity (a hypomaniacal state) which followed an unsuccessful love affair. Our patient fell in love

[1] I wish to state here that in the selection of a mate, the parties to the contract frequently act on unconscious motives. Instinctively, whatever conscious impulses enter into the decision, the choice is based on the attempt to find a complement, so that the weak chooses the strong, and the strong the weak. In the family under consideration, the woman always was of a self-assertive nature and therefore fell in love with a man in whom she found the weakness or dependence which was a complement to her strength. Biologically, however, the man is the stronger, the seeker. If then, the man in this instance had changed to become the aggressor, things would have been well. For then the woman would have found and filled the place for which nature intended her. The unhappiness between the man and wife consisted essentially in that, so to speak, they had changed positions, occupying them in opposition to biologic laws.

with one of her high school boy acquaintances, but kept it a profound secret from everybody, taking great pains to disguise her feeling from the boy in question. The boy showed no signs of returning her feelings and kept up his previous friendly relationship with all his girl acquaintances, with resultant jealously on the part of our patient. Feeling that her love was futile, and that perhaps she was doing something wrong in maintaining her feelings of love under the circumstances, she defended herself by coming to the conclusion that she had in reality not been in love at all; she did this so well that she actually forgot or drove from her thoughts everything relating to the affair. The result was a short period of depression, followed by a period of mild excitement during which feelings that had been dormant for years rose to the surface.

She stopped her studies, declaring that they had lost all interest for her and also because she thought she would fail to pass the examinations. There followed open rebellion to the mother's authority. The patient declared that henceforth she would follow her own judgment in everything, that she had been kept submerged long enough. Up to this time bound tightly by all conventions she decided to break all bounds. With the onset of the psychosis she again felt the love she had repressed. Now realizing that she was in love, she decided to declare it to her lover and wrote him to that effect. Her shyness was replaced by an aggressiveness that manifested itself in constant activity, desire to go out and meet people, and in expressing her opinion on occasions not at all called for, and also in entering into disputes and arguments with those about her. An interesting change was that towards her father. The previous disregard and contempt changed into a desire to show how much she loved him. She spent hours at a time in his company and manifested in many ways the love and affection she had previously kept in restraint.

In this instance, also, we see the effect of parental attitude on character development in the child. We see that this attitude tends to throw into undue prominence some, and to unduly submerge other characteristics, the normal display of which is so necessary for a proper adjustment with the environment.

Being the favorite child can and often does cause untold harm to that favorite. When, in addition, other evidence of faulty bringing up exists in the same individual, as in the patient who shall now serve to illustrate the points to be brought out, the damage done to an individual in his ability to properly adjust himself can scarcely be estimated except by a very careful analysis of the factors concerned.

In the patient now under consideration, the characteristics which directly concern us are, first, a conscious hate, present for many years, directed towards his father and brothers; secondly, a marked disrespect for his mother and oldest sister. The third prominent characteristic is a generalized suspicion, distrust and morbid cynicism. These three sets of characteristics, in addition to some others, have contributed in a large measure to the patient's lack of sociability, and tendency to keep away from people in general, tho the desire to mingle was present in the patient. He did not know how.

It is very instructive to trace these traits to their source. Our patient was the first boy following the birth of three girls. He was spoiled with favoritism almost from

his birth. As he grew older, his desires also increased and, to his harm, the patient's whims and fancies were acceded to in full. However, three years after his birth, a brother was born to the patient, who then lost his prestige as the first and only boy. Our patient can even now recall the hostility with which he received the newcomer. In a vague way, he felt that the father was the cause of the birth of the brother, and the patient hated his father for bringing into the world more children who deprived the patient of things of which, up to now, he had received so much.

Psychoanalysts have justly laid great stress on the sexual enlightenment of children. This should be begun very early and, in my opinion, no one is in a better position to give it than the parents. The answers to questions of children are very simple and require no medical knowledge. What they do require tho is the ability (which is lacking on the part of most parents) to talk to their children on these topics with perfect frankness and without any embarrassment whatever. The answers must in addition be very concise and distinct, so that the child will not draw on its imagination to complete its knowledge. If the parents do not feel able to answer, let them take the child to one—a physician—who will answer with perfect candor.

What effect the child's hearing of these topics from others than its parents has on its future life, the following description of the other sets of traits of our patient will show. I noted these to be suspicion, distrust, morbid cynicism, and a (unwarranted) disrespect for his mother and eldest sister.

Soon after the birth of his little brother, our patient asked his parents as to "where little brother came from." He was told that a stork had brought it. Not fully satisfied with the answer he repeated his question on several occasions. He received at times the same, at others, various answers. He was finally told that little children must not concern themselves with such things, that they were not nice. However, as in the case of so many other children, he, while five years of age, was initiated into the mysteries regarding sexual matters by a little girl of seven, who also informed him that such things were considered by the elders as dirty, nasty things. Not knowing which to believe, but leaning towards the teachings of his little friend, he was in a quandary for a long while, for further requests on his part to obtain information from his parents regarding these matters resulted in the same answers or an admonishment to "keep quiet, such things are not for children."

Parents, however, have no conception of a child's (perfectly physiologic) curiosity in this direction. Nor do they realize how keenly on the watch children are and what deductions they make. We have a vivid illustration in our patient.

At about six years of age, and for a number of years thereafter, he slept in the same room as his parents, who paid very little heed to the little fellow, especially when they thought he was asleep. As a matter of fact he often was awake, and very wide awake, when his parents believed him to be in the land of dreams. It was on such occasions that he heard and saw what fully convinced him of the truth of the teachings of his little friend. He realized that his parents did what he had learned was not nice. Most important of all, he learned that those, whom he believed were the embodiment of right and good, who were his ideals, also did things "that were not nice." A cruel shattering of his ideals resulted. He could

no longer believe those whom he had been taught to love and respect. They had not told him the truth. The very foundation of his convictions had been shaken, if not destroyed. Henceforth he was suspicious, distrustful and cynical in general, but especially of women. Nor could he respect his mother and his oldest (married) sister, for they too did things "that were not nice."

By means of the histories of these patients I have attempted to depict some of the most common and most harmful defects in the relationship between parent and child. In our work, we psychoanalysts again and again come across these factors, as vital determinants of an individual's later psychic health. It cannot be impressed on all of us sufficiently forcibly that in the hands of the parents rests the emotional health of the offspring. Just as in the field of medicine in general prevention offers us the greatest opportunities, so, too, in the psychic field, it is the application of facts gained from clinical observation that promises results far superior to those achieved by individual therapeusis. Again I wish to point out that our psychic preventive measures should be instituted very early in the life of the individual, for character formation begins in the very first years of child life when the effect of impressions that are made is apt to be permanent.

40 W. 84th St.

When you can't jest see the light,
When things ain't a'goin' right,
Or the way you think they should,
Wait and see how they turn out;
Don't go hollerin' about,
Jest saw wood.

—*New York Telegram.*

SURGICAL OPERATIONS DURING PREGNANCY.[1]

BY

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There is no truer phrase than "This is the age of specialties," yet what man ever establishes a reputation as a specialist without feeling sure in his own mind that he could by hard study and application become just as competent in many other equally difficult branches?

Just as pregnancy seems to invite nearly all the ills woman is heir to, so must the skilful obstetrician meet and recognize all complications. And the surgeon of today must have as thoro knowledge of the variable physical changes caused or aggravated by pregnancy as if these were his sole line of thought.

We are never surprised at the necessity of operations upon the generative organs themselves in pregnancy; such as Cesarean section, etc., and those in which we aid delivery, while not always expected, are always held in mind.

But it is of certain conditions that confront us in the pregnant and non-pregnant alike, that I would speak. Even in the perfectly normal woman, pregnancy exerts a more or less disturbing influence. There are cases in which the general health is seemingly much improved, but as a usual thing if any chronic weakness exists, it is intensified and aggravated at this time.

The former is the common belief among the laity; this is the cause no doubt for the serious condition of so many patients when the physician is at last consulted.

During pregnancy the avoidance of major surgery is highly desirable, as, at this time, the reserve power is freely expended

[1] Read before State Medical Association, Montgomery, Ala., April 17, 1917.

and excessive exactions are frequently demanded. Moreover, the risks of abortion and liability of premature labor are additional militating reasons.

Despite the soundness of the foregoing statements, operative intervention during pregnancy is not inevitably injurious, nor is the interruption of pregnancy a certain consequence. There exists innumerable records of abdominal operations successfully performed during pregnancy. These include appendectomy, ovariotomy, cholecystectomy, nephrectomy, etc. During the last few years, we have seen many successful cases.

It has been my experience that if I am confronted with an abdominal condition requiring *immediate* operation, the operation is principally required to save the patient's life; therefore, it is usually that much more drastic when when two lives hang in the balance. And I put the danger of abortion, imminent tho it may be, as a secondary consideration; many times the danger is quite as great if the patient remains undisturbed.

Owing to the fact that many people shrink from an operation until an emergency forces it, the patient often suffers from some chronic trouble, prior to pregnancy. One attack of appendicitis, as we know, predisposes another. She is very apt to think the sudden pain, high temperature, and other accompanying symptoms, due to some disorder of pregnancy—especially miscarriage—and it behooves the physician to have other things in mind as well.

Diagnosis is comparatively easy in the early months; it must be held in mind that the position of pelvic and abdominal organs, as pregnancy advances is also far from normal. I recall one case, a primipara, aged 27 years who was six months pregnant at the time of operation—a most dangerous period. She was brought in suffering from an acute attack of appendicitis. I operated immediately, finding a highly inflamed appendix, which would undoubtedly have burst in a few hours. Every precaution was used in technic and after-care; the patient made an uneventful recovery, and carried the child to term, at completion of which she came back for perfectly normal delivery.

It is possible, as we know, for gonorrheal infection of the tubes and ovaries to occur months after the initial introduction into the body. Acute salpingitis is, at any time, from my viewpoint, a condition demanding immediate surgical treatment. Instead of waiting (a dangerous thing, in my opinion) until the termination of pregnancy to operate, I consider it good judgment to do so immediately. There is the same chance for recovery as in the non-pregnant woman, and every probability of freeing her from even graver danger.

One of the strongest causes for abdominal operation during pregnancy is the existence of ovarian tumors. In the great majority of cases it may safely be said that the progress of the pregnancy will not be materially influence by operation. Ovarian tumors are removed before they áttain a size which will be sufficient to cause any symptoms attributable to pressure.

When we consider the grave danger of abortion from the many causes attributable to ovarian tumors, the same fear of the operation shrinks considerably. Torsion of the uterus is perhaps more common than is usually believed, thus causing enough disturbance of the circulation of the uterus to bring about abortion.

The prognosis as to the mother, in cases of ovarian tumor associated with pregnancy, depends largely upon the location of the

tumor, which is of much greater importance than its size, as a small tumor is very apt to occupy the pelvic cavity, causing an obstruction to labor.

After the presence of the tumor is ascertained by the physician, there should be no further delay in operating. Not only is the new growth a usurper of space, or an impediment to labor, but the progress of pregnancy seems to be a factor in suppuration of ovarian apts. It must be taken into consideration that twisting of the pedicle, rupture and suppuration, may be expected to occur in three-fourths of the cases.

Not only is the operative risk of the mother no greater than the same risk assumed in the case of the non-pregnant woman, in the same operation, but the chances for the child are immensely improved by the removal of the mass which might cause great obstruction to labor.

I have in mind one very interesting case of an entirely different nature. I was consulted by a primipara of about twenty-six, three months pregnant, who was in a very toxic condition. She gave a history of habitual constipation, now much intensified. She was unable to retain food in the stomach at all, which she had attributed to her condition; however, she had suffered much with her stomach previous to this time. She was nervous to a marked degree and steadily losing in weight. As her symptoms seemed due to a gastric and colonic disturbance it was decided to give thoro X-ray examination.

The Bismuth stomach-meal and enema were administered; both fluoroscope and plates showed a marked ptosis of both stomach and colon. Notwithstanding her condition, or rather because of it, an immediate operation was decided upon.

Both the stomach and colon were lifted and put in place by the celebrated Rovsing method; all precaution due her condition was observed; the patient was kept in bed one month following. She made an uneventful recovery and was free from all former symptoms. Six months later she was delivered of a fine baby boy. She is now in better health than at any time in her previous adult life.

I admit there are adverse cases in operations during pregnancy, just as in all other conditions; yet I think the difficulties with which we are beset justify us in using every artifice our knowledge yields us; and even if we achieve only an incomplete measure of success, the results still justify our endeavors in this most difficult field.

SOME INTERESTING SKIN DISEASES AMONG THE FEEBLE MINDED.[1]

BY

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and

A. J. GILMOUR, M. D.,

New York City.

Psoriasis is a rather common disease in the dermatologic clinics in this vicinity but psoriasis of the sole of the foot is a rather rare phenomenon. (Figure 1.)

The diagnosis of psoriasis rests upon the presence of infiltrated patches covered with thick pearly scales which upon removal by force leave a bleeding surface.

Ordinarily psoriasis does not occasion itching, but as a differential factor this is untrustworthy, as in some patients this symptom is most irritating and persistent.

The etiology of psoriasis is unknown, altho various theories have at times been rather stoutly maintained.

[1] Photographs by Dr. T. D. Hubbard.

FIG. 1. Psoriasis.

FIG. 2. Morphea Guttata.

Fig. 3. Adenoma Sebaceum.

Fig. 4 (A). Naevus Flammens.

Treatment is palliative. Cure is rare and phenomenal.

Recessions may be spontaneous but are usually brief.

Heliotherapy appears to give pleasing results but even these are temporary.

This is a well marked and well developed case of morphea guttata, or "white spot disease of the skin." (Fig. 2.) There are two of these cases now in the service, one a man and the other a girl.

This dermatosis, as a rule, favors the nape of the neck, chest and shoulders.

There are a number of white, circular, atrophic spots, varying in size from a pin head to a dime.

This disease is a trophoneurosis with a primary increase in the collagenous tissue with a subsequent atrophy.

It has been ascribed by some as an alteration of the skin incident to an alteration of some internal secretion. Treatment is valueless.

W. P. C.

Fig. 3 shows a well marked case of adenoma sebaceum. As is usual with this disease, it began in early childhood. This disease is usually found in patients who are mentally deficient. The child whose photograph is here shown is an imbecile and at times suffers from epileptic seizures.

An extensive case of naevus flammens which involves some part of the body, from top of the head to and involving one-half of the soles of both feet is shown in Fig. 4. The sclera of both eyes are involved, altho here the color is rather dark, in place of the fiery red elsewhere, however, the sclera of the right eye is more nearly red.

FIG. 5. Keloid.

Fig. 5 is of an extensive and well marked case of keloid in a colored man. This keloid had its origin in childhood, incident

to a burn caused by hot soup. At the age of twenty-one years we have the resulting deformity shown in the photograph. There

FIG. 4 (B). Naevus Flammens.

is a slight limitation of movement in the left arm. Quick movement of arm at times occasions some pain in the left side of the neck and left shoulder.

A. J. G.

Scabies.—Do not push sulphur or other parasiticides in scabies until all itching is gone, says Scholtz in *Cincinnati Medical News*. Itching in scabies can be kept up by a secondary dermatitis due to overtreatment or by scratching habit in neurotic individuals.

CHLOROFORM CONDENSATION AND CHLOROFORM NARCOSIS.

BY

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New York City.

There have been a number of instances recorded recently in which there has been collapse under chloroform narcosis, and the operator, in order to save life, has made an opening thru the diaphragm, massaged the heart and restored the patient to consciousness.

Dr. Thomas L. Bennett, a New York anesthetist of eminence, has a singular and much more satisfactory method for restoring the heart's action under similar conditions. This method should be more generally known and practiced, as it is equally if not more effective than the operation now resorted to—altho not so spectacular.

Dr. Bennett claims that patients subject to fainting are most liable to heart failure when under an anesthetic, the blood leaving the brain and the heart engorging so as to become paralyzed.

However, with rapid and jerky pressure on the chest directly over the heart of these patients, the heart is vibrated and pressed upon sufficiently to force out the blood and stimulate its natural return, and in this way heart action is restored.

I have seen Dr. Bennett resuscitate such patients in a minute or two so that the surgeon could proceed with the operation safely.

Chloroform in the hands of an expert is, I believe, the most satisfactory general anesthetic administered, but when given by a novice, or by old methods, it is dangerous.

The advantages are principally that it is more pleasant for the patient and causes little or no nausea. The anesthesia is rapid, the shock slight, and the recovery quick.

The expert uses but a few drachms, the innovice uses ounces.

Death from chloroform when improperly administered is usually from asphyxiation and not from paralysis of the heart as is commonly supposed.

Back in the early nineties, when teaching surgery at the New York Post Graduate Medical School, I demonstrated each year to the class how death under anesthesia was likely to occur. I proved that death was usually caused by an excessive amount of chloroform, which, owing to its heavier specific gravity, flowed into the lungs, filling the cells, until insufficient space remained open with which to maintain respiration. At first the class was inclined not to accept my theory, but was convinced of its correctness when demonstrated.

A lad about sixteen years of age with normal heart and lungs was selected for the experiment.

The usual chloroform mask was employed. This was saturated with chloroform and the patient instructed to breathe deeply. Chloroform was frequently added. In a few minutes the house surgeon, who assisted in the demonstration, announced that anesthesia was complete, and the patient ready for operation. I instructed him to continue the chloroform. Presently he informed me that breathing was shallow and the heart action feeble. He was requested to continue the chloroform, and soon announced that heart and lung action had ceased and that life was apparently extinct. The class was appalled at what it thought was the fatal outcome of the demonstration.

Several members were then invited to examine the patient and satisfy themselves as to his condition. After all had pronounced him dead, I also examined him and found no sign of life. He was apparently in the same condition in which I had seen others when ordered taken to the dead room.

We then suspended the patient on the back of the house surgeon, with his knees flex over the doctor's shoulders. He was jolted severely, while another assistant made strong compression over the lungs. In the meantime I held a basin under the nose and mouth to catch the chloroform as it ran out. It flowed freely from mouth and nostrils, running down over the patient's face. I was able, by this means, to collect in a basin an amount equivalent to three or four drachms, which I passed around for the class to see and smell.

After the chloroform ceased flowing from the mouth, the patient was restored in the usual manner by artificial respiration, and with not the slightest untoward results. The effect on the class was profound as well as gratifying.

In administering chloroform the patient's head should always be turned to the side so that the excess chloroform, instead of running in or being breathed into the lungs, may fall on the pillow, and only the fumes be inhaled.

In this same New York Post Graduate School, in a case where "death" from chloroform occurred, and where the body had been ordered taken to the dead room, my offered services were accepted. The patient was restored by the method above described and in twenty minutes was back in her bed.

In view of the dangers of resecting ribs and resorting to major operations for the purpose of heart massage—a practice now coming into general vogue—it might be well to bear in mind that much safer and more effective methods already exist, and to try these first.

71 Central Park West.

VAPOR ANESTHESIA FOR ORAL AND FACIAL SURGERY.[1]

BY

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So great an authority as Gwathmey (1) recently remarked that the vapor mask, or semi-open method of anesthesia, should be used in operations on the head, neck and upper thorax; that the closed method should be employed in abdominal and other operations requiring relaxation.

The accomplishment of a smooth, satisfactory and uninterrupted anesthesia, for prolonged surgical work within the mouth or about the face, is by no means an easy or a simple matter. It is for this reason that doubtless both surgeons and anesthetists have contented themselves with the unsatisfactory technic of an interrupted administration with its delays and its dangers. The latter are at least two-fold, for we know that anesthesia going from deep to shallow —an anesthesia in which the procedure is a very profound induction, then withdrawal until the reflexes all return, or even until voluntary muscular action is noted, this to be repeated many times—is more dangerous than a smooth and continuous maintenance of anesthesia at a given depth. And, also, as a proper aseptic technic cannot be adhered to under an interrupted or intermittingly administered anesthesia the danger of infection is that much increased. Furthermore, if there were no other reason for improvement over the method mentioned, the fact that it is unscientific and a makeshift should be sufficient.

Intratracheal anesthesia, with the complicated apparatus necessary for its employment and the dangers incident to and arising solely from the method, I am free to say has never impressed me favorably; and in trying to improve my technic for that class of cases in which free access to the inspiratory inlets was denied by virtue of the character of the operation, I searched for apparatus which would be at once simple, compact and satisfactory. And I believed that a better understanding of anesthesia by intrapharyngeal insufflation would enable me to successfully anesthetize any patient for which the intratracheal method was especially advocated.

There is, of course, nothing new in any of the paraphernalia which is herewith exhibited, and nothing with which the members of this society are not familiar; but inasmuch as the mere fact that smooth, deep anesthesia could be maintained for an indefinite period while surgical work was in progress within the mouth, or about the face or neck, has seemed a revelation to some surgeons for whom I have used the intrapharyngeal method, I thought a brief description of the technic might be of interest.

The term vapor anesthesia is inaccurate, as any inhalation anesthesia is "vapor anesthesia"; but as the term is used we mean that the agent is vaporized in a closed container at a distance from, and the vapor then conducted to, the patient; and by intrapharyngeal vapor anesthesia we simply mean that the vapor is discharged within the mouth or pharynx whence it is taken into the lungs by normal respiration.

The Hitz bottle, which is merely an improved Junker, and the foot bellows are all the apparatus needed, save of course various vapor conductors, mouth gag, nasal tubes, pharyngeal tubes, cheek hooks, etc. There are much more elaborate outfits to be had; there are two- and three-bottle va-

[1] Read before the Louisville Society of Physicians and Surgeons.

porizers to be seen with and without heating apparatus attached; and there is a motor blower (electric); but I believe the foot bellows and Hitz bottle are as efficient as any, besides being cheaper and much more readily portable. One soon learns to control the volume of air with the bellows, and the Hitz bottle is so made that all or any portion of the pumped air is forced thru the anesthetizing agent. This is its advantage over the original Junker. The bellows may be worked at the same speed and the same volume of air be pumped, while the controller on top of the bottle may be so adjusted that much or little anesthesia vapor is conducted to the patient.

In pharyngeal insufflation, says Coburn (2), after the patient is deeply anesthetized the short catheter is passed thru the nares into the pharynx and the insufflation begun. The amount of air insufflated need not always be so much as that required in the intratracheal method, but the amount of ether vapor must be the same. The obstruction at the base of the tongue is automatically removed in the pharyngeal method also, but not quite so perfectly as in the tracheal method. While tracheal insufflation has heretofore been extensively used in chest surgery, yet pharyngeal insufflation possesses special advantages for this very work. After the chest cavity is opened, the distension of the lung is under more pliable control with pharyngeal insufflation, as such distension is continuous in the tracheal method and the distended lung is always in the field of operation on account of this distension and thereby interferes with the work of the surgeon, whereas in the pharyngeal method, the lung of the side under operation collapses, thereby facilitating the work of the surgeon. When the operation is completed and the surgeon is ready to tie the last sutures, the collapsed lung is easily and quickly expanded by placing a wet towel over the patient's face. This retards the outflow of air and the insufflated air is of such volume that it quickly distends the lung.

In insufflating into the buccal cavity, the rubber tube is usually connected to a mouth gag or curved metal tube. This method is more particularly adapted to the removal of tonsils and other short operations in the throat. In operations of this character, where the primary anesthesia is not of sufficent duration to last thruout the operation, and a reapplication of the mask becomes necessary, the anesthesia should always be maintained by one of the insufflation methods so that the patient may not pass alternately from a deep to a light anesthesia. Passing alternately from a deep to a light anesthesia without rebreathing tends to produce sudden fatality as shown by Henderson.

All of the insufflation methods possess advantages over the usual inhalation methods. The vapor is always warm as it is delivered to the patient. The rate of administration can be more evenly maintained, consequently the resulting anesthesia is smoother, and the patient is less likely to be over-anesthetized. In tracheal and pharyngeal insufflation the obstruction at the base of the tongue is automatically eliminated, consequently the patient is not devitalized by forced breathing against respiratory obstruction. Most all of the electrically driven apparatus for insufflation now have a suction appliance as well as pressure. The anesthetist and apparatus are away from the patient's head and do not interfere with the surgeon, this feature alone rendering them the methods of choice in many operations within the throat and buccal cavity, and on and about the face and head. (Coburn).

I wish to advocate for the best results the use of a chloroform-ether mixture for this kind of anesthesia. Induction may be by any method, the nitrous oxide-oxygen-ether sequence being my preference; or in young children the essence of orange-ether sequence; but for maintenance a mixture of chloroform and ether is used. The proportions in most cases are roughly, chloroform one part and ether two parts, but these are varied according to the type of patient, and the chloroform is increased in the mixture in proportion as difficulty in maintenance is anticipated. Chloroform is a more powerful narcotizing agent than is ether, and as we cannot in these cases cover the entire mouth and nose for air exclusion, we find chloroform is the best acting anesthetic for the method. However, reinforcement, if you please, with ether for its stimulating effect, that the profound depression of choloroform alone may be counteracted, is a measure of safety.

Clinically and practically a mixture of chloroform and ether, where chloroform forms one-third or more of the mixture, gives a narcosis which acts like chloroform anesthesia and looks like an ether anesthesia; *i. e.*, profuse mucous secretion is not observed, anesthesia of proper depth is more easily maintained; but the color of the patient remains rosy, circulatory depression is not evident, and blood pressure does not become reduced.

This action of chloroform-ether mixture may seem illogic to many, and those whose prejudice against chloroform extends to an almost complete elimination of it from their armamentarium argue that I am, and cannot get the advantages of both agents while counteracting the disadvantages of each with the other, and that I am merely subjecting the patient to the dangers of both. I can only reply that observation and experience, which count for more with me than theoretical reasons, merely strengthen my views on the chloroform-ether mixture, especially when used for intrapharyngeal vapor insufflation.

For those cleft palate and harelip cases which are operated on very young—under two years—chloroform alone is used by this method. The immediate risk is great if we maintain a narcosis thruout of sufficient depth to keep the throat reflexes abolished, yet we should be satisfied with no less perfect an anesthesia. With chloroform the line between deep anesthesia and fatality is always narrow. An anesthesia which precludes coughing and strangling when the throat contains blood, and the head is kept in a straight position with the face looking directly upward—thus permitting all saliva, blood and mucus to trickle by gravity to the larynx—is necessarily profound. And in children at the age mentioned at almost any time during such a maintenance an extremely slight increase of chloroform vapor, exhibited when the narcosis is deep, may swing our anesthesia across the line to a sudden fatality. Thus eternal vigilance is the key to satisfactory anesthesia in these cases.

I have successfully employed this method of anesthesia in many instances in both elderly and youthful patients for oral, facial and chest operations. It has been especially satisfactory in operations for harelip, excision of the lower jaw, cleft palate, labial epithelioma, tonsillectomy, and other operations about the throat.

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(2) COBURN: *Medical Record*, March 3, 1917.

"FURTHER NOTES ON THE ABORTIVE TREATMENT OF GONORRHEA IN THE MALE."[1]

BY
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It might seem almost banal to speak upon the above topic, in the light of our present-day knowledge of gonorrhea and its treatment, were it not for the fact that the views of so many writers differ so widely upon the question of when and how the treatment of this disease is to be undertaken. I may, therefore, perhaps be pardoned for giving you my own views, based upon my own experience in this field, more particularly since most of our American authors assume an attitude of opposition to the abortive method of treatment. Thus, for example, Guiteras (*Urology,* 1912, p. 365) states: "The abortive treatment of gonorrhea is now rarely used by men doing special work in urethral diseases." Chetwood (*Practice of Urology,* 1916, p. 221), does not favor its employment, yet seems not to speak from personal experience with the method. Keyes, Jr., (*Urology,* 1917, p. 225), says: "In the production of chronic urethritis the abortive treatment has taken the place of the sound of our forefathers. In exceptional cases it is possible to abort gonorrhea. After experimenting with every method of aborting gonorrhea I ever heard of, it is my present conviction that *the surest way to abort gonorrhea is not to try to abort it.*"

Ex cathedra statements like that of Keyes, Jr., (based upon an insufficient experience with the methods which he condemns, yet reaching a wide circle of readers, since they appear in a textbook which is placed in the hands of general practitioners and students), do a great deal of harm, since they tend to deter physicians from attempting a form of treatment which, when properly employed, is a great boon to the patient, and a potent means of preventing his becoming a menace to the community.

Just the opposite of what Keyes has stated is the fact. Not only is the abortive treatment possible, in a fairly large per cent. of cases but, when properly employed, it offers the chance of success in a large percentage of the cases thus treated. Furthermore, *it is a most potent factor in the prevention of chronic gonorrhea,* since, as everyone who has a sufficient knowledge of the bacteriology and pathology of gonorrhea must admit, the sooner the causative factor—the gonococcus—is annihilated, the more surely will the changes resulting from it, and causing chronicity, be prevented.

To adopt Keyes' aphorismic method of expression, I would paraphrase his statement by saying that *the surest way to abort a gonorrhea is to know when to attempt it, and how to do it.*

Morton (*Genitourinary Diseases and Syphilis*) speaks favorably of the abortive method.

The *prophylactic* treatment attempts to prevent the initial development of a gonorrheal infection by destroying the gonococcus at its seat of implantation before it has had a chance to multiply—a possibility which has been sufficiently proven by Haussmann, Kopp and Blokusewski, but particularly by Welander and Frank—while the abortive method attempts, with one blow, to destroy an already existing gonorrheal urethritis.

The attempts to achieve this result are not of recent date only, since Musitanus (1701), Fordyce (1758), Warren (1771) and others, during the 18th century, and later, toward the middle of the 19th century,

[1] Read before the New York Physicians' Association, January 24, 1918.

Ricord, Debeney and others of the French school, made them with various drugs, particularly caustic agents. These attempts were, however, so often accompanied, or followed, by severe complications that they were eventually abandoned. More recently the attempts, with these agents, were renewed. Thus Feleky (1894) treated fresh cases by swabbing out the urethra with 5 per cent. nitrate of silver solution, to a point beyond the seat of the infection. Welander (1892) employed, in two to three-days' old cases, thoro cleansing of the urethra with swabs, followed by the injection of two per cent. nitrate solution, which was held in the urethra for two minutes. He claimed that one such application would suffice to cure the disease. Pontoppidan obtained abortive results by instillations of two per cent. nitrate into the fossa navicularis. Blaschko claimed 40 per cent. of successes by injecting, several times daily, two per cent. nitrate, four per cent. protargol or one to two per cent. albargin solutions. He employed the method only in cases still in the initial stage and of no longer than three days' duration. Other experimenters have employed various other agents, among them zinc chloride, 1-480 (Lloyd, 1850); chloroform, 1-30 (Venot, 1850); aqua calcis, 1-4 and alum, 6-10-150 (Kuechenmeister, 1880); sublimate (Ullmann, 1897); argentum nitricum, 1-3,000 to 1-1,000 (Neisser, 1889); potassium permanganate, 1-2,000 to 1-1,000 (Reverdin, 1892, Janet, 1892) ammonium sulfoichthyolate, 1 to 5 per cent. (Koester, 1890, Jadassohn, 1892.)

All of the above agents have, however, had the disadvantage of meeting with failure in a large proportion of the cases treated, and of causing, at times, unpleasant complications or sequelae.

Since the organic silver salts have found a place in the treatment of gonorrhea, attempts at abortive cures have also been made with them. Thus Ahlstrom reports upon 100 cases which he treated with injections of 5 to 10 gm. of a two to four per cent. protargol solution, injected twice daily, during the first four to five days, the solution being held in the urethra for 10 to 15 minutes. He reports 87 per cent. of cures, with complications in only eight cases; but does not say how long the gonococci persisted. I must confess that I have never yet found patients who could tolerate such strong solutions.

I hold, with Finger, Casper and Wossidlo, that it is inadvisable to employ strong solutions, or caustic agents, because of the danger of causing complications or sequelae. Hemorrhage, edema, retention of urine, stricture have repeatedly been reported. It is a very different matter, however, where we employ relatively weak solutions of the organic silver salts, in the form of urethral irrigations as recommended by Frank and Lewin. During the past seventeen years, I have employed this method of treatment which, altho somewhat modified by me, remains in the main that of these experimenters. I shall return, later, to the minutiae thereof.

The possibility of aborting a gonorrhea rests upon the fact that the gonococcus, having no power of locomotion, but spreading thru the multiplication of the germs, remains, for a considerable time, upon the surface of the squamous epithelium of the fossa navicularis, causing, at first (because of the resistant character of this type of epithelium) little, or no reaction, and no symptoms beyond a faint trace of mucoid secretion. Later, when the gonococci spread beyond the fossa, and reach the pars

cavernosa, with its cylindrical epithelium, the resistance to the advance of the infection is not so great, and the germs spread between the epithelia, by way of the interepithelial spaces, into the deeper epithelia, and even subepithelial layers, where their toxins, thru their irritating action upon the capillaries, bring about an active leucocytosis. This leucocytosis is nature's effort to bring about a spontaneous cure, by ridding the tissues of the germs, and our attempts to aid her effort should, therefore, be made only with drugs which stimulate rather than hinder it.

If we can destroy the germs while they still lie upon the surface of the resistant, stratified, squamous epithelium of the fossa, or sweep them out of the superficial layers of the cylindrical epithelium, by the use of such drugs, then we may hope to abort the disease.

The reason why the percentage of abortive cures is so much greater in later than it is in first infections is due to the change which occurs in the epithelial covering of the urethral mucosa in the process of healing. The desquamated cylindrical epithelium is replaced by the more resistant squamous type, thus increasing the area of resistance to the encroachment of the germs in later infections. A further reason is to be found in the fact that, in first infections, the patient's inexperience leads him to overlook the premonitory symptoms, until the disease is well established and the deeper layers involved; while, in later infections, his suspicions are aroused much earlier, and he seeks his physician much sooner.

If we see the patient during the first few days after his infection—and while the gonococci still lie chiefly upon the epithelium of the fossa, or of a scarred pars cavernosa—we usually find only a trace of thin mucus, or muco-purulent secretion, containing a varying number of gonococci of which a greater or less number still lie extracellularly, according to the duration of the infection. The shorter the duration and the milder the virulence of the infection, the greater the number that still lie outside of the pus cells, at this stage of the disease. With the extension of the process to the pars cavernosa and its cylindrical epithelium, the character of the secretion changes, the ratio of pus cells to germs greatly increases and the latter come to lie chiefly intracellularly.

In judging, therefore, whether a particular case lends itself to attempts at an abortive cure, we must bear the following facts in mind:

(1) The case must not be one of first infection.

(2) We must feel reasonably sure that we are dealing with a fresh infection.

(3) The interval between infection and the beginning of treatment must not be too long, preferably not over one week.

(4) The onset of the disease must not be of the virulent type.

(5) The gonococci must, in great part, still be extracellular.

We must be prepared that some among the cases (altho the percentage is, happily, small) may show themselves to be hypersensitive to the silver salts, and that, furthermore, there are others in whom, before the beginning of treatment, the infection will have extended to, and have involved the urethral glands, or crypts, or the prostate. Naturally, such conditions should not be used as arguments against the abortive treatment.

If we bear the above facts in mind, we may hope to cure a large majority of the cases quickly and definitely. This is not

possible, however, if we employ the astringent drugs during the gonococcal stage of the disease; for, by their use, we delay the cure by promoting the retention of the germs in the tissues.

Daily control examinations are necessary in order to judge correctly the progress of the cases and to change the treatment with reference thereto. A sufficient knowledge of microscopic technic, and of the morphology of the gonococcus is, therefore, absolutely essential if one wishes to succeed with this form of treatment.

My original attempts were made, as were also those of Frank and Lewin, upon all fresh cases of gonorrhea presenting themselves for treatment, without consideration of whether, or not, they were proper cases for such attempts. This is manifestly unfair to the method, and so I have, in the later series, selected the cases that were of reasonably recent infection and which showed no evidence of already existing complications. Altho those whose infection is only three or four days old are those best suited for the treatment, I have succeeded in cases of much longer duration.

I have employed various silver salts, among them albargin, ichthargan and protargol, as well as a solution of salicylate of mercury in normal saline solution 1: 20,000, and have had good results with all. Yet, as most of the work was done with protargol, in ¼ to ½ per cent. solution, this drug must serve in the following description of the method as the basis.

The method is applied as follows: The secretion is taken from within the urethra by means of a sterile, platinum loop, and at once examined under the microscope. The patient is then instructed to pass his urine in two portions, of which the first contains all but a few drachms, the rest being passed into a second glass. Should the examination of the discharge and the inspection of the urine show that the case is one that offers us the possibility of success, then we irrigate *the anterior urethra only,* by means of the large hand syringe or irrigator, with 450 c. c. of ½ per cent. solution of protargol. Care should be taken to avoid any violence and the irrigating fluid is not intended to flush out the posterior urethra or bladder, altho no harm results if a small quantity does find its way there. The physician then, by means of the small 8 c. c. urethral syringe, demonstrates upon the patient, the correct method of injecting himself, and orders him to do so every four hours, with the small syringeful of ½ per cent. protargol solution, containing, in addition, 15 per cent. of glycerine. He is ordered to urinate, before making the injections, and to hold the solution, for *ten minutes,* in the urethra. I have, since a number of years, abandoned Frank and Lewin's procedure of flushing out the entire urethra thru into the bladder, confining the applications to the anterior urethra alone with what I believe to be an improvement in the percentage of positive cures, and with much less discomfort to the patients.

If the result is to be a positive one, then, on examination, after 24 hours of treatment, the urethral secretion will be found to be a mere trace and aseptic. Should the secretion be taken after injection, and before urination, it will be found aseptic, and to consist chiefly of degenerated pus cells, with epithelia and fibrin threads. Should he now urinate, and we examine after an interval, without further injection, we shall find the sparse secretion to consist almost exclusively of epithelia, with but few degenerated pus cells.

The treatment of the first day is repeated on the second. I then advise the patient to present himself, on the third day, without having injected that morning, and from two to three hours after urination. In successful cases, he should now be free of discharge or gonococci, and the urethral scraping be almost exclusively epithelial.

Upon this third day I irrigate with 300 c. c. of a ¼ per cent. solution and advise the patient to inject himself three times during that day. Should he be free of gonococci on the fourth day, then I omit the irrigation and the patient injects himself in the morning and evening only. Naturally, scrapings are made daily, and shreds examined if no scrapings can be obtained. On the fifth day the injections also are omitted, and the patient instructed to proceed to the alcohol test, in moderation. This is repeated daily, for a week, after which, if still free of germs, he is permitted to indulge in *coitus condomatus*. Should this prove negative, then we are justified—according to my experience—in considering the case aborted; for it has been my experience that, if gonococci be still present somewhere in the tissue, they will almost without exception reappear, with discharge, within 48 to 72 hours following the cessation of local treatment.

The only dietary restrictions which I have found necessary, during this treatment, are the avoidance of highly-spiced foods and alcoholics. Sexual excitement must, of course, also be strictly prohibited.

It will be seen that I do not employ the balsams or astringents. I have not found the former of any use, and have seldom had to employ the latter for the reason that there is rarely any catarrhal urethritis after an abortive cure. I sometimes advise the internal use of the formaldehyde compounds, during the testing period, in order that the development of other bacteria upon the still sensitive urethral membrane may be prevented.

Should the gonococci not have entirely disappeared after 48 hours of treatment, then I consider the abortive attempt to have failed—for I cannot consider a treatment as *abortive* which does not rid the patient of his infection within that time. In such cases, we then proceed to the usual treatment of the disease. This differs but little, in reality, from the foregoing, excepting that we do not see the patient so often.

Should the urethral glands, paraurethral passages, or crypts be infected, then we usually notice that the germs disappear at first, to reappear on the fourth or fifth day. If the prostate be involved, we find that the gonococci persist, the second urine becomes cloudy and we find gonococci in the prostatic secretion.

In rare cases, symptoms of irritation of the urethra arise which are due to an individual idiosyncrasy of the patient to the drug in use. We may notice slight tingeing of the discharge with blood, accompanied by burning, on urination. The bleeding may, however, be more pronounced, and accompanied by slight diminution in the stream of urine. This is usually due to the preexistence of a stricture. I have also, in rare instances, seen an edema of the meatus, with eversion of the lips, accompanied by the free discharge of a serous or serosanguinolent fluid. These complications are, happily, of transient character, soon disappearing upon a temporary cessation of the treatment. After their disappearance, we may continue the treatment with weaker solutions, and usually find that the urethra tolerates these well.

All of the cases upon which I report were treated as ambulant patients and were from my private practice, because, for the purpose of study of a particular method of treatment, only such cases should be chosen as can be observed during the whole course of the treatment and such as have sufficient intelligence and interest to carry out their part conscientiously—a condition not usually met with among dispensary patients. The method has, however, also been successfully employed with dispensary patients, by my assistants and myself.

Let us now contemplate the results.

I have, up to the present, been able to employ the method in 363 cases.

Of these 224 (61.7 per cent.) were free of gonococci after 24 hours of treatment, and 7 (1.9 per cent.) further cases after 48 hours. A total, therefore, of 231 (63.6 per cent.) were aseptic after 48 hours. In some the infection was 9 or 10 days old. Among these positive cases there were six which gave evidences of a preexisting, nongonorrheal prostatitis, in spite of which the prostate did not become infected.

Among those cases in which the infection was under four days' duration—133 in all—the positive results rose to 103 (77.7 per cent.), while only 30 (22.3 per cent.) were negative.

Among those resulting positively, the period elapsing between the exposure to infection and the beginning of treatment was:

1 day	5 cases
2 days	34 cases
3 days	64 cases
4 days	34 cases
5 days	34 cases
6 days	19 cases
7 days	16 cases
8 days	6 cases
9 days	6 cases
10 days	5 cases
2 weeks	1 case
20 days	1 case
4 weeks (?)	1 case
Unknown	5 cases

Among those that resulted negatively, the gonococci disappeared as follows:

3 days	4 cases
4 days	11 cases
5-7 days	11 cases
8-14 days	28 cases
15-21 days	17 cases
22-28 days	6 cases
29-35 days	8 cases
36-42 days	6 cases
43-49 days	4 cases
50-56 days	3 cases
Over 8 weeks	16 cases

(One still under treatment with spermatocystitis chronica.)

Withdrew from treatment ...18 cases

From the above table it will be seen that 71 cases, or more than half, of the negative results, were free of gonococci within three weeks.

With regard to the occurrence of complications, I would say that an infection of the urethral glands, or lacunae, or of paraurethral passages seems to occur independently of the character of the treatment, or of the agents employed, and is referable, primarily, to the character of the mucous membrane of the urethra; that is to say, that where the glands and lacunae have large orifices, or are the seat of a preexisting, chronic, catarrhal inflammation, they offer favorable points for the lodgment of the gonococci and destroy our hopes of aborting the disease.

An infection of these points occurred as follows:

Urethral glands alone in	36 (9.9 %)
Urethral glands and paraurethral passages	2 (0.55%)
Urethral glands and prostate	7 (1.9 %)
Paraurethral passages alone	2 (0.55%)
Total	47 (12.9 %)

One of the most frequent complications of gonorrhea is the involvement of the posterior urethra and prostate. According to my observations, involvement of the former means, in almost every case, the involvement, also, of the latter in the inflammatory process, yet not always accompanied by its

infection. How frequent this complication is may be seen from the reports of various authors. Thus Leprevost (1884) states that he found it in 1-6 of his cases; Eraud (1886) in 80 per cent.; Jadassohn (1889) in 87.7 per cent.; Letzell (1890) in 92.5 per cent.; Rona (1891) in 62 per cent.; Phillipsohn (1891) in 86.6 per cent.; Dind (1892) in 93 per cent.; Ingria (1893) in 59 per cent.; Finger (1896) in 63 per cent. of his private and in 82 per cent. of his dispensary cases; Frank in 32.25 per cent. of his dispensary cases. In his statistics of the abortive treatment, he found it in 35 per cent., but was of the opinion that it had antedated the beginning of the treatment.

Among my negative results prostatitis occurred as follows:

Nongonorrheal prostatitis in	2 cases (0.55%)
Gonorrheal prostatitis alone in	13 cases 3.5 %)
Gonorrheal prostatitis and spermatocystitis	5 cases (1.38%)
Gonorrheal prostatitis and urethral glands	7 cases (1.9 %)
	25 cases (6.78%)

Other complications occurred as follows:

Epididymitis in	5 cases
Paraurethral abscess	2 cases
Tendovaginitis	1 case

This last complication affected the extensor tendon-sheaths of the hand, and occurred five days after the patient's infection. It ran a mild course and soon disappeared entirely.

To recapitulate:

Of a total of 363 cases, 63.6 per cent. were free of gonococci after 48 hours of treatment, and of those resulting negatively, more than half were free within three weeks.

The percentage of infections of the prostate was 6.78, as compared with the 16.6 per cent. of Leprevost and 93 per cent. of Dind.

Chronic, catarrhal urethritis rarely occurs in the cases resulting positively, and no oftener among those resulting negatively than among those treated by other methods —if as often.

I believe that I do not claim too much when I say that a method of treatment which can show such favorable results, which, even if it is not successful, has been proven not to be harmful, and which has satisfied its exponent during its employment over a period of seventeen years, is one whose application is not only justifiable, but strongly to be recommended.

In conclusion, I must repeat my recommendation that, in every case of gonorrhea, treatment should be begun at the earliest possible moment after the occurrence of the infection, and at once after the diagnosis has been made and that the abortive method should be employed wherever it is found to be applicable with the employment only of *gonococcicide, nonastringent drugs.*

ACNE VULGARIS.

BY

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The derivation of the word acne is from the Greek word *akein,* meaning a healthy young man, evidence, strange to say, that the ancients considered the eruption an evidence of well being, a conception rarely heard expressed in modern times. The theory generally accepted by the laity is that the disease is due to some vaguely understood "impurity" which irritates the skin in the effort of the pores to throw off. It is known that certain diets and likewise

medicines such as iodides and bromides cause eruptions which have a similarity to acne. This similarity is often not very discriminating. It is observed in the gross and not studied analytically. The many nonrelated and often conflicting etiologic factors to which have been ascribed the causation of acne lead to a maze of contradictions. Before the discovery of the tubercle bacillus our knowledge of tuberculosis was in a chaotic state. The same is true of typhoid and of many other diseases which modern research has clarified and systematized.

Of no disease can it be more truly said that "it is the most obvious that often escapes our notice." A review of its predisposing and inciting causes, its course, its few complications will reveal acne as perhaps the simplest type of inflammatory conditions. Let us first arrange the known facts and deduce from them theories which may be of practical value.

Acne might be described as a disease of the grammar school age. It is unknown in childhood, rarely after the age of thirty-five, and is practically never seen in old age. As a rule the inflammatory symptoms begin to subside at the age of twenty-five. Acne taken as a whole is almost always chronic in its course. Successive crops of papules and pustules appear from time to time, the process frequently continuing for years. No matter how severe the case, the patient has the consolation that he will "outgrow" the disease. Acne is equally common to both sexes. The red, yellow and negro races are rarely afflicted. The Latins are very susceptible. It is more common among the poor than the well-to-do. With pulmonary tuberculosis, anemia and chlorosis it is markedly rare. Children with adenoids and enlarged tonsils are particularly prone to it. Hypothyroid children, especially if suffering from marked suboxidation, are subject to a particularly obstinate type of acne. The skin is thicker than normal with sluggish circulation. It is described as "pasty." Children of a minor myxedematous type, having cold, poreless, colorless complexions, are rarely afflicted with oily skin, blackheads or pimples.

Acne is particularly common in mill and factory towns. In the oil producing districts it is even more so. Young men exposed to oil and grime are particularly susceptible. A chauffeur with a good complexion is a rarity. A prolific cause of acne is the use of cold cream of various brands. The utterly absurd claims which are made as to their medicinal and beautifying virtues are not borne out by experience. While having a seemingly beneficial effect, they invariably cause an aggravation of the disease. When the cream is massaged into the face the harmful results are intensified. Theatrical people who use an abundance of greasy "make up" do not appear so well minus their camouflage. Athletes are commonly troubled with a diffuse eruption caused by the application of liniments containing linseed oil.

Acne is far more common in the spring and summer than in the winter and fall, less in cold climates than in warm.

Attendants of steam rooms in Turkish baths have poor complexions, altho clean. Exposure to high temperatures predisposes towards and aggravates acne. Washing the face with hot water and steaming the face are often followed by harmful results. Preparations containing glycerine frequently exert a similar deleterious effect.

Acne occurs on the face, external ears, back of neck and over the entire back. On

the chest it is usually confined to the region over sternum. On the thighs and upper arms it is quite common. Elsewhere on the body isolated acne pustules are rare. Acne is always accompanied with or follows oily skin or seborrhea oleosa. Blackheads are always present. The blackhead consists of dried sebum, the coloring is probably due to oxidation. It is not unusual to see cases of severe seborrhea presenting no evidences of inflammation. Likewise comedones may escape. The contents of a milium which is practically identical with sebum are rarely inflamed. The glandular structure having no external opening or pore presents no entrance to pathogenic germs. When a typical acne papule or pustule is expressed it is seen that the contents consists of sebum and pus. Primary inflammation of a gland or pore is the exception. In a typical case the various stages of a simple inflammation are presented. It is evident that acne is primarily an infection of the dried sebum or blackhead. Its fatty nature classes it is an ideal culture medium. Secondarily, the cells of the duct and glands are inflamed. The effort of nature to restrict the zone of inflammation gives rise to the typical acne papule. When the inflammation proceeds to disintegration of the superficial surface, the acne pustule is the result. Thirdly, the inflammation extends to the surrounding cellular tissues, involving the cystic sebaceous follicles. These because of the hyperemia are stimulated. An increased amount of sebum is the result, causing the typical acne nodule. When these nodules are infected the small purulent collections in the rete mucosum result. Substances which congest or irritate the skin may involve the sebaceous glands and thereby produce a typical acne. It is commonly observed that the application of a warm poultice is often followed by a hair and sebaceous folliculitis. Each has a similar simple pathology. Acne among tar workers is familiar.

From the mass of foregoing seemingly nonrelated observations, we are able to deduce facts of practical therapeutic value. Acne is a disease of the sebaceous glands. Where these glands are distributed on the body, and at the period of life when they are physiologically active, acne is the disease found. The fact that the sebaceous glands are confounded with the sweat glands is the cause of many misconceptions of the disease. The sebaceous glands secrete sebum. They do not excrete, hence can have no influence in eliminating toxic products which are popularly supposed to cause "too rich" blood. The sweat glands excrete and undoubtedly have a certain eliminating power.

Whatever influence, internal or external, which tends to cause an oversecretion of sebum will have a proportionate influence in producing acne. Seborrhea oleosa, however, may often run its course without concomitant inflammatory symptoms. It would seem that the presence of the comedone impairs either the circulation or integrity of the cell structure. After the inflammatory symptoms of acne have subsided, it is correctly seen that blackheads are present in profusion without the slightest trace of accompanying pus. The sebaceous glands having become inactive, the cells undergo a stratification, while at the same time the sebum has become hardened so that the causative gas germs cannot gain entrance. Acne and hair folliculitis are often mistaken for each other. Hair dyes often produce folliculitis of the scalp which is mistaken for acne. The inciting germ of acne vulgaris has been described by Sabouraud as a microbacillus. Gilchrist claims the dis-

ease is due to the *bacillus acnes*. Other investigators have described what may prove to be phases of the same germ—the staphylococcus. It would be interesting to investigate the relation of the bacillus welchi to the disease. Iodides inflame several glands and spread to sebaceous glands.

The treatment of acne consists first of all in eradicating the seborrhea. Internal medication is of little avail but when indicated, as in any other disease, should be treated. Calcium sulphide and other sulphur preparations have been known to cure, but as a rule their effect is disappointing. Sulphur is excreted thru the sweat glands as sulphur dioxide, a local antiseptic and astringent. These preparations exert a curative effect in a manner related to the irritating effect of the iodides and bromides. The injections of the various vaccines and sera at times are attended with various results. A certain small percentage results in an immediate and permanent cure. The failures are due to one of two causes: either the vaccine or serum is not of the identical causative strain, or what is perhaps more probable the curative agents do not reach the inflamed lesions, inasmuch as nature tends to wall off or restrict even the minutest infected process. The fibrous exudate surrounding each focus corresponds to the pyogenic membrane surrounding a tubercular abscess. Considering the sebum which occludes the gland and duct as the seat of infection, it is evident that this while being in the gland is strictly speaking outside of the body and beyond the influence of the blood current.

It is evident from what I have written that heat, oil and dirt should be avoided in the treatment of acne. Antiseptic ointments should never be used. The seborrhea oleosa should be treated by liquid astringents, washing with cold water and perfect cleanliness. When the sebaceous secretion is reduced to a minimum an immediate improvement is evident. The inspissated sebum and sebaceous cysts incised should be completely removed. The beneficial results will be proportionate to the thoroness of the procedure. Each persisting sebaceous folliculitis should be treated by destruction of the glandular tissue by either the electric cautery or chemical caustics. The latter are to be applied in the end of a sharpened toothpick to the cell structures. Curretting is rarely practicable because of the minuteness of the lesions. Each papule inflamed cyst and pustule should be treated antiseptically. *Ubi pus ibi evacua.*

In cases presenting evidences of malnutrition use iron tonics and small doses of thyroid. Gradually increasing doses of Fowler's solution are indicated in undurated acne to increase the peripheral circulation. It is not indicated in a case of moderate severity.

ANEURISM OF THE THORACIC AORTA WITH REPORT OF CASES.

BY

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Case 1. W. R., male, thirty-nine, white. Patient admitted to the Louisville City Hospital December 23, 1913.. Habits, good; uses neither alcohol nor tobacco. Family history: father living, in good health; mother dead, cause unknown; three brothers and two sisters living, in good health; two brothers dead, one died of dysentery, the other died in infancy. Personal history: patient has been in fairly good health most of his life; has had measles, mumps and whooping cough; had rheumatism

twelve years ago; malaria fifteen years ago. A diagnosis of beginning pulmonary tuberculosis was made two years ago in a Chicago (Illinois) clinic.

Present Symptoms and Examination: Present trouble began two years ago with "shortness of breath, pain in the region of the heart, cough, some wheezing in the chest." Patient now complains of cough, with pain in cardiac region and general weakness. There is no edema of the extremities. It is observed the patient has a harsh and somewhat hoarse voice.

Physical Examination: Lungs clear about the margins; some râles and evidence of inflammation in neighborhood of the bronchial tree, also in the trachea and bronchial tubes. Inspection shows a "heaving" type of respiration, and the vessels of the neck are visibly distended. Palpation reveals a tracheal tug, episternal pulsation and an almost continuous thrill over the entire cardiac region extending upward toward the root of the neck. Percussion shows impairment of resonance over the upper portion of the sternum. The liver is slightly enlarged. Urinalysis negative excepting for the presence of indican and a slight excess of uric acid crystals. No X-ray examination made. Sputum examination: Four examinations of the sputum were made at intervals of several days; no tubercle bacilli found. Numerous cocci and some bacilli present. Elastic fibres reported at each examination.

Diagnosis: We make, in this case, a diagnosis of aneurism of the thoracic aorta —roughly speaking of the first portion— and I believe there is some involvement at the point where the vessel begins to curve, with pressure upon the trachea. A "humming top" murmur is present over the heart extending upward into the neck, chiefly that of aortic regurgitation. The elastic fibres were evidence of tissue destruction from pressure or erosion by microorganisms.[1]

Case 2. The next patient gives a history of rather unusual interest, not only because of the rarity of the lesion manifested, but also on account of the complications which have arisen as a result of the primary disease. L. S., male, thirty-eight, colored, born in Kentucky, a resident of Louisville. Habits: uses tobacco freely, and has been a hard drinker, especially of whiskey. Family history: father dead, cause unknown; mother living, healthy; no brothers nor sisters. Personal history: married, four children, all healthy. Patient had ordinary diseases of childhood: Neisserian urethral infection at age of twenty; acute articular rheumatism three and a half years ago. Date of first observation, December 1, 1912.

Examination and Symptoms (December, 1912): Has had persistent cough for several months, worse at night and when in recumbent posture; considerable blood-tinged expectoration during early part of the winter (1912), and marked shortness of breath. Patient complained of pain in right side of chest, extending to right shoulder and arm, also in back (right side) at level of fourth rib. Some bulging of right side of chest beginning at level of third rib and extending downward to fifth rib. Pain increased upon deep pressure over the area mentioned. While palpation disclosed some pulsation, there was no distinct thrill. Percussion revealed dulness over chest area noted, extending beyond right sternal margin and right cardiac border. Auscultation disclosed a systolic as well as a diastolic murmur. There was evidence of moderate cardiac hypertrophy, but the apex beat was not markedly displaced. On right side posteriorly, from the third to the fifth rib, there was a decided increase in the normal breath sounds, probably due to upward displacement of the lung substance. Urinalysis at that time negative; blood pressure 138 mm. Hg. The fingers of both hands were markedly clubbed.

[1] The patient, W. R., died two weeks after the day of the clinic. Post mortem examination revealed a large cylindrical aneurism of the aorta which extended from the beginning of the aorta upward beyond the origin of the right innominate; just at the point of origin of this vessel there was a distinct sacculation of the aneurism. The trachea was adherent to the aneurism, and its rings were worn very thin. There was only a slight degree of atheromatous change in the vessel. The heart was practically normal, perhaps slightly hypertrophied. There was a white thrombus protruding from the wall of the artery within the aneurismal pouch. Lungs: Small areas of bronchopneumonia were found where pressure had occurred. These areas resembled very closely what are commonly called "tubercular aneurism areas." However, no tubercle bacilli were found either before or after death. No further findings. W. A. J.

Diagnosis: Aneurism of the first portion of the ascending aorta extending to the right beyond the sternal margin.

In April, 1913, an expert roentgenologist made a photograph of the patient's chest which showed a large aneurism of the first portion of the ascending aorta literally resting upon the heart and appearing almost like another heart superimposed upon the normal organ.

The patient came under our observation in December, 1912, with the history related, and has been a rather frequent visitor at the outpatient department since. On December 20, 1913, he was admitted to the hospital with a general dropsy resulting from cardiac decompensation, being literally "waterlogged." Urinalysis showed specific gravity of the urine 1026, acid reaction, albumin present, slight trace of indican. No Wassermann reaction test was made. I saw him shortly after admission, he exhibited great distress from dyspnea, he was hardly able to move in bed, nor to flex his legs which were about twice their normal size. Fluid filled all the serous cavities and subcutaneous tissues everywhere, the patient presenting a typical picture of universal dropsy. It will be noted there has been considerable improvement in his condition since he came into the hospital.

Examination: The head, face and neck show nothing of especial importance. The pupils are apparently normal and react to both light and accommodation. In aneurism inequality of the pupils sometimes occurs, from pressure effects thru the sympathetic nervous system; slight irritation will cause dilatation of the pupil on the corresponding side, whereas sufficient disturbance to produce paralysis will cause contraction of the pupil. Inspection shows what was noted when I first examined the chest, *viz.*, a slight bulging or protrusion of the right side on a level with the third rib. The patient still complains of dyspnea, pain in the chest; cough with expectoration is also present.

The subjective symptoms of which this man complains are: (1) dyspnea, (2) cough, (3) pain, (4) weakness. These are the characteristic subjective signs of thoracic aneurism which practically always increase pari passu with the time which the aneurism has existed. As a rule the older the aneurism the greater the dyspnea. So-called dysphagia is also sometimes present. Cough is a common accompanying symptom of this type of aneurism, and may be due to either irritation or to pressure, or a combination of these two factors.

While this man has complained of pain in his chest, in some cases of thoracic aneurism this symptom is absent, a clinical fact which is difficult of explanation. Of course it is easy to account for the slight pain which occurs in aneurism from direct pressure effects upon nerve ganglia. When the aneurism owes its origin to syphilis, so-called dysphagia is also sometimes present. Pain is a common symptom when the aortic arch is involved, when the aneurism is in the first portion, when the sac is superimposed upon the heart as in this case, and when there is a sclerosis of the coronary arteries from degenerative changes. Even where there is a large pulsating protrusion beyond the chest wall, and extensive erosion of the ribs has occurred, the patient may complain of no pain. There is no reasonable explanation for the absence of pain in cases of this type; we simply do not know. The remaining subjective symptoms, *viz.*, weakness, may be reasonably expected to follow. As the aneurismal sac enlarges, especially if it be a large aneurism, the heart is necessarily forced to perform additional work from the backward flow of blood, there results considerable disturbance within the chest from pressure, the lungs are pushed aside which causes interference with respiration and proper oxygenation of the blood, and in consequence the patient naturally becomes weakened.

Palpation reveals that the point of apex impingement against the chest wall is downward and outward below the normal site. The aneurism has thus interferred with the heart, which has become hypertrophied and displaced to the left. There is no unusual pulsation about the vessels of the neck. In practicing palpation, when anything of this kind is suspected, it is always advisable to employ the bimanual method, one hand being placed anteriorly, the other posteriorly, to determine whether the thrill or pulsation is transmitted to both hands or simply to one. In the area from the second to the fifth interspace to the right of the sternum, a pulsation and thrill are distinctly felt. The thrill is transmitted with lessening intensity downward and outward following the normal situation of the heart. Palpation thus verifies all the clinical findings hitherto noted.

Percussion: There should be a typical resonant note, the normal pulmonary resonance, from the clavicle downward to the upper border of the liver on the right side. However, instead of resonance there is noted a distinct dulness over the area where palpation reveals a thrill, beginning to the right of the sternum on a level with the second rib, extending downward to the fifth rib, to the left merging with the normal cardiac dulness, and a considerable distance to the right perhaps even beyond the mammary line. Percussion posteriorly reveals nothing of importance.

Auscultation: In practicing auscultation one should always confirm with the stethoscope what is heard by the ear placed against the patient. On auscultation we find both lungs anteriorly and posteriorly negative, excepting moist râles due to bronchitis. Over the base of the heart we hear two murmurs, one systolic, the other diastolic. The systolic murmur is produced by the so-called "blood whirls" when the heart contracts, and as the blood enters the aneurismal sac. The aneurism literally rests upon the heart and dilatation of the sac has so separated the aortic cusps that they no longer come in contact with one another, and there is therefore produced a regurgitant murmur which begins with the second sound, *i. e.,* a murmur at diastole. Dilatation of the sac has progressed until the aortic cusps cannot approach one another sufficiently near to sustain the column of blood.

When this man was examined several months ago, there was a mitral murmur evidently due to dilatation and leakage. He was suffering then from complete cardiac decompensation, the heart was so markedly dilated that even the mitral valves did not approach one another, thus making leakage possible. In many cases of aneurism of the arch of the aorta a ringing sound is produced by closure of the aortic valves when there is no involvement of these structures.

Differential Diagnosis: Had this man presented himself completely water-logged in the absence of any previous history, there might have been some confusion in the diagnosis. Dulness over a considerable portion of the chest might be expected in general dropsy, and the diagnosis of cardiac decompensation with aneurism might have been difficult; but at the time I first saw the patient the diagnosis was easy. There are two or three classes of cases which perhaps might be mistaken for aneurism in this situation. The first is simply a so-called dynamic pulsation. In neurotic people there is sometimes present a forcible pulsation suggestive of aneurism in the early stages. However, there would not be an increased area of dulness on percussion nor the other physical signs found present in this case. In making a differential diagnosis one must consider that the heart is oftentimes displaced from its normal situation by some abnormality within the thorax. The heart may be displaced upward, or to either side, the curve of the aorta may be further to the right or toward the neck, and one must ascertain the cause of such displacement before excluding aneurism. The presence of a solid tumor might also cause considerable confusion from pressure effects.

To review the main symptoms of thoracic aneurism: It is admitted that there are no constant symptoms common to every aneurism. According to some authorities we have aneurisms with clinical symptoms, and aneurisms with physical signs. What are some of the observable and demonstrable signs of aneurism? They depend upon the situation of the aneurism, and whether it impinges upon other thoracic organs. The main subjective symptoms likely to be noted in aneurism are those already mentioned, *viz.,* pain, cough, dyspnea, weakness. On inspecting the patient look for a bulging and pulsating area, enlarged veins about the chest, pulsating vessels at the neck. I recently saw in consultation a patient with thoracic aneurism where the sac was so situated that pressure was exerted upon the descending vena cava, there being a mass of enlarged veins extending entirely around the upper thorax. Palpate carefully by the bimanual method to detect pulsations and thrills, examine the lower part of the chest also. There may be an aneurism of the descending portion of the aorta, but this is extremely unlikely as it is one of the most rare situations. Aneurisms usually occur in the as-

cending and transverse portions. The bimanual method of palpation will reveal the characteristic expansile thrill which is present in the case before us. Always test the radial pulse on both sides simultaneously. Sometimes the aneurism is so situated that the pulse upon one side is much weaker than the other. Test both sides at the same time in order to make a comparison. There has never been noted any difference in the case before us. Also search for the so-called tracheal tugging. There is no tracheal tugging present in this case because of the situation of the aneurism. To obtain this sign have the patient elevate the chin, then grasp the cricoid cartilage between the thumb and index finger (as you see me do now). In some instances the "pulling" or "tugging" may be distinctly felt. If the aneurism is situated near the heart, an increased area of cardiac dulness will be noted where normally there should be resonance, as in this case. The area of dulness extends far beyond the normal cardiac region. Whenever there is well defined dulness near the sternum and above the cardiac region, always consider the possibility of aneurism or intrathoracic tumor. The case before us illustrates all the indications mentioned. Of course auscultation is the most valuable and important single method of diagnosis. Murmurs, either systolic or diastolic in character, may be present. Sometimes the murmur is heard with the cardiac second sound.

Progress in Cases of Aneurism.—Naturally after development of complications there may be considerable difficulty in making the diagnosis, just as there might have been in this case if the patient had not been seen in the earlier stages. Almost any doctor might have examined this patient a few weeks ago and diagnosed chronic valvular endocarditis with cardiac decompensation. Sometimes aneurisms of the thoracic aorta are entirely overlooked, there being present no marked symptoms to positively indicate the condition, provided the sac does not impinge upon surrounding structures. It can be readily seen that in such a case there would not be presented a distinct group of symptoms, the individual might live a considerable time before marked signs became manifest, and then die suddenly from rupture of the aneurismal sac, the diagnosis being made post mortem only. Such accidents have happened time and again.

Prognosis.—The prognosis in aneurism of the thoracic aorta is always bad. There are a few cases recorded where individuals died from accidents or other causes and at necropsy there were discovered aneurisms of the thoracic aorta which were unsuspected during life. However, this is the exception rather than the rule, and on general principles the prognosis of aneurism is distinctly bad. It is just a question of time, with conservation of the patient's energy, making him as comfortable as possible. The earlier the condition is recognized, the more willing the patient is to cooperate with his medical adviser in therapeutic and other measures, the more likelihood of favorable results, which must necessarily be measured by the length of time the individual lives, and the comparative comfort he may enjoy during that period.

Treatment.—The treatment of aneurism is directed along two general lines, *viz.*, medical and surgical. There are no specifics, that is frankly admitted at the outset. The best that can be done is to devote attention to such measures as will conserve the patient's energy and relieve symptoms, thus insuring him the greatest comfort during the time he may live. The most necessary prerequisites are rest and a restricted diet. Let

the patient understand his condition, and outline his future plan of life. If he insists upon doing work which involves little physical strain, perhaps that would be better than doing nothing. Teach him to rest a great deal, to ingest only easily digestible foods, avoiding excesses of every character, especially alcohol, tobacco and venery; to keep the bowels, the skin and the kidneys active, in this manner reducing blood pressure. The routine administration of iodide of potassium is indicated, five to ten drops of a saturated solution three times a day being oftentimes helpful. Certain authorities have contended that syphilis is the invariable cause of aneurism, but other causative factors have been demonstrated. However, if the aneurism be due to syphilis, iodide of potassium will be beneficial. Agents should be employed which tend to increase the coagulability of the blood, such for instance as calcium lactate in five to ten grain doses three times a day. Medical treatment should be intermittent to secure the best results.

Surgical Treatment.—A few attempts have been made in thoracic aneurisms to produce a cure by surgical methods. However, surgical treatment has not been thoroly satisfactory, and is now resorted to rather infrequently, unless we make an exception in the case of small and distinctly saccular aneurisms of the thoracic aorta, where wiring with electrolysis might be tried. Both of the cases which are exhibited to you this afternoon are of the cylindroid or tubular type. Surgery is still advocated in some of our current textbooks. One ideal is to introduce something from without tending to form a nidus within the sac hoping that coagulation and consolidation may occur and thus close the cavity. The introduction of fine wire or catgut into the cavity has been recommended and practiced. In large aneurisms it is doubtful whether permanent results can be obtained by this method of treatment. In small aneurisms, however, the outcome has been permanently successful in a few cases.

Personally, if I were in the condition this patient presents, I would be inclined to refuse surgical aid, and make myself as comfortable as possible by rest, modified diet, with the exhibition of remedies to meet symptoms as they arose.

Injections of Peptone in the Treatment of Typhoid and Other Infectious Fevers.—Professor Nolf of Liege, says the *London Practitioner,* has obtained excellent results in typhoid fever and other infectious diseases from the use of injections of peptone. He first used them with a view of favorably influencing the hemorrhagic diathesis, due to hemophilia or arising from hepatic inadequacy, profound infection, or purpura. The first trials were made in the case of hemorrhage in typhoid, and the method was later made more general.

The technic is simple. A 5 per cent. solution is used, for solutions above this strength give rise to pain. The injection is made into the buttock at the site of election for mercurial injections. Not more than 10 c. c. are given at a time. If there has been a large loss of blood, or if a return threatens, the injection should be given daily and repeated for some days. When the bleeding has been slight or simply threatening, it is well to give an injection every other day. Every stool passed by a typhoid patient should be examined carefully, and the appearance of the least clot of blood should indicate the institution of this treatment without delay. Intravenous

injection has been used in place of intramuscular, in which case from 10 to 15 c. c. of a 10 per cent. solution are injected slowly at the rate of 5 c. c. a minute.

The reaction is shown by sweating and a feeling of comfort experienced by the patient, who is less excited and more inclined to sleep. A temporary polyuria appears to be caused, and meteorism is relieved to a great extent. The later effects are favorable to the course of the disease; the temperature is reduced, the nervous symptoms, insomnia, delirium and prostration, are benefited. Diarrhea is lessened, and the stools become formed. Other symptoms are considerably ameliorated and the same result obtains in the case of a relapse, which takes a mild course.

This treatment has been used with advantage in scarlet fever, measles with broncho-pneumonia, rheumatism and in streptococcal septicemia. The advantages of peptone are many: It is easily obtained, it can be sterilized at 120 degrees C., it is quickly assimilated in the organism, and it brings about a reaction which may be slight or pronounced, according to the method of administration. It is easily handled, and its use seems to be quite free from any risks, while it may be given for many months without causing intolerance.

Urinary Antiseptics.—Dewiler, in the *New York Medical Journal* for November 24, concludes his articles with the following:

1. Acidity of the urine may be increased to more than double by sodium acid phosphate, and less by benzoic acid, and benzoates; citrates render the urine alkaline.

2. Putrefaction and staphylococcus growth are aided by alkalinity and delayed by acidity. The reverse is true to a slight extent for Bacillus coli, for its growth in both acid and alkaline urine is luxuriant.

3. Hexamethyl by itself is not antiseptic; it acts by producing formaldehyde in the urine; this only takes place in acid urine and is proportionate to the acidity.

4. Sandalwood oil is a poor antiseptic in general, but has a specific action on the staphylococcus when in alkaline urine.

5. Benzoic acid and salicylic acid are fairly efficient antiseptics in acid urine, but are of little use in alkaline urine.

6. Boric acid is an efficient antiseptic and not affected by alkalinity, so that it is the most efficient drug we possess for alkaline urine.

7. Uva ursi is a good antiseptic and its action is not due entirely to the arbutin it contains.

Clinical Conclusions.—1. Hexamethylene tetramine with sodium acid phosphate should always be given as a prophylactic before any operation where the urine may become infected and is of the greatest value since if the urine is clear and highly acid and sufficient hexamethyl is given to keep formaldehyde constantly present, the urine becomes a powerful antiseptic fluid. Hexamethyl is also eliminated in the bile and nasal secretions and in the cerebrospinal fluid, but its antiseptic value as hexamethyl is slight, compared with formaldehyde, into which it is changed in acid mediums.

2. Hexamethyl should be given only when the urine can be made acid, otherwise it is of little value. It should not be given with potassium citrate in bacillus coli infections. If it is desired to try the effect of making the urine alkaline in these conditions, use boric acid and uva ursi infusion with potassium citrate.

3. Where the urine is undergoing ammoniacal fermentation in the bladder, irrigation or some operative procedure will always be the most important part of the treatment; and the best drugs are boric acid in large doses and uva ursi.

4. Sandalwood oil is worth trying in cystitis due to staphylococcus infection.

5. When acid sodium phosphate is prescribed, estimate the acidity of the urine, for unless it is kept above 4 or 5 it will not act efficiently, and a high acidity is of more value than a large dose of hexamethyl.

Tyramine as an Adjunct to Morphine in Labor.—Tyramine, says a writer in the *Journal Amer. Med. Association,* produces a rather prolonged respiratory stimulation and also stimulates the contractions of the uterus. Laboratory studies show that tyramine does not antagonize the analgesic actions of morphine, while in effective doses it does antagonize the two undesired actions of the latter drug. A dose of sixteen mgm. of morphine with

forty mgm. of tyramine, given hypodermically when the pain of the first stage of labor becomes marked, produces in women a satisfactory grade of analgesia, slight stimulation of respiratory rate, and an augmentation of uterine contractions which is maintained thruout. There is also a rise of twenty to twenty-five millimeters of mercury in the blood pressure of the mother which is of no importance in normal cases, but which should be borne in mind.

Quinine and Urea Hydrochloride.—Saphir in *New York Medical Journal* (Dec. 22, 1917) regards quinine and urea chloride as the ideal local anesthetic for rectal operations and arrives at the following conclusions regarding its use:

1. Quinine and urea hydrochloride is an ideal local anesthetic, as it gives no pain during or after operation.
2. The anesthesia lasts for a sufficient length of time—three to ten days—to permit the wound caused by the rectal operation to heal.
3. There are no toxic effects or symptoms even if used in very large quantities.
4. It acts as a hemostatic, diminishing danger of postoperative hemorrhage.
5. It is very easy to use, is soluble in water, and is easily sterilized.
6. For the production of local anesthesia, never use a stronger solution than a one-third or 0.5 per cent., especially in skin work.
7. A one per cent. solution may be used in mucous membrane work, where sloughing followed by the formation of cicatricial scar tissue is desirable.

The Germicidal and Therapeutic Action of Garlic.—Mincin writing in the *Practitioner,* Feb., 1918, says there is probably no more valuable drug mentioned in any pharmacopoeia than oleum allii, the active oil of garlic; yet there is scarcely any so little known to the medical profession generally.

Tuberculosis is the most difficult of all diseases upon which to demonstrate the value of the therapeutic action of any drug or serum. Even tho we are in possession of a drug or serum which will destroy tubercle bacilli within the human body, not every case of tuberculosis will yield to the application. Many cases of tuberculosis, which appear to be early and favorable, run a rapid and fatal course, while those which seem to be approaching the end recover completely.

The disease, when once established within the tissues of the body, is outside the influence of the circulation, and any remedy used for the purpose of destroying the bacilli must be of a sufficiently penetrating nature to reach the tissues in which the bacilli are.

When bacilli have established themselves in the tissues and outside the influence of the circulation, they flourish and increase either:

(1) By extension to the surrounding tissues thruout a larger, often much larger area;

(2) By surrounding themselves with fluid, often intimately mixed with debris of gangrenous tissue, in which they increase, and excrete toxins which penetrate to the blood stream;

(3) By a combination of these.

The first is the condition in chronic cases.

The second is the condition in acute cases.

If the bacilli are protected by fluid, it is useless to try and reach them thru the circulation; the condition is a surgical one. Frequently this fluid exists in very early cases which appear to be favorable for treatment.

Garlic is suggested not only as a cure for the disease as met with in No. 1, but also to differentiate between the two conditions.

If garlic properly applied does not cause a great improvement in a pulmonary or otherwise localized case of tuberculosis in a few weeks we are dealing with a surgical condition.

In a localized tuberculous lesion other than pulmonary, such for instance as tuberculous osteitis, if there is no great improvement by garlic, surgical measures are indicated, and one of the following conditions will be found to exist:

1. A sequestrum;
2. A mass of gangrenous soft tissues intimately mixed with pus;
3. A shut-away stagnant pocket of pus not necessarily large.

On removal of these conditions, garlic applications will be rapidly curative.

Garlic contains a volatile oil, called allyl sulphide, and its medical properties depend on this oil, which is strongly antiseptic, and it seems to have remarkable power of inhibiting the growth of the tubercle bacillus eliminated by the lungs, skin, kidneys and liver and oxides into sulphuric acid in the system. Applied locally, it is freely absorbed by the skin and penetrates the deeper tissues. Dosage used internally, one drachm of the expressed juice or two drops of the essential oil three times a day; externally, poultices of crushed bulbs, one part with three parts of lard, or unguentum garlic (50 per cent. juice in vaseline) applied daily. Healing is by new connective-tissue formation.

Rational Organotherapy

Asthma.—According to Fishberg in *Medicine and Surgery* (Jan., 1918) the relation of some asthmatic conditions with disturbances in the functions of the generative organs, especially in women, has been noted by physicians for a long time. Some cases of asthma in women are favorably influenced by ovarian therapy.

In most of these cases there may be observed some relation between the asthmatic paroxysms and the generative functions. In some the attacks of asthma are ameliorated during pregnancy, or during menstruation; in others, the paroxysms are more apt to occur, or are more severe when occurring, when the patient is menstruating.

In many cases of asthma occurring during the menopause, natural or artificial, the administration of ovarian substance relieves the dyspnea along with the other symptoms of the menopause.

Ovarian substance, or corpus luteum, in moderate doses may, in these cases, act specifically, ameliorating the attacks, or preventing their recurrence.

Most of these patients seem to have a peculiar intolerance to the derivatives of opium which aggravate the asthmatic attacks and make them sick otherwise.

Special Disorders of the Heart from Goiter.—Sloan in *Illinois Medical Jour.* (Mar., 1918) writes it is sometimes difficult to differentiate between *heart-block* and *premature contractions*, due to the development of new points of impulse excitation. When at regular intervals a beat is dropped or the pause between the beats is lengthened, it is due to heart-block or failure in the transmission of the impulses to the ventricle or to a premature contraction. By listening at the apex you can hear the premature contraction of the ventricle during the lengthened intervals between the pulse beat, while if it is heart-block, the heart remains silent thru the interval. *Premature contractions* are more common, especially in the young.

If the pulse beats are coupled and the pause between is of regular length, either every third impulse fails to reach the ventricle or else every third regular impulse from the auricle reaches the ventricle while it is in contraction from a premature or extra contraction, in which case the impulse from the premature contraction does not reach the wrist and every third regular pulse beat is lost. When the ventricle beats at twice the pulse rate, it is due to premature contraction, disturbing every second regular contraction. When the ventricular and pulse rate is halved paroxysmally, it is always the result of heart-block.

When auricular flutter is present, a general anesthetic is extremely dangerous, especially for goiter operation. Unrecognized cases of auricular flutter account for a large number of sudden deaths during an operation or very shortly afterwards. Patients with auricular fibrillation usually stand anesthesia and shock of all kinds much better than one expects them to. Patients frequently complain of fluttering sensation over the chest and neck for months before flutter or fibrillation is recognized.

The Administration of Pituitrin.—The following conditions, according to the *Medical Summary*, are necessary before pituitrin is employed: (1) Complete cervical dilatation. (2) The membranes must be ruptured. (3) The presentation must be longitudinal. (4) There should be no disproportion. (5) The presenting part must be completely engaged.

Pituitrin in Nocturnal Incontinence of Urine.—Mikhailow, in *Urologic and Cutaneous Review* (Oct., 1917) states that in the majority of cases of nocturnal and diurnal incontinence of urine (the so-called atonic form described by Guyon) the essential cause is atony of the sphincter of the bladder accompanied or not, according to the case, by local changes as revealed by the cystoscope (hyperemia of the base and neck of the bladder, anemia and slight edema of the mucosa, etc.). As the usual treatment is almost always inefficacious the author began to employ pituitrin in these cases—a drug already well known in gynecology—as a stimulant *par excellence* to involuntary muscle. The results have been most encouraging. After three or four subcutaneous injections given once a week in doses of 0.2, 0.5 or 1.0 c. c., depending upon the patient's age, the incontinence has disappeared even in the most inveterate cases and there has been no recurrence for three or four months.

The Preparation and Standardization of Ovarian and Placental Extracts.—Morley (*Surg Gyn. and Obst.* Vol. XXX, 1917, 324), gives due emphasis in his article to the need for more uniform methods in the preparation of ovarian and placental extracts. Tangible laboratory and clinical data are still moreover lacking in extent. A review of the more important articles on the above subject reveals the circumstance that it is only within the last ten years that an attempt has been made to isolate the active principle of the ovary and placenta, especially the former. Iscovesco (1908) obtained "lipoids" from the red blood corpuscles, hypophysis, kidney, adrenals, ovaries, the testicles and the corpora lutea, and discovered they exerted a certain action on the female genitalia. The "homo-stimulating" lipoids, he found, had an action on the same organ from which they were derived, the "hetero-stimulating" lipoids exercising an action on different organs—this division he discovered later being purely arbitrary. Hermann (1915) believes he has succeeded in separating the "active substance" of the corpus luteum and of the placenta as a specific chemical substance, having identical physiologic properties. Hermann possibly obtained his so-called active substance in a purer state. After engaging in special research work along this line during the last two years, Morley expresses the opinion that up to the present time no ideal method of preparation has been formulated, and until that is accomplished, the standardization of the product will not be attempted. Considering the newness of the subject the article concludes with quite an extensive bibliography.

Acne Vulgaris.—Brown in *Northwest Medicine* (Feb., 1918) reports that for many years he has been convinced of the relationship of sexual disorders to acne.

After getting a full history, treatment should be started with the view of correcting any sexual disorder or disease of ductless glands. The specific treatment is organotherapy. Naturally clinical reports of success should be received with great reserve. Yet from the writer's own personal experience he is convinced that organotherapy is the greatest single advance in the treatment of skin diseases that we have seen during the last decade. The success of organic extracts such as thyroid and corpus luteum is often spectacular. Corpus luteum (Hinson) may be employed in many menstrual disturbances accompanied by acne, especially in functional amenorrhea and dysmenorrhea of ovarian origin. It is especially valuable in those young women who are slightly obese and anemic and whose menstruation is scanty. Corpus luteum appears to be especially beneficial where the perspiration is offensive, in bladder irritation, and in many of the psychoneurotic manifestations. The average dosage is five grains three times a day. The other organic extracts, of which thyroid is a brilliant example, may be employed as indicated in the foregoing paragraphs. Always watch for any overaction when prescribing thyroid. It is sometimes necessary to keep patients in the hospital during thyroid treatment.

The keynote of success in the *local treatment* of acne consists in keeping open the mouths of the follicles. Bacteria do not thrive unless the ducts are occluded. Cosmetics irritate and close the follicles. Pus organisms rapidly develop in the retained secretions. Treat every case of pustular acne with preliminary hot applications, fol-

lowed by incision and drainage. The best way to do this is to have the patient stand over a sink and apply wet boric pads to the face just as a barber applys hot wet towels to the face of his customer. After thoroly soaking the skin, evacuate the contents of all the pustules, using a cataract knife or cambric needle. Express all plugs, then with a hard wood toothpick, lightly tipped with cotton, touch the floor of each lesion with a solution of equal parts of iodine, phenol and camphor or chloral. Next promote bleeding by further hot applications of boric acid solution. After drying the face apply an ointment. The U. S. sulphur is our best remedy for nonpustular, the ammoniated mercury ointment for pustular acne.

In conjunction with the above measures a properly prepared autogenous vaccine or a stock vaccine may be employed and often aids in hastening a cure. Vaccines are not essential. A cure may be effected without them.

Internal Secretions and Pediatrics.—Hymanson in *Medical Record* (Jan. 26, 1918) states that in children with hereditary syphilis, a condition noted for its action in arresting growth and development, he has found thyroid substance of value. Even in rickets and convulsions the same treatment is occasionally followed by remarkable benefit. Chorea and asthma are sometimes favorably influenced. Caution must always be employed while giving thyroid preparations, for there is sometimes an idiosyncrasy against them and they are expressly contraindicated in circulatory diseases and diabetes. Parathyroid extract, while hardly a specific, seems to be of occasional value in motor disturbances (tetany, chorea, convulsions). This remedy should be given only in hypodermic solution. Suprarenal extract is recommended in the acute infectious diseases of childhood with low blood pressure, especially diphtheria and pneumonia. This is used in the form of adrenalin injections and hardly belongs under organotherapy.

The internal secretions play an important part in the animal body, but their real value in pediatrics offers a large field for investigation.

The disappointment in the use of thyroid is at times due to improper dosage. It is best to begin with small doses for an infant —one fourth to one-half grain, twice daily and proportionately larger doses for older children—to be increased every two or three days until five or even eight grains are given t. i. d. The amount ought to be increased to the point of toleration, and then reduced again. The drug must be administered for years otherwise the patient may deteriorate.

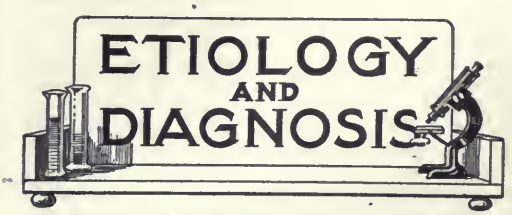
Good results have been obtained in thyroid treatment, in small doses, in cases of malnutrition which were perhaps due to hypothyroidism. In severe cases of the exudative diathesis of czerny, accompanied by a severe eczema, particularly in very stout children, which did not respond to diet and ordinary medication, the improvement was rapid within a few days of administration of the drug.

Epinephrin has been very efficacious in nephritis following acute infectious disease, particularly scarlatina nephritis.

Pluriglandular insufficiency deserves special consideration. Pineles's suggestion that there is a relationship between the various ductless glands and that at times more than one organ is aktered in function, and perhaps in structure, has been proven to be correct.

In severe cases of rickets, where no improvement was shown by change of diet and prolonged use of usual remedies, marvelous improvement and even cure has followed the administration of small doses of thyroid extract in combination with pituitary extract. Treating these cases with thyroid alone or with pituitary alone did not show much improvement.

The empirical treatment with polyglandular extract has certainly done much good in many cases of this sort.



Diagnosis of Sciatica.—Roussy in the *Presse Medicale* (Aug. 30, 1917) gives some illustrations showing the attitudes inevitably assumed with true sciatica in doing certain exercises. For example, in trying to bend over and touch the floor, the knees stiff, the knee on the side of the sciatica is necessarily bent, or else the foot kicks out behind. When the patient sits

on the floor with legs straight out, the knee on that side is always bent a little, and it cannot be fully extended. Pressure on the knee to extend the limb straight causes a sharp pain in the sphere of the sciatic nerve. Another test is the pain felt when the trunk is bent forward. The trunk has to be kept within a given angle to avoid increasing the pain of the sciatica. This unilateral Kernig's sign was found positive in 63.6 per cent. of his cases of true sciatica. The standing Lasègue sign was positive in 63.45 per cent. By this term he means the outward rotation of the tip of the foot and the knee on that side as the trunk is bent over, trying to touch the floor, the heels solidly planted, about 20 cm. apart. With true sciatica, squatting does not aggravate the pain, while the simulator goes thru much groaning as he assumes a squatting position.

Rocky Mountain Fever.—Wolback in the *Jour. of Medical Research*, Jan., 1918, states that the cause of the disease is the minute parasite now proved to be constantly present in the lesions of blood vessels in man, monkeys, rabbits, and guinea-pigs, and in ticks capable of transmitting the disease.

The general consideration of the properties of this organism, its peculiar staining reactions, its localization in endothelial cells and smooth muscle, its intranuclear multiplication in ticks, its varied morphology, tend to the conclusion that we have here a new form of microorganism. Supporting this belief is the fact that the disease in suspectible animals exactly duplicates that in man, irrespective of mode of transmission.

The Diagnosis of Stones in the Bile Ducts by Means of the Wax Tip.—McWhorter in *Journal American Medical Association*, March 16, 1918, advocates the use of the wax-tipped filiform bougie in diagnosis of stones in the bile ducts. Altho this is new in this application, it has been used in the diagnosis of ureteral stones.

After sterilization, from one-half to one part of olive oil is added to one part of dental wax. The end of a No. 3 or larger whalebone filiform bougie or metal probe is dipped into the liquid. On removal of the instrument, the drop clinging to the end will harden quickly; but if it is not of the desired size and contour, the procedure is repeated. Before exploring the ducts, one should examine the tip under a lens to be sure its surface is unscratched. After the tip has been passed thru the common duct and the ampulla of Vater, it is removed, dipped in cold water, dried and examined under a lens. The same tip, if its surface smoothness is unchanged, may then be passed up into the hepatic duct and the branches to the right and left lobes of the liver. This duct and its branches, however, should first be explored with a scoop of proper size in order to remove any loose stones, which might otherwise be pushed farther into the lumen.

If at any time while passing the tip, one should observe a decided jump, the chances of obtaining a definite scratch, in the case of a partially ensacculated stone, would be increased by drawing the tip back and forth several times. It is possible to localize the stone more exactly by waxing the filiform bougie in rings at intervals from the tip, or, as Sampson suggests for ureteral stones, by coating the entire catheter with wax. A metal probe may be used in a similar manner for further evidence as to the presence or location of a stone, or patency of the duct, and as an aid to external palpation; for when the wax-tipped metal probe is used, not only may the impression of the stone be left, but if it is passed in sharp contact, the wax may be pressed aside and the hard body felt against the metal. With the metal probe also, the wax may be put on in rings, leaving the tip free for palpating the stone.

Trichinosis.—Cumming in an interesting article in *New York Medical Journal*, March 9, 1918, reports that the differential diagnosis between trichinosis and tetanus is not difficult, as in the latter disease the early involvement is unilateral, affecting first the muscle groups in the immediate vicinity of the focus infection, then the jaw muscles; only later is there a generalized tetany. On the other hand, it is to be noted that the muscle involvement in trichinosis appears first, ten days to two weeks after the onset of symptoms, in the legs, then in the arms, and finally, in severe cases, in the tongue and jaw muscles. This involvement is bilateral, though there may be a slight difference in degree. The reflexes in tetanus are easily elicited, whereas in trichinosis they are difficult to elicit, but when there is response it is, as in tetanus, exaggerated. The prodromal symptoms, the edema of the eyelids and face, the eosinophilia and the high temperature of trichinosis are absent in tetanus.

The differential diagnosis from typhoid is to be made by the early edema of the eyelids, conjunctivæ, and face, appearing later in the lower limbs, the clean red tongue; eosinophilia; the finding of trichnæ in the muscles, bloodstream, or stools; the dyspnea; the involuntary contractions; and an absence of a positive Widal test.

The early differential diagnosis of trichinosis depends chiefly on the edema of the eyelids, the eosinophilia, and a history of undercooked pork having been eaten. Many mild cases undoubtedly go unrecognized and the symptoms, edema and eosinophilia, recognized as pathognomonic, must be kept in mind for the diagnosis of isolated cases of trichinosis. In the group of cases here reported, sausage from one hog formed one of the chief articles of diet for a week or more; consequently the ingestion of repeated large doses, especially by the older members of the family, resulted in severe infections and well defined symptoms. A single dose of the same sausage, or of any measly pork, infective to the same degree, might produce symptoms so indefinite as to pass unrecognized.

Persistent Treatment of Epilepsy.—In a recent issue of the *Journal American Medical Association* (Sept. 15, 1917) Pershing discusses the treatment of epilepsy.

The favorable cases for treatment are those in which the health is otherwise good, the attacks being of the major form only, beginning late rather than early in life, and the total number remaining small. Very frequent minor attacks, together with occasional major attacks, are especially unfavorable, and minor attacks alone are generally worse than major attacks alone.

The first essential to successful treatment is to tell the patient of the tendency to recurrence, even after apparent cure, and of the need of faithful continuous cooperation on his part. Any legitimate encouragement should be given as an incentive, and the word "epilepsy" need not always be used. If only a few attacks have occurred, it may be said that the disease is not epilepsy until the attacks have become habitual and this must be prevented. What should be understood and agreed to is that treatment must be extended over many years, perhaps over a lifetime, even tho the attacks are arrested. The patient must form the habit of taking his medicine at the regular time, without rebelling or wondering when he can stop, just as he brushes his teeth, or combs his hair. If the treatment is to be ultimately kept up merely as insurance, so much the better. The prescription must be modified from time to time to fit it more exactly to the needs of the patient, but only by the physician, and it is never to be discontinued even for a day except by express order of the physician.

The diet of the epileptic should be generous and varied, but he should learn to moderate his desire for excessive quantities of food. The big holiday dinner is especially dangerous. Those permitted should include the ordinary fresh meats, poultry, fish, eggs, cooked vegetables, cooked fruits, wheat bread, light cakes, tea and coffee.

In the list of prohibited things should be included oatmeal, cornmeal, bran bread, popcorn, hominy, most breakfast porridges, and, in general, the bulky foods that are so much recommended as laxatives. These foods are laxative because they mechanically irritate the intestine and thus indirectly irritate a sensitive skin or a sensitive nervous system. Moreover, they generally contain the wrong kind of protein and a great excess of starch. Nuts are especially harmful, and should be absolutely prohibited. Salt is to be restricted to a small amount; therefore salt meats are to be avoided. Certain raw fruits, especially apples and bananas, are dangerous. Pastry, heavy puddings, very rich dishes and unusual mixtures must be avoided. Alcohol and tobacco are not for the epileptic.

In giving bromid the aim, of course, is to find such a dose, so combined with other remedies, that attacks will be prevented and yet the patient not seriously suffer from its prolonged administration. The author's beginning dose for an adult is 20 grains three times a day in a liquid mixture. If that prevents the attacks, but bromism appears, the medicine is not interrupted at all, but reduced 10 or 15 per cent. at a time until a dose that can be tolerated is found. Toleration may be increased by adding about 10 minims of tincture of nux vomica to each dose and also by adding arsenic, preferably as sodium cacodylate, from 0.002 to .005 gm. (from 1/30 to 1/12 grain). A laxative is often necessary, and the aromatic fluidextract of cascara can be added to serve this purpose. If the amount of bromid is inadequate to restrain attacks, it is to be increased cautiously. When a dose is found which is sufficient and is well tolerated, it is to be continued for a long time and then cautiously reduced. Dropping from three doses a day to two of the same strength is too great a change to make at one time, but one might change from three doses of 20 grains to two of 25 grains. The physician must not only know how much bromid by weight he wishes to give the patient but he must know just how much the patient actually gets.

Gonorrhea.—Simple acute gonorrhea, says a writer in the *New York Medical Jour.*, is the commonest of all venereal diseases met with in the army. The principal complications observed have been balanitis, cystitis, epididymitis, arthritis, and stricture. Simple antigonococcic treatment has been sufficient in the vast majority of cases, this consisting of an appropriate diet and local care. Capsules of santol are given from the beginning and when the inflammatory urethral reaction allows, permanganate irrigations are begun at 1:5000 and slowly increased in strength. During the period of decline the following injection is ordered:

℞	Zinci sulph	4.0
	Acid, citric	4.0
	Liq. Van Swieten	60.0
	Aq. dest. 1000.0	

In stubborn cases, as well as in long standing ones, instillations of silver nitrate are given and an average of three weeks has been found sufficient to stop the discharge. The army surgeons do not hold that when the discharge ceases an absolute cure has been obtained, but it seems to me clear that the results are excellent considering the circumstances and that treatment as outlined, using the older methods, has proved itself quite potent and perhaps equal to our more modern treatments. For the complications local tepid baths are used for balanitis and phymatosis; capsules of turpentine or cachets of salol for cystitis, rest in bed with the testicles elevated and resting on a thin board, and mercurial ointment locally has been the treatment of epididymitis. Three weeks

have been the average time for recovery to take place.

There have been quite a goodly number of cases of ulcus molle, some being complicated with bubo, while many have been phagedenic. Treatment varies according to the appearance and site of the lesion. The use of antiseptics, singly or combined, have usually been sufficient to bring about cicatrization. Our old friend iodoform, banished for years in civil practice, has regained all its former favor during the war and in ulcus molle it has unquestionably maintained its former high reputation. In some few cases cauterization is required. For inguinal lymph node infection an incision, or more accurately puncture, followed by an injection of iodoform ether has been successfully used when suppuration has taken place.

The Pernicious Vomiting of Pregnancy.—Donald in *Detroit Medical Journal* (Jan., 1918) says nausea and vomiting during the early months of pregnancy occur in one-third to one-half of all women.

Symptoms: Pernicious vomiting may occur either in an acute or chronic form, the latter being by far the most frequent. The acute type which is probably always toxic in character is very rare. In the chronic form, which may be reflex, neurotic or toxemic in origin the vomiting may continue for weeks or even months, during which time the patient becomes emaciated. At the same time the pulse rate rises, fever is usually absent, and the black vomit of the acute variety is lacking until the very last stages of the disease.

Prognosis: The prognosis is excellent in the reflex and neurotic forms provided they are properly treated. In toxemic vomiting, in view of the serious organic lesions and changes in metabolism, the prognosis is always grave.

The occurrence of the black vomitus in the course of the disease is of ominous prognostic import as is the occurrence of jaundice.

Treatment: Many forms of unscientific procedures such as dilation of the cervix as recommended by Copeman have been proposed as cures. Each one has had its followers for a time, but one by one they have all dropped into oblivion.

In the past few years a few men have tried to apply organotherapy, using extracts of corpus luteum on the basis that some abnormality of the ovarian secretion is the cause of the disease. There is no basis for believing that the ovarian secretion is a cause for the vomiting.

The patient should be put upon soft diet and if this treatment is not followed by an improvement in two or three days she should be removed to a hospital and all feeding by mouth should be stopped. Nutritive enemata may be given. If the vomiting ceases, soft food may be given in small quantities in two or three days and gradually increased. In the meantime the pulse must be carefully watched. As long as it stays down it is safe to continue nursing the patient along. If the vomiting persists the pulse rate will rise and there is the danger signal. More strenuous and radical measures must be induced or the patient will die. In such a case abortion should be promptly induced as it would seem to offer the only chance of saving the patient. Following the emptying of the uterus the patient should be given abundant saline enemata. The stomach should be washed out with a weak solution of sodium bicarbonate if the vomiting persists.

Trachoma.—Brav in *Medical Review of Reviews* (March, 1918) reports that trachoma in the light of our present knowledge must be considered a curable disease and if treated rationally in the early stages may be said to be free from danger to any other person. Clinical investigation leads one to the conclusion that trachoma is only slightly contagious and only at certain stages of the disease, when there is a profuse discharge. This can be seen not infrequently in neglected cases, in a class of careless patients. Trachoma in its early stages during its insidious development is no source of danger to others. There being no inflammatory symptoms and no discharge in this early stage, transmission of the disease to others is not possible.

Trachoma is essentially a chronic disease, and in its incipiency gives rise to no symptoms. It is not infrequently discovered accidentally by the physician. Sometimes it may be found in an acute stage when a catarrhal inflammation has been superadded to the already granular condition of the conjunctiva. We are then dealing with a mixed infection. Acute trachoma as a primary condition, if it exists at all, must be very rare. There is not sufficient clinical evidence to prove the existence of a primary acute trachoma. The cases of trachoma in acute inflammatory stages that we occasionally see are not of a primary character but are secondary in nature.

In treating trachoma the therapeutic agent must be applied with a distinct object in view. Palliative measures are not only useless, but are practically harmful. It is true that palliative measures often give temporary relief, but it does not shorten the course of the disease; it does not prevent corneal complications; it does not prevent the formation of pannus; it does not prevent changes in the contour of the lid, and its subsequent results trichiasis and entropion; it does not prevent recurrent inflammations, and if corneal complications are already present it has very little effect in preventing a marked reduction in the visual acuity of the individual. Radical measures alone can be and should be relied upon in bringing about a cure. Our aim in the treatment of trachoma must be:

(1) To shorten the course of the disease.
(2) To alleviate the symptoms.
(3) To prevent corneal complications and conserve vision;
(4) To prevent recurrences and relapses;
(5) To prevent trichiasis and entropion.

Only surgical measures can bring about this desired result. Of course not all patients are willing to submit to surgical measures, especially in the early stages of the disease, and it be-

comes necessary to employ medicinal agents. Copper sulphate in various forms has been used in the past. Solutions of various strengths were used. Ointments incorporating some copper were freely prescribed, and the blue pencil or copper sulphate stick was the most reliable agent in the hands of the physician.

Silver nitrate is the only medical agent that is useful in the treatment of trachoma, and if long continued will eventually bring about a partial cure and in mild cases a complete cure. Silver nitrate does not injure the corneal epithelium and is therefore to be preferred to copper sulphate. A 25 per cent. solution of boroglyceride is a valuable agent and after its application patients feel greatly relieved.

Whooping Cough.—Loge in *Therapeutic Gazette* (Mar., 1918) reports he has not been able to make any arbitrary, or hard and fast, rules as to the amount used, or as to the intervals between doses. Ordinarily he begins with 5 c. c. (one-half mil), corresponding to 60 million of bacteria of combined pertussis vaccine. If there be a marked reaction, either local or constitutional, it is considered a contraindication to an increase in dosage, then wait a few days for the reaction to subside. With each subsequent injection increase the dose over the preceding one from .1 to .3 c. c. He never uses more than 1 c. c. (1 mil), corresponding to 120,000,000 at one time. The second dose is given on the second day following the initial dose and the subsequent doses at intervals of three to four days. The severity of the "whoop" rather than the age is taken as a guide to the dose.

Where children have been exposed to whooping cough the vaccine is administered as a prophylactic and no pertussis has developed.

More satisfactory results will be obtained if the vaccine is used in the early stages of pertussis.

The therapeutic results noticed are, that after the second or third injection the paroxysms are not so severe and very much reduced in number.

After the paroxysmal "whoops" have disappeared there sometimes remains a slight cough (bronchitis?) for a week or so which is of little consequence.

Tuberculin.—Baldwin in *Therapeutic Gazette* (Mar. 15, 1918) arrives at the following conclusions regarding the use of tuberculin in tuberculosis:

Tuberculin is one of the most mysterious medicinal agents used in tuberculosis. It has such a powerful, explosive effect at times, which is fraught with danger, that no little study should be devoted to its action by physicians who use it. It is regrettable that few acquire such knowledge before embarking on the experiment. The consequences of such superficial conceptions as may be prevalent are twofold: either the tuberculin is used too timidly, or too recklessly. In both cases the patient really fails to get a fair deal. The first method has the merit of safety, but normal saline might accomplish as much. The second involves danger of harmful reactions, depressing to the patient and likely to aggravate the disease, more especially lung tuberculosis.

Tuberculin is an agent of limited application with safety when employed in quiescent pulmonary tuberculosis.

It is not immunizing in the sense that relapse is prevented, altho it may diminish the number of febrile exacerbations during the course of the disease.

It is contraindicated in active, progressive pulmonary tuberculosis.

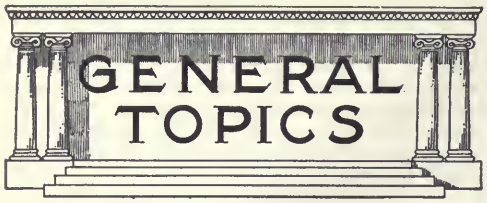
It can be used with benefit in reacting doses for certain localized or circumscribed tuberculosis.

The Treatment of Gonorrhea.—Barney writes in *The New England Medical Gazette* (Feb., 1918) that the question of treatment of gonorrhea may appear at first sight to be a hackneyed subject. But the very fact of its being still under discussion indicates that the last word has not yet been said, nor a certain and rapid method of cure found.

To be successful, the treatment must depend upon an accurate diagnosis.

Sexual excitement must be eliminated, together with alcohol in all forms. The prohibited drinks should also include ginger ale, tonics and all charged waters. As regards food, the harmful things are spices and all kinds of seasoning. The only efficient internal medicine is sandalwood oil in ten-minim capsules thrice daily after meals, or if not well borne, twice daily, or even in five-minim doses if the larger amount cannot be tolerated. Potassium citrate is of some value, but no more so than very large amounts of water and milk. Irrigations should be begun at once and given daily if possible or as often as circumstances will permit. A small (No. 15 French) soft rubber catheter and a syringe of from 100 to 200 c. c. capacity. The catheter, well lubricated, is gently inserted about half way down the urethra and the canal irrigated back to the cut-off muscle by gently and alternately compressing and releasing the thumb and forefinger at the meatus. The irrigating fluid should be as warm as can be borne and at least a pint should be used. Permanganate of potash will be found the most efficient drug and if used in the proportion of 1:400 does not irritate appreciably. A one-grain tablet crushed up in one pint of water makes a solution of this strength, fresh for every occasion.

The seminal vesicles can be irrigated with antiseptics (argyrol or silver nitrate) by injections of these solutions thru the scrotal portion of the *vas deferens*, and in some cases benefit is obtained by one or two such treatments. Incision and drainage of the seminal vesicles or excision is necessary in certain cases, after every other method has proved inadequate. Inasmuch as this operation is distinctly in the realm of major surgery, it should not be lightly advised.



Banana as Food.—Numerous digestion experiments were performed by Pease and Rose (*Amer. Jour. of Diseases of Children*, Nov., 1917) to determine the food value of the banana. The results of their experiments show that the banana is a useful fruit that can with profit enter liberally into the child's dietary provided it is fully ripe or well cooked. If eaten baked in the yellow stage of ripeness or if eaten raw when fully ripe, the banana makes a delightful and highly nutritious article of food. Its composition does not warrant the use of the banana as the main component of the child's dietary, but it can compete well with other fruits and is decidedly to be preferred to candies. The nutritional value is relatively high, approximately one calorie per gram of pulp; and its carbohydrates, when it is fully ripe or cooked, are not less assimilable than those of cereals and potatoes. In the raw food the digestibility is directly proportional to the ripeness of the fruit. There is no positive evidence that the banana influenced bowel movements. In the many tests there was no suggestion whatever of any deleterious effect from consuming large amounts of fully ripe bananas. Prolonged use of the underripe fruit, on the other hand, developed undesirable symptoms. The banana ought not to be eaten raw until after the brown spots begin to appear. The brown color of the peel, however, should not be confused with the darkening due to bruises. An injured banana is soon invaded by molds and yeast cells. The banana properly handled and allowed to ripen is a wholesome food, uncontaminated by dirt and pathogenic germs even if purchased from the push cart in the congested streets.

Every Doctor in the Medical Reserve Service Corps.—What an ideal situation it would be if every doctor in the United States who is mentally, physically and morally fit were in this corps.

The time is coming, and in the immediate future, when the Medical Reserve Corps of the army must be immensely augmented, and so as to enable the surgeon-general to have at his command for immediate assignment, as conditions demand, a sufficient number of trained medical officers, let us take the above thought seriously.

We all know, from past history, the conserving value of an efficient medical corps, and this means number, as well as training.

A statement made by one high in authority in the surgeon-general's office, "that our fighting forces would be disseminated by sickness and casualties in six months were it not for an efficient army medical corps," clearly emphasizes the importance of every doctor in the United States, meeting the requirements above referred to, accepting a commission in the Medical Reserve Corps of the United States army.

The struggle in which we are now engaged, and of which we are preparing to take such a prominent part, depends for its success as much upon the medical profession as it does upon our combatant forces, and while we do not know that any such intention as herein suggested is in the mind of the surgeon-general, it would at least give him the necessary corps of medical officers, upon which to draw, and thus serve the best interests of our country and the best interests of the medical officer serving.

The Common Soda Water Glass Must Go the Way the Public Drinking Cup.—The public drinking cup was found guilty of causing so many epidemics that it was long ago abolished in nearly every state. But until recently little or nothing has been done to curb the dangerous tendencies of the soda water glass, which has even greater possibilities for evil than the common cup. A soda glass may be used by many different persons, and the nature of the mixture it contains makes it a much more favorable breeding place for germs than a cup used only for water, says the *N. Y. American.*

An examination under the microscope of one carelessly washed soda water glass revealed in the thick coating of filth which covered it both inside and outside more than 20,000 decaying human cells and bits of dead skin. Clinging to a single one of these cells there were counted 150 disease germs. The total germ population of the glass was estimated at 3,000,000, representing a dozen serious diseases.

Dr. Tanza, of the United States Public Health Service, believes that the dirty soda fountain has a great deal to answer for in connection with the spread of tuberculosis. He has frequently seen men and women in the advanced stages of consumption drinking at soda fountains where no effort was made to cleanse the glasses and other utensils beyond a hurried rinsing in standing water.

Children are most seriously menaced by the dirty fountain because they are so fond of soda water and ice cream and because their powers of resistance to disease are not yet well developed. Science is sure that there is no more certain way of exposing boys and girls to a wide variety of serious diseases than by letting them spend their nickels at soda fountains which fail to sterilize their glasses and take other sanitary precautions.

In the attempt to abolish the dirty soda fountain it is not sufficient to insist merely upon the equipment necessary to give sanitary service. The best equipped fountains are often the most unsanitary on account of the indolence and ignorance of their employees. What seems to be needed are stringent regulations for safeguarding the health of patrons of soda fountains in every possible way with severe penalties to the proprietors as well as to the clerks for neglect.

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Physically Defective or Physically Unfit.—The interpretation of health conditions as revealed by the draft examinations and rejections leads to a certain degree of satisfaction. During the Civil War, according to Provost Marshal General Crowder, 31.69% of the men summoned were rejected, while only 29.11% of the men examined in the recent first call were exempted because of physical disabilities. The discrepancy between the two figures is not very large, but when one recognizes the advances that have been made in medical diagnosis and physical examination, it is apparent that the results indicate a marked gain in physical superiority of the present generation over that from which were selected the valiant defenders of the Union during the 60's.

There are marked limitations, however, as to the degree of congratulation that is warranted upon considering the causes responsible for rejection. The realization that almost 22% of rejections were due to ocular defects should stimulate inquiry into the causes of conditions responsible for defects of vision that interfere with the performance of national service in time of emergency. Defective teeth caused 8½% of rejections, hernia approximately 7½%. The severe defects due to actual infections were by no means as numerous as those directly attributable to gross carelessness, ignorance and indifference. Looking behind tabulated reasons for rejections one sees a group of men generally regarded as strong and vigorous for satisfying the normal conditions of life, but below standard for the purpose of fulfiling their patriotic duty.

A difficulty arises in contrasting the rejections in the eastern part of the United States and those obtaining west of the Mississippi. Alabama was the only state east of the Mississippi that passed as many as 75% of the men called for examination, while 13 of the 22 states west of the Mississippi attained this excellent figure.

The meaning of this difference is not to be lightly touched upon because the explanation may involve a large number of causes including differences in climatic conditions, variations in population, racial stock, carefulness in interpreting the instructions for examiners, density of population, variations in wage scales, character of occupations and similar other items which naturally affect the well being of the population.

In the light of the conditions causing the exemption from active military duties, one may properly ask why advantage cannot be taken of the number of men substandard for bearing arms, but who nevertheless are capable of performing government service to the same extent that they were performing civil, commercial or industrial service under conditions of peace? The vast amount of clerical work required in such

departments as those of ordnance, quartermaster, paymaster and similar noncombative branches of service should provide an opportunity for the employment of those men whose physical defects will not interfere with this type of national service. It is unfair to a large number of men in the community to be rejected for flat feet, while their mentality, executive ability, organizing power and administrative value might be claimed by the nation in such a manner as to free the more able bodied men, free from physical defects, for the more important work for which they are preeminently fitted. It patently is wasteful of man power to reject a man because of conditions of the teeth or the eyes when these conditions do not unfit him from performing types of service for which there are many counterparts in military organization.

A large number of the individuals at present engaged in hospital, dispensary, laboratory and social work belong to groups of the technically unfit whose vital power is great, whose enthusiasm and loyalty are unquestioned but whose physical condition does not permit them to be classified among the perfect specimens of humanity. Vocational adjustment finds them performing their duties satisfactorily and the mere fact that their employer would become the nation instead of a small institution should not suffice to stigmatize them as inferiors, unfitted for performing splendid work for their country.

The drafting of a nation demands the classification and reclassification of the constituent groups composing it. In times of national struggle there must be a place and an opportunity for every one to do his little part in working out the national problems. One hears frequent reference made to the reeducation of the crippled soldier and some constructive attention is being devoted to the important work of reclaiming those who have been declared physically unfit. To this plan there should be added an elaborate systematization of the potential serviceability of individuals with the view of securing the most satisfactory adjustment of citizens to service. If the nation could be brought to the point of regarding the individual unfit for service as a national liability rather than as an asset there would be a more strenuous endeavor made to utilize the vast majority of those now exempted because of defects which only unfit them for one part of military life and experience. Mental defects are properly esteemed a wastage of human power but nevertheless vigorous attempts are made to enable mental defectives to rise as high in the scale of efficiency as their limited brain power will permit. It is time to make an equally vigorous struggle to enable the men with minor physical defects to attain their greatest potentialities. To classify men as generally unfit for military service is to destroy their right to maximum development in assisting the army or navy in capacities minor in character, tho no less essential for the perfection of their organization.

The local exemption boards should be empowered to indicate certain types of work in which each one of the substandard applicants might be employed. The analogy exists in large industrial establishments where medical examination precedes employment. The discovery of physical defects does not exclude the applicant from all occupations, but merely serves to insure his occupation at tasks or in processes that will not suffer because of his disability, nor in any way react unfavorably upon his own health and welfare. This lesson merits study in connection with the new branch of

the national army so soon to be mobilized. Man power may win the war. Careful discrimination must be made, however, between the physically imperfect and the physically unfit.

Those responsible for the direction of the new draft have already recognized the importance of saving for service those formerly rejected. A new order has gone forth classifying registrants under four heads:

Class A: Men physically fit for general military service.

Class B: Fit for military service when cured of incapacitating ailments.

Class C: Fit for limited service only.

Class D: Unfit for any service.

Under these classifications men who have been rejected because of curable diseases or defects will be remanded to military hospitals and placed under adequate treatment as soon as they have been certified for service. Men who have had special training, but who possibly may have only one arm, or one leg, or one eye, will be available by being certified for the type of work in which they have had experience. By this wise provision, the number of men eligible for service will be markedly increased, and each man will have an opportunity to give service in proportion to his ability, training and experience. There is a serious responsibility thus added to physicians serving with exemption boards, of recognizing the potential usefulness of applicants and the number of certifications as to ineligibility because of physical defect should be materially decreased.

War Protection of Childhood.—The destructive effect of war upon the health of the military and civil population requires little accentuation, inasmuch as the mind of man is prone to dwell upon horrors and calamities with greater ease and freedom than upon the more pleasant phases of human experience.

Goler, in discussing "War" (*New York State Journal of Medicine,* March, 1918), points out the effect of military indulgences upon the civil population. Fortunately the history of past experiences is not likely to be repeated because the most notable diseases following in the wake of armies and military occupation have been attacked and overcome by modern science. The fatalities of typhoid fever, smallpox, dysentery and similar contagious diseases no longer take the toll that was exacted during such struggles as the Russo-Turkish War of 1828, the Civil War, or the Franco-Prussian War of 1870, or indeed the more recent Spanish-American conflict.

Protective measures have mitigated the incidence and almost eliminated the pestilences which robbed nations of greater vitality than have bullets, bayonets, swords or mortars. The ingenuity of modern science has established a bulwark of safety that has decreased the accident mortality rate from wars, providing that it is possible to give the necessary surgical attention within a reasonable period of time.

The constructive phases of health work form the modern development of thought insofar as they are now developed while the conflict rages. The antidote for calamity is preventive medicine which aims to safeguard present and future generations from the diseases and defects to which attention has been directed thru the experiences which war has brought to the surface. The main factor in determining the future of the nation lies in the preservation of the growing population.

Numerous defects which have been revealed through the examinations for the draft indicate the degree of national indif-

ference to or neglect of the welfare of our immature but potential citizenry. Every agency in the country is now awake to the necessity of protecting childhood. It is a remarkable tribute to the stability and power of nations to find that elaborate campaigns are being inaugurated to limit the preventable diseases during childhood and infancy, to safeguard the welfare of motherhood and to ascertain and correct the frequent disabilities so readily noted during the period of attendance at school.

In order to protect troops stationed at cantonments from communicable diseases, so prevalent in children of the school age, the United States Public Health Service has undertaken the medical inspection of school children (*Public Health Reports,* March 8, 1918). A reduction of contagious diseases in the general population necessarily will result from such careful observation. Of greater importance, however, are the results to be achieved thru the detection of physical defects and their correction before they become permanent and result in a loss to national vitality.

The frequent affliction of children with tuberculosis, malnutrition and similar constitutional diseases incidental to environmental maladjustments calls forth strenuous efforts to overcome them before life and health are threatened.

The main instrument in attaching most of the prevailing errors in the hygiene of school children is education. The processes of education, however, too frequently are responsible for the very conditions that they desire to eradicate. Among the measures essential to the preservation and welfare of school children, none merits greater consideration, at the present time, than the development of open air schools.

Kingsley & Dresslar (*Open Air Schools,* Bulletin 1916, No. 23, United States Bureau of Education) point out most successfully the advantages of such schools upon the physical and mental development of children. The spring season is a most fitting one during which to emphasize the value of open air schools from the medical, social and economic points of view. In addition to the open air schools, there are required medical school inspection, school nurses, a rational school curriculum, a longer school year and various other features accepted by advanced educators as necessary for the promotion of sound minds and bodies.

The crux of the current campaign, instituted by the Children's Bureau, lies in children of the pre-school age. This is a subject which has received inadequate attention and discussion. Careful thought is demanded of physicians interested in preserving this portion of the population from the devitalizing diseases, defects and disabilities which have been appreciated but generally ignored.

It is certain that war is stirring up a new consciousness of the value of human life. It is similarly patent that childhood is being recognized as the strategic point of attack in counteracting the losses due to the casualities of war. The spiritual values of patriotism are being transformed into constructive measures for the alleviation of human misery and suffering. War may be a curse in the eyes of some but its incarnated blessings will redound to the advantage of the growing generation. The next generation will reflect permanent achievements thru increased vitality and power. The future will bear witness to the fact that out of the cataclysm revivified nations and stronger races of men will have been created.

Problems of Those Handicapped by War Injuries.—The government is making provision for disability insurance for soldiers. The return of a large number of handicapped men to civil life will create a new problem in industry. Carl Hookstadt, in the *Monthly Review of the United States Bureau of Labor Statistics* for March draws attention to a variety of problems arising from the employment of handicapped men in industry. Assuming that the injured man has been duly recompensed according to law, and has been functionally restored and industrially reeducated, what part is he to play in the industrial life of the nation?

The general tendency of industry has been to discriminate against the handicapped worker who undeniably is an extra-hazardous industrial risk. The problems of labor have been calculated in terms of normal workmen with whom the disabled men must enter into competition. Systems of workmen's compensation have been organized on the basis of a consideration of the normal hazards of industry to men unhandicapped by permanent disabilities.

Industrial discrimination against men injured in the service of their country will not be tolerated on the basis of patriotic sentiment and fervor. In order to secure a fair field and no favor, however, economic readjustments will be necessary and new types of legislation devised to protect industry and the workers against difficulties which will naturally arise from the employment of military cripples. It will be impossible to depend upon the liberality, mercy and lofty motives of employers. The practice of sharp competition must be offset by a type of legal protection that will insure the dispensation of economic justice to the new group in industry whose effects at present are the basis of conjecture and theoretic academic interest.

Inasmuch as disabled soldiers and sailors may properly be deemed wards of the nation, any new scheme of compensation must take cognizance of the responsibility of the federal government in meeting a part of the cost in order to make certain that the employment of these men be unrestricted. Disabled men must not be penalized for handicaps achieved in national service.

The states will undoubtedly find it necessary to amend their legislative enactments so as to provide for the just payment for injuries received subsequently in the industrial field, regardless of whether the federal government participates in such or not.

Industry must pay its proper share of damages for industrial accidents tho new bases of compensation may be necessary and various readjustments may be demanded to secure equitable distribution of the costs between the states and the government.

The problems of reeducation of the disabled are not solved until the reeducated soldier or sailor actually is reestablished in industrial life. This must be accomplished without disturbing the ordinary principles obtaining in industry for normal men. The essential protection of industry must be increased thru the reduction of industrial hazards and the general planning for an adaptation of the powers of men to the particular processes for which they are employed.

To await the return of armies to civil life before attacking the problems that must necessarily ensue would be shortsighted and lead to hasty impulsive legislation, inadequate in solving the all too numerous difficulties which will present themselves. The

experience of belligerent countries has already evidenced a number of the inevitable difficulties which will be met and it is desirable that commissions be established for the purpose of considering the problems with a view to formulating tentative plans for meeting them.

Inasmuch as physicians are taking a larger part in stabilizing industrial conditions and for the most part have taken a stand opposed to the employment of men with minor physical defects, it would be timely for medical organizations to consider the wider social point of view which must be possessed by the examiners of employees thruout the land. Tables have been compiled suggesting the economic value of the physically handicapped. Are these tabulations to remain in force when the character of the industrial population undergoes a marked change owing to the advent of a comparatively large group of ex-soldiers and sailors who have suffered mutilations and disabilities which were not given due consideration in earlier schemes for industrial compensation? The physical examination and certification of employees will take on a new aspect after the ravages of war are transformed into the handicaps of peace.

The medical phases of the new industrial army are numerous and their seriousness is increased by reason of the fact that physicians themselves will be among those suffering injuries which will undoubtedly preclude their return to full activity. What is to be the future of the handicapped physician? This is a problem with which the medical profession should concern itself at its next annual meeting, if only to appoint a special committee to ponder over the problem and outline some constructive plans for the reassimilation in medical life of those who have given so freely of themselves in behalf of humanity.

Health and the All-year School.—The annual school term in most of the cities of this country does not exceed 180 days. During recent years school officials and the general public have begun to recognize that the long summer vacation is not to be regarded as an educational asset, but is really a community liability. Bulletin 1917, number 45 of the United States Bureau of Education, discusses Summer Sessions of City Schools and expresses the opinion that a movement in this direction merits encouragement.

The minds of children are subject to normal daily rhythms of rest and exercise but there is no period of time when mentality may be permitted to lie dormant, free from the urge of intellectual effort. The long vacation has fastened itself upon school systems so thoroly that subterfuges have been required as excuses for the introduction of summer sessions. Summer schools have been organized to keep children off the streets, to supervise play, to give opportunities for those deficient in some subjects to gain strength, to facilitate an extra promotion for those capable of more rapid progress. In 68 cities summer classes are provided for the entire school grading of the elementary school and the duration of the sessions varies from four to twelve weeks.

During a period of war the importance of protecting the juvenile population becomes paramount. It would appear to be particularly desirable to extend the opportunities of all year schools under the present day urge of safeguarding children against delinquency and misconduct, as well as for

promoting their school progress in the most advantageous manner.

From the standpoint of health the question may be raised as to whether an all year school is prejudicial to the health of the school children or is in any way dangerous to the well being of the community. The experience of New York City during the epidemic of poliomyelitis, in the summer of 1916, is most reassuring. Approximately 45,000 children attended the summer sessions while the disease was ravaging the city, and, so far as records are available, there is no indication that school children attending school were particularly exposed to the epidemic and, in fact, the rate of attack among such children was negligible. The supervision and control of children in public schools is a distinct aid in the management of epidemic diseases. It is far easier to protect a community from the diseases of childhood while the children are under school discipline, subject to medical inspection and the home visitation by nurses, than when their whereabouts are unknown to the health authorities and their goings and comings are beyond the jurisdiction of the educational department or the health officers.

The reports thus far made in cities where the all school year has been tested indicate that the health of children who have attended such schools has not been impaired in the slightest degree. Those familiar with the conditions of housing and the lack of playground facilities require no argument to convince them of the greater potentialities for health that are resident in modern up-to-date school buildings as opposed to the conditions obtaining in the homes in which school children live. The continuance of the health regulations and medical inspections thruout the school year guarantee the continuance of health habits and the development of better methods of living without any breaks, such as ordinarily occur during the long summer vacation. Some reports demonstrate that the children who have been "enjoying" a long vacation return to school in September without any improvement in their physical condition superior to that noted among children who have remained at their studies.

The advocates of the long vacation are wont to dwell enthusiastically upon the advantages of children going into the country and living an active life in the sunshine, with plenty of good food, exhilarating exercises and general health-abetting conditions. Unfortunately, the percentage of children able to enjoy such conditions is so limited that the argument is scarcely applicable to the problem. Summer as a rule is the season of the year when sickness during the school age is at its lowest terms and, in consequence, continuity of study may be expected with greater reason during the summer session.

Summer schools assure fresh air, comfort, quiet, alternation of rest and exercise, physical and mental drill and discipline. In addition there is medical inspection, supervision of habits conducive to hygienic living. The school serves as a link between the official authorities and the homes, for the guidance, protection and conservation of childhood against diseases, accidents, crimes, immorality. As the power of the home diminishes, the need of the school as a constructive social health agency increases. Its possibilities for health protection during the summer months are beyond estimation or conjecture.

It is urged by a few that continuous mental work is harmful to the minds of the

children. Mental fatigue among children has been grossly exaggerated, all too frequently. What is termed mental fatigue is a state of mind arising from the interaction of such unhygienic factors as under-nourishment, faulty ventilation, late hours and fatigue inducing excitement. The brain of a child is ever at work. The real problem is whether ordered application of the mind is accompanied by as great fatigue and injury as results from the dissipation of mental energy thru unbalanced and unwise direction of childish interests and enthusiasms. Does the more or less complete neglect of the mental development of children during the vacation period represent rational mental hygiene?

From the standpoint of physical and mental health the all-year school is to be recommended. Its obvious advantages from the educational standpoint require little discussion, save insofar as the habits of teachers are involved and their attitude toward innovations in school administration. The vast alteration in the character of the American home, due to the urbanizing of community life, and the deteriorations arising from industrial changes incidental to the war, make the school a more serious factor in the development and protection of juvenile character than at any time since the beginning of the public school system. The physical, mental and moral health of present day communities calls for the all-year school. The school is destined to be more than a center of academic instruction. It is to be a health center—a social center—a center for Americanization. There can be no intermission in the work of building minds and bodies. From the standpoint of individual welfare and public health, school systems require reorganization along lines abreast of teachings of modern physiology, psychology and hygiene.

A Government Medical Journal.—The problem of supplying medical literature to the medical officers of the army has been solved in an excellent way by the issuance, under the auspices of the Surgeon General, of publications devoted to abstracts of war medical literature. *War Surgery and Medicine,* under the editorial direction of Major M. G. Seelig, gives promise of becoming a most useful medium of supplying to the medical personnel abstracts of important medical papers which will be of service in promoting the efficiency of the corps, without taking up too much time of the limited hours for recreation available to the busy medical officers.

The scope of the official medical journal will include internal medicine, laboratory medicine and the surgical specialties. Volume 1, Number 1, presents excellent collective abstracts dealing with "Surgery of the Zone of Advance," "Gas Gangrene," and "Trench Foot," together with a restatement of the general principles guiding the treatment of wounds of war as presented in the conclusions adopted by the Inter-Allied Surgical Conference held in Paris one year ago.

The transformation of practitioners from civil officers to military life afforded inadequate opportunity for a thoro preparation in war medicine and surgery. The professional training of our expert civil surgeons was not such as enable them to assume the responsibilities of thoro instructors of junior officers in the army. The restrictions placed upon field officers and the difficulties involved in receiving foreign medical publications increased the obstacles to the rapid education of the newly mobilized Medical Officers Reserve Corps. The attempt of the government to counteract these shortcomings must be hailed with approbation.

The current literature of the day relating to the specific topics in which medical officers must be thoroly versed in order to perform their services with the highest degree of effectiveness will now be made available in readable form, free from verbosity, dross and academic argument. The complete files of the government publication will present a running comment upon medical research and experience in every field of military medicine. The spirit which prompted publications for the richer information of the medical personnel is in line with an intelligent conception of the necessities arising from the emergent nature of the medical mobilization.

The profession, as a whole, is to be congratulated upon this new literary venture, which will save from oblivion many valuable reports and statements of educational value which otherwise would have limited circulation or possibly be lost in the obscurity of the original journal of publication.

Health Insurance.—The legislature of the State of New York has had before it a bill introduced by Mr. Nicoll entitled, "An act to conserve the human resources of the state by establishing for employees and dependent members of their families a system of mutual health insurance funds under the supervision of the industrial commission." This again brings before the people of the State of New York the question of the advantages or disadvantages of a system of health insurance.

During the past year nine states have decided to appoint commissions to investigate the best methods of adjusting health insurance to the conditions existent in America. Three states, at least, New Jersey, Massachusetts and California have reported in favor of the project. The United States Public Health Service in its most excellent report on "Health Insurance: Its Relation to Public Health," indicates the tremendous advantages which follow the adoption of a proper system of health insurance. The California Social Insurance Commission concludes its report with the statement, "Health insurance offers a sensible, practical method of eliminating in part the most distressing features of the present social system, economic dependency and charitable relief. . . . . Thru its beneficial effects upon two-thirds of the population, health insurance would mean a tremendous gain in public health."

Health insurance is no longer a theory. Since its adoption in Germany in 1883, there have been enacted health insurance laws in most of the large countries of the world, including Great Britain, Norway, Russia, Holland and Austria-Hungary, nor have any of these laws ever been repealed as a result of unfavorable experience. In a report of the Insurance Acts Committee of England (*British Medical Journal,* Supplement 23, June 30, 1917) it is indicated that the British system providing health insurance has worked satisfactorily and that the practitioners are almost unanimously in favor of the capitation system, but that there is a necessity for increasing the capitation fee in order to deal justly with the medical profession.

During previous years, the attitude of organized labor towards health insurance has been unfriendly, but, after a thoro study of the situation, the Health Committee of the New York State Federation of Labor has reported favorably upon the general principle of health insurance. In fact, the Federation assumed responsibility for the drafting of a health insurance bill which is

now before the New York State Legislature.

It is admitted that numerous medical organizations have passed resolutions of protest against the adoption of any system of health insurance. Despite the opposition which has been manifest, thru fear that medical interests are not properly conserved, the popular demand for health insurance, in view of recent developments, will undoubtedly tend to promote its advancement. The results of the examination of recruits have brought home the fact that a large proportion of young men are physically unfit for national service. The highly commendable sickness surveys conducted by the Metropolitan Life Insurance Company have shown a large amount of illness causing a severe drain upon the finances of families, but particularly decreasing the vitality of the wage-earning community. In the report dealing with the principal cities in Pennsylvania and West Virginia, for example, involving the study of 374,000 persons, there was discovered a sickness rate of 19.6 per thousand. Of those reported ill, 94.2% were unable to work, while 26.6% had no physician in attendance. The principal causes of illness were accidents and injuries, but influenza, pneumonia, tuberculosis, diseases of the stomach, functional disorders of the nervous system, diseases of the heart, etc., were well represented.

The Growth of the Insurance Idea.—The assumption by the Federal Government of insurance risks for boats and men, for death and disability, has given a new status in the public mind to the value and importance of health insurance; and it is probable that the next few years will find the establishment of such laws beyond the pale of argument. Now that labor has awakened to the advantages of health insurance to the working-people from the standpoint of social and health benefits, the large mass of the people of the country will in all likelihood line up in favor of social insurance. The medical benefits to the sick wage-earner and the economic advantages of health insurance are undeniable.

The medical profession will not be able to stem the tide which is surely setting in. It would seem, therefore, to be very essential that medical organizations—and medical men generally—consider the subject in a more friendly and cooperative spirit and take a more active part in the discussion of its various phases in order that they may assist in the formulation of laws which will be not only more practical and effective, but more satisfactory and fair to the profession. Mere obstructive tactics are certain to place the profession in a false light and instead of postponing or preventing the progress of these social movements, only defer the proper solution of the great economic questions involved and deny those whose interests are most affected from having the influence they should

The House of Delegates of the American Medical Association passed a resolution outlining four legislative demands in connection with health insurance. These involved 1st, freedom of choice of physician by the insured; 2nd, payment of the physician in accordance with services rendered; 3rd, separation of the functions of medical supervision from the function of daily care of the sick; and 4th, adequate representation of the medical profession on the appropriate administrative bodies. The bill pending before the New York State Legislature seeks to meet these demands. The first and third items are adequately satisfied. The provision for payment of physicians depends upon regulations to be formulated

by an industrial commission for the arrangement of the funds, "for providing medical, surgical, dental and nursing attendance and treatment, hospital treatment, laboratory facilities, medical and surgical supplies and maternity care, and other remuneration in accordance with services rendered." The words "visitation" or "capitation" do not appear and thus the question arises as to the interpretation of the words, "remuneration in accordance with services rendered."

The adequate representation of the medical profession on administrative bodies is similarly somewhat vague, altho the industrial commission is empowered to create "a bureau of health insurance with competent medical direction." Here, too, the phraseology needs clarification. It is obvious that an attempt has been made to meet the demands of the American Medical Association. If the verbiage is insufficiently clear, steps should be taken towards making the intent of the proposed law clear and explicit instead of opposing the bill as wholly undesirable and contrary to the spirit of modern medical practice.

Only a few years ago when workmen's compensation acts were being considered there was vigorous opposition; and arguments were advanced which threatened society with a large variety of penalties if such laws were to be placed upon the statute books. Today the advantages and success of the workmen's compensation acts are not only admitted but they are regarded as having promoted the general welfare of society. There is little reason to doubt that the adoption of rational and fair health insurance laws will redound to the benefit of the community without in any way interfering with the economic status or development of the medical profession. Careful consideration of health insurance in its social, economic, hygienic, educational and medical aspects will indicate that it represents a move in the right direction towards the increase of national efficiency and the promotion of human welfare.

With all the earnestness at our command we urge thoughtful medical men to regard the "writing on the wall" concerning health insurance, and recognizing the trend of affairs, to neglect no opportunity of helping to reach the best possible solution of the many momentous problems that are bound to arise. Thus only can we expect to exert the influence our essential role in the proposed plans warrants, and shape forthcoming legislation so that it may be just as well as beneficial to all concerned. Our pages are open to the discussion of this problem *pro or con.*

The Health of Country Children Compared to Those of the City.—Tradition has handed down the belief that country children must necessarily be more healthy than their urban brothers and sisters. Despite notable changes in the conditions regulating the lives of the infantile and youthful dwellers in city and rustic districts, the view has been general that the former will inevitably grow up to be puny specimens of humanity, while, as a matter of course, those bred and brought up in the country will develop into men and women of fine physique and ruddy health!

Unfortunately, figures do not bear out such views. Indeed, statistics serve to show that such deductions are the results of ignorance or of faulty observation. On the whole, town bred children compare very favorably with children in similar circumstances in the country. The environment of a slum-reared child does not conduce to physical perfection, but it must always be borne in mind that slum raised children are becoming fewer and fewer, for the very obvious

reason that slums are being fast swept away and the day is dawning when there will be no more. Moreover, the health boards of all progressive cities make a special point of safeguarding children in every way possible, the consequence being that poor children are often much better cared for than those of the same station in the country. Again, in a general way, the sanitary conditions are better by far in the city than in the country, so that the boast that rural is superior to urban environment will not bear close analysis. With regard to diet, a matter which plays a great part in the rearing of a healthy generation, it may be stated emphatically that in the ordinary course of events, the city child is usually fed more judiciously than the youthful rural denizen. It is notorious that farmers and their wives eat more indigestible food, and suffer from dyspepsia in all its forms more severely, and frequently, than city adults. It is reasonable, therefore, to presume that if they are careless as to diet with themselves, they will be equally careless with their progeny. All in all, then, it is a fallacy to affirm that merely because a child is born and brought up in the country that he or she must be stronger physically and constitutionally than one who is reared in a city. The country has its unmistakable advantages, but the city evidently has its countervailing conditions as a place of abode for the young of the human species. At any rate, the most recent and dependable statistics point conclusively to the fact that children of the city are not only quite as healthy as those of the country, but in physique, stamina and resisting power not infrequently markedly superior. Surely no other conclusion seems warranted if the information thus far available concerning city and rural recruits to the National Army is to be relied upon.

Is the Health Department in Danger?—There is a widespread sentiment that the investigation being made of the Department of Health of New York City as we go to press has been instigated for political purposes. We are not ready to judge Mayor Hylan's motives thus hastily—or harshly—and before placing any such sinister interpretation on his critical attitude toward the Department, we want to be very sure that he has not been misled by those on whom he is obliged to depend for information. Mayor Hylan is a man who has impressed us as a public official who has the needs of New York City at heart, and who has sought to serve the interests of the people to the best of his ability. He has held our respect, and we have looked for real progress under his administration.

At the present writing, therefore, we prefer to consider Mayor Hylan as simply misinformed and misguided in the position he has taken toward certain of the bureaus and activities of the Health Department. If there is any graft or dishonesty in any of the undertakings of the Department, by all means let it be ferreted out and the guilty parties given the punishment they deserve. It would not be surprising, nor would it carry any special significance, if employees of the Health Department are found to have resorted to practices that are common to certain types of officials the world over, especially those who have charge of the dispensation of petty privileges. This abuse of official power—and violation of official integrity—should be corrected without delay, but under no consideration should it be allowed to stigmatize the entire Department.

As a matter of fact, the New York Department of Health has been remarkably free from graft—or the slightest suspicion of any such thing—in its vital activities or its general conduct and management. The medical men of Greater New York have not been in perfect accord at

all times with many of the administrative methods of those in authority. Certain rules and regulations have occasionally seemed questionable either in their importance or in the benefits to be expected therefrom. But there has been no hint of dishonesty—and medical men would have been among the first to detect this, had such a thing crept into the work of the Department. In the great fundamental undertakings of the Department, there has been nothing to question or condemn. No local department of health in the country has done better work, and no other department has had more capable, conscientious and zealous men in charge of its various bureaus. With few exceptions, the practitioners of Greater New York have been aware of the excellent results that have been accomplished by the Department, and taken real pride in the condition of the health affairs of the city.

It has been a great constructive force for the betterment of living conditions in the largest city in the Western Hemisphere. It has not only lowered the mortality, especially of the children, but it has decreased disease and distress. As a direct result of its work, the happiness and efficiency of the people have been substantially raised, and their economic situation has improved accordingly.

Finally, the New York Department of Health has been a constant example and source of inspiration to health officials all over the world. Especially has its influence been manifest in this country, and the noteworthy success of the New York Department of Health in improving the health of New York residents has had a profound influence wherever the importance of public health is recognized. Every city, town and hamlet has received benefit from the practical achievements of the New York Department of Health.

Therefore, however much inclined any of us may have been to question and criticize certain administrative details not in accord with our personal views, the faithful services that have been uniformly performed, the earnest capable character of the Department's personnel, and the actual results accomplished along many important lines, warrant no other attitude on the part of honest, fairminded men than that of sincere appreciation and approbation.

A Word of Warning!—In view of the results accomplished by the New York City Department of Health—and results are the best criterion of the work of a governmental agency—we feel that Mayor Hylan and his associates should be frankly told that any unsympathetic or prejudiced investigation of the Department will be looked on by the physicians of New York City with grave distrust. If the Mayor with the laudable desire to increase the efficiency of the various city departments under him, and reduce the municipal expenses as low as may be safely possible, sees fit to conduct an open investigation of the Department of Health, no one will complain. If there are ways in which the Department of Health can be conducted more economically without curtailing its essential activities, by all means let these be put into effect. The officials of the Department will be the last to object to any wise and safe economy, at the present time when this is so consistently the policy in all human affairs. But it must be constantly borne in mind that conditions of the present day have increased and complicated our health problems very materially, and any economy that means the slightest falling off in the efficiency of our local health measures will be the falsest economy possible. Particularly must all educational forces tending to inform the people concerning health matters be safeguarded, for never was there a time when wide dissemination of sanitary and hygienic information was more needed than today. Conditions, that need not be mentioned here, promise for some time to multiply the dangers of everyday life to a serious degree, and any decrease in the activities of the Health Department that tend to instruct the public in regard to the best means of promoting health and the preventing disease would be calamitous. The Bureau of Public Health Education renders particularly valuable service in this direction and no curtailment of its work should be permitted or considered. So in respect to the Child Welfare Bureau. Is there any one who will discount the fine work it has done and that has led to a reduction of infant mortality in almost every American community that

a few years back would have been inconceivable? Our New York City Health Department was one of the first to attack the frightful sacrifice of infants to the Moloch of ignorance, and what has been accomplished in this one direction alone has been one of the most impressive and convincing arguments in behalf of intelligent public health administration the world has ever seen. Surely, with such achievements to its credit, such conspicuous evidence of its value to humanity—both directly and indirectly—no interference with its activities can be thought of for an instant.

Other bureaus have also abundantly justified their continuance. From a careful and unbiased analysis of the services they are rendering and the place each fills in the coordination of the work of the Department, we doubt very much if any opportunity will be found for eliminating, or restricting them without doing far-reaching harm. Minor changes and revisions may be possible in certain lines of administration which will commend themselves as promising. No opposition will be aroused if these are undertaken and carried out in good faith. Indeed the Mayor will encounter nothing but enthusiastic support for any changes his investigator, Mr. MacBride, will find to be wise and desirable.

But any hasty or drastic action undertaken because of personal prejudices, or without good and sufficient reason, will not only be one of the most unpopular moves that Mayor Hylan can make, but will place a blot on his administration that his friends will long have reason to regret.

As these words are penned, the resignation of the Mayor's Commissioner of Health, Dr. Amster, is announced. The reasons Dr. Amster gives as prompting his course of action cannot fail to be disturbing to those who realize the menace of any disorganization of the Department of Health. Loud and bitter are the criticisms of Mayor Hylan, but here again we refuse to impugn his motives or believe that they are prompted by malign intent.

We sympathize with Dr. Amster, and can thoroly understand how impossible it was, under the circumstances, for a medical man of his calibre to hold the position any longer. Left to himself and allowed to carry out his own ideas, Dr. Amster would have kept the Department true to its traditions, and with its splendid organization to help him, would undoubtedly have carried it forward to new successes. But unfortunate as Mayor Hylan's policy has been, and unwise as it may appear to many of the Mayor's best wishers, we are not ready to attribute it to other than misinformation and a mistaken idea of his personal duty. The world is all too ready to see venality in the mistakes of our public men. We forget that they are as open to errors and unwarranted prejudices as ordinary mortals. In this present instance Mayor Hylan has evidently been sadly misled. In all sincerity, we do not believe that Mayor Hylan and his investigator, Mr. MacBride, are men who, when the true facts of the situation are placed before them, will fail to see the work of the Health Department in its proper light, and be governed accordingly. Moreover, when Mayor Hylan recognizes the professional viewpoint, and realizes that no capable, self-respecting physician will long serve as Health Commissioner unless given complete independence, he will discontinue his ill-advised, tho not wrong-intentioned custom of personally concerning himself with the administration of the affairs of the Department.

The appointment of Dr. Royal S. Copeland as Health Commissioner to succeed Dr. Amster certainly substantiates the opinions we have expressed, for while Dr. Copeland has not been identified with public health work, his well known abilities as a physician, and the esteem in which he is held by all who know him, as an earnest, forceful man of affairs, give every promise for the future conduct of the Department. Mayor Hylan appointed Dr. Copeland to the Health Commissionership with no other purpose than to place a strong, capable medical man at the head of the Department. No better answer could have been made to the Mayor's critics, or no better assurance of his intents and purposes to his friends than this appointment of Dr. Copeland.

Artificial Faces Made Necessary by War Wounds.—Much interest has been created by the remarkable prosthetic as well as cosmetic work that a number of prominent surgeons are doing in Paris on

wounded soldiers. Dr. Joseph A. Blake is reported to have achieved results that have been little short of the miraculous, while several French surgeons have also shown noteworthy skill in this direction. Unfortunately, there are a great many cases in which the destruction of tissue is so great that any cosmetic repair is impossible. Such individuals seem doomed, therefore, to go thru the rest of their lives with the most hideous and gruesome disfigurements, unless some practical means can be devised which will restore mutilated faces sufficiently to allow these poor victims of the ravages of war to mingle with their fellowmen without arousing horror and disgust.

Surgery has been able to supply new jaw bones, new palates, and new noses. The transplantation of bone and skin grafting, together with the marvelous mechanical devises of some of our American dentists have solved the problem in many cases, but in many others, the soft parts, especially the cheeks and walls of the buccal cavity, have been so completely destroyed that any repair with living tissue has been out of the question. In these cases recourse to masks has been necessary and word has recently come from Paris to the effect that the aid of some of the greatest artists has been enlisted in the commendable effort to make these artificial faces as natural as possible.

Mrs. Anna Coleman Ladd, a well known American sculptor and artist, member of the National Sculptor Society and the Boston Society of Artists is reported in particular as devoting her efforts to the aid of surgeons who are remaking the shell-torn faces of soldiers.

Mrs. Ladd, who has won fame as a sculptor of unusual talent has accomplished results which the American Red Cross has been quick to see and encourage. The series of pictures which appear on pages 252-255 show the success of her work. Everything possible in the way of transplantation and repair is first done by the surgeon, and when healing is completed, the artist is called in to meet the essential shortcomings. From photographs, measurements, and comparisons even of parents and brothers or sisters, every effort is made to provide masks closely reproducing the contour and appearance of the face previous to injury. The masks are made of copper and silver, and after being adjusted are painted the same color as the patient's face, the object being, of course, to restore the expression as near as possible to what it was originally.

Rural School Children Compared with Those in the City.—"It is to be regretted that there is such a large proportion of children of impressionable age attending school without the advantage of sanitary and medical supervision." Continuing, J. A. Nydegger (*New York Med. Jour.*, Sept. 22, 1917) declares that, "According to the last census report, there were 10,529,871 pupils in attendance at rural and city schools. Of these there were 794,000 more pupils from six to nine years of age, and 376,052 more from ten to fourteen years of age in rural school attendance than in the cities. This is all the more regrettable because many of these children are suffering from curable defects by reason of the want of skilled medical advice. The data collected by these surveys show that an amazing percentage of the children in the rural districts are defective and in need of medical attention. These investigations and others of a similar nature show that the health of the country school child is found to be from five to twenty per cent. more defective than that of the city child. Take, for instance, tuberculosis. One would fancy that here, at least, the country child, with all the advantages of fresh air, would suffer less from the great plague of our country, but the number of city children with lung troubles make up only a fraction of one per cent., while 3.7 of the total number of country children have an affection of the lungs. Another defective condition which is supposed to be one more prevalent among city school children is malnutrition. We realize its gravity when we hear that in the cities the proportion of children with poorly nourished bodies is twenty-three per cent. But should we not be still more amazed and alarmed to know that thirty-one per cent. of the country school children are listed under malnutrition? Another charge laid against the big cities is that they produce mental defectives. These investigations showed a proportion of mental defectives in rural districts of eight per cent., while that for cities was two per cent.; there are four times as many mental de-

fectives among country school children as among city pupils. It was also found that heart troubles were more than twice as prevalent in the country schools as in the city schools. When one runs over the list of disadvantages in country life compared with city life—and the list might easily be extended—one is inclined to wonder, not that the average country child is less healthy, but that his condition is not worse than it is. He has the great benefit of the pure air and the outdoor life, but he is apt to live in houses which are draughty and unheated, to walk long distances in extreme heat, cold, or wet, and to sit in school with damp clothes and wet feet. His people are less inclined to seek aid from physicians, dentists, or oculists because they have not been educated to do so except in extreme cases."

An Imperative Appeal for Medical Officers.—An urgent and imperative appeal has just been issued by the Surgeon General of the United States Army for doctors for the Medical Reserve Corps. (See letter from Dr. Gorgas on page 239.)

There are today 15,174 officers of the Medical Reserve Corps on active duty and the Medical Department has reached the limit of medical officers at the present time available for assignment. With these facts before the medical profession of this country, we believe that every doctor, who is physically qualified for service between the age of 21 and 55 years, will come forward now and apply for a commission in the Medical Reserve Corps.

The Surgeon General says: "So far the United States has been involved only in the preparatory phase of this war. We are now about to enter upon the active or fighting phase which will make enormous demands upon the resources of the country." The conservation of these resources, especially that of man-power, depends entirely upon an adequate medical service.

Drafts of men will continually follow drafts, each of which will require its proportionate number of medical officers and there are at this time on the available list of the Medical Reserve Corps an insufficient number to meet the demands of these drafts.

The real necessity for the complete mobilization of the entire profession is imperative. It is not a question of a few hundred men volunteering for service, but of the mobilization of the profession for the conservation of the resources of this country. Let every doctor who reads this editorial and appeal from the Surgeon General, which appeal is based upon dire necessity, act promptly and present his application for a commission in the Medical Reserve Corps at the nearest Medical Examining Board. If you are not informed of the location of your Board, the Editor of this journal will advise you.

Dental Infections.—The connection between dental abscesses and some genito-urinary infections seems very clear. As for the connection between dental infections and cancer cases, it has been found after radiographing the teeth of many cancer patients, usually after operation, that they often had severe dental infections. Dental infections generally last a very long time and cancer infection is doubtless a very long persistent type. If there is any place in the body where a germ can find lodgement, remain undisturbed, and acquire high resistance, it is in the teeth.—*New York Medical Journal.*

Military Morals.—One of the uses of the proceeds of the Liberty Loan that will appeal strongly to the great mass of American people is the care and attention given to the moral welfare and protection of the American soldiers.

Heretofore with the American Army and even now with some of the armies of our Allies the moral welfare of the soldier was and is a matter largely ignored. In the German armies provision is even made for immorality.

It is to the glory of American arms and American national character that of the men who wear the United States uniform a high standard of conduct is expected and demanded, and provided for. Kipling's "Single men in barracks" are not to find their prototypes in the American Army.

Gen. Pershing says there is no cleaner-living body of men in the world than the American Army in France.

THE PSYCHOLOGY AND GENESIS OF FEMALE CLOTHES: A PSYCHOSEXUAL STUDY.[1]

BY

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To the close observer of human affairs the war raging between those who would attribute all phenomena of plant and animal life to nurture, or environment, or economics, and those who interpret life from the aspect of biology, or heredity, or nature, to the biologic investigator, this controversy has not, as it would seem, an academic importance only. He can foresee that the victory of one or the other party may mold the future destinies of mankind to a greater extent than the present internecine world war.

In the closing decade of the last century it became the custom, not to say the fad, of the sociologists, especially of the radical school, to attribute all phenomena of life to environment, or nurture. Recently the pendulum has been swinging to the other direction. A new school of biologists arose which would interpret all changes in life from the viewpoint of heredity or nature. This war between the two schools with the battle cry "Hic natura, Hic nurtura" is still raging, and it behooves the clear thinker to contribute his mite to the cause of arbitration in the hope that the fight may end in a drawn battle.

Truth generally lies on the middle line. Even the fanatical worshipper of economic determinism may be driven to admit the presence of phenomena between heaven and earth which owe their existence to other influences than economics or nurture.

[1] The question why woman is an animal fond of ornament, as Euripides puts it, has engaged the writer's attention for a long time. Among all higher animals it is generally the male that is marked by physical charms, while in man it is the female who excels in natural beauty. In his book "Woman," written about fifteen years ago, when the writer was still young, and as the Germans say "Schnell fertig is die Jugend mit dem Wort," he answered the question in the easiest, tho ungallant way, as follows: "In the animal kingdom nature has distinguished the male with the greater beauty. Men's gallantry designates woman as the beautiful sex." But a few years later when writing his article on the "Law of Beauty," the writer found that the human female is really the more beautiful and that it was not at all gallantry which called her so. Thus the question remained still unanswered. As usual the writer tried then to solve the problem on a purely economic basis, but failed and gave up the inquiry for a time.

Recently the writer was asked by Mr. Henry G. Fargel, a civil engineer of Jersey City, for the reason why woman is attracted by the soldier's uniform. The answer was that she is attracted by the wearer of the uniform. In the first place, hero-worship is peculiar to men and women, and from worship to love is only a short step. In the second place the soldier is certified to be sound in body and mind, and woman is attracted by strength and health. The man loves woman for her beauty, the woman loves man for his strength, courage and valor.

It was apparent that upon this difference of attraction rests the origin of female beauty. The studies to find the psychologic reason for this peculiar difference in the attraction of the sexes led to the present few tentative suggestions on the genesis of female clothes.

Esthetic beauty, for instance, is rarely subject to economic determinism or nurture. The beauty of the ruby, of the rose or of the golden pheasant obeys the laws of harmony that dwells in all organic and inorganic life. (The Law of Beauty in Human Anatomy, by B. S. Talmey, *The Med. Council,* Feb., 1908.) The attraction beauty has on the bee or the butterfly, and most of all, on the females of most of the higher animals, is an emanation of the law of harmony in nature.

Yet the attractive graces of the human female, in contrast to the beauty of the male animal, owe their origin not alone to the general law of esthetic harmony, but also to a certain remote element, attributable to nurture. To discover this element and to generally bring out, in obscure cases, the root ideas of things, the investigator must track down the unconscious bases of conscious thoughts and motives and must fathom the roots of human customs and habits down to the prehuman ancestors of man. The ethnologist has to delve the biologic and psychic roots of human actions and behavior in prehistoric and prehuman ages.

Psychology is the positive science of the conduct of all living creatures. Human actions can often become understandable only if placed in the same category with animal behavior. A cursory reading of nature reveals the sexual basis of the evolution of all animal beauty, and the psychologic search of human conduct and behavior in decoration and dress leads the investigator to the same origin.

The psychologic scrutiny of the genetics of female clothes makes the interdependence of clothes and sex obvious. At the root of the desire for ornament and apparel dwells a sexual element. Hence for the proper understanding of the psychic and social development of clothes a brief examination of the psychology of the different phases of sex attraction will be of invaluable assistance.

In the analysis of the sex phenomena thruout the higher animals, three phases stand out prominently in the normal sex urge.[1]

The first phase represents the subconscious attachment of the sexes already found in the very young animal long before any erotic experience is sought. (B. S. Talmey, "The Psychology of the Faddist," *N. Y. Med. Jour.,* Oct. 7, 1916). The constant attraction which has not as yet as-

[1] Sex urge and the final stage of erection are often used interchangeably. But erection is only a phase of the sex urge. Sex urge owes its existence to internal stimuli, erection needs external stimuli. It is only effected by specific stimulation like the tear gland or Bartholinian gland. A person may pass years without shedding a tear. The constant slight secretion is carried off thru the lacrhymous canal. Only upon mechanical (foreign body), chemical (horseradish sap), or emotional (grief, joy) stimulation is the secretion so increased that tears become visible. In the same way erection needs specific contact stimulation to overcome the influence of the inhibitory center in the awake state. When erotic fantasies, mnemic elements, or distance receptor-stimuli, such as the mere sight of a beautiful woman, or her song, effect erection, such an individual is either abnormal or in an abnormal exceptional condition, just as the individual in whom voluptuous preliminaries, such as clothes, perfumes, flirtation, dancing, etc., should precipitate the orgastic stage. Normal men do not experience erections while looking at a beautiful ballet-dancer or listening to the song of a prima donna. The normal male needs the tactual female stimulation for his normal erection which is indispensable to union. Not so with the female. Her desires need not to be aroused. The unexcited, indifferent, disgusted or even hating female may participate in erotic activity. The male cannot be raped, the female has first to arouse his desire for her. She has to consider his state of excitement. Without his excitation there can be no union. The male can experience libido without the female's participation in the experience. But she can only enjoy libido if he partakes of the experience. She can only taste by being tasted. She must be altruistic, he can afford to be egoistic. Sexual altruism is only found in woman.

sumed the dignity of the real sex urge is present in both sexes alike, and in the young as well as in the aged. At the time of maturity in the animal, and in man at puberty, this attraction is manifested by certain undefinable psychic phenomena. Even if the individual be kept in solitary confinement, and no sense impressions came from outside to make the sex images definite and clear, a certain restlessness and inquietude would be evoked by internal biochemical stimuli in man or animal. This biologic sex attraction constitutes one of the deep mysteries of life. This attraction is as mysterious as the attraction of the two poles of the magnet. It is a part of the will to live, of the élan vital.

The second phase of the sex urge is represented by the state of tumescence or the quasi electric charge of the entire organism with nervous tension and material congestion. The libidogenous substances circulate in the blood and the pent up energy presses for an outlet. In this stage the behavior of the two sexes shows a great dissimilarity. In the female tumescence is effected by internal hormones. Rut and menstruation will make their appearance in due season. Nature renews itself in yearly, semi-yearly or monthly periods. The season of the blossoms as well as of rut will arrive at expected moments, in obedience to a rhythmic law. The sex impulse of the female announces itself without outside help, it is autochthonous. She needs no stimulation from the male. The sexual charms found in the higher male animals are not for her stimulation, but to gain her good will or favor, to put her into an accommodating humor, into a receptive mood. In the entire animal kingdom pairing is impossible without the consent of the female, and this is never accorded until she is desirous that it should take place. In her choice she prefers the beautiful,[1] and he has to display his physical charms, such as the golden plumage of the pheasant, the antler of the deer, the mane of the lion, the song of the canary, and the beard of the prehuman man-ape.

While the female is independent of the male for the state of her tumescence, the male needs the stimulation by the female for his. The necessary male tumescence is not effected by internal hormones but by external stimuli, emanating from the female. Without her the second phase would rarely make its appearance. Male tumescence is aroused by the female and the stimulus is transmitted by the sensory organs.

In the quadrupeds the olfactory sense, or the sense of smell, is the transmitter of sex stimulation par excellence. The olfactory apparatus and the genital system are situated at the opposite poles of the animal, but at about the same level. The female genitals are thus easily accessible to the male olfactory apparatus. The strong olfactory stimulation suffices to effect immediate male tumescence to the highest point. The genitals emit strong specific odors to stimulate the male to this point. If a single stimulus has not the desired effect, her coquetry will lead to the goal. Sexual timidity, that makes the female flee the

[1] Esthetic harmony is an attribute of every organism in nature, the animal or the vegetable. It is one of the qualities of protoplasm. Nay, it dwells even in the inorganic world. The motion of the electrons within the atoms and of the atoms within the molecules follow a certain rhythm. Harmony and rhythm are not only a part of organic life but of all things natural. The beauty of the rose and the color of the ruby owe their existence to this esthetic harmony. Things appear to us beautiful when they are arranged according to the law of harmony of the golden section. Man loves beauty because he himself is built according to the laws of harmony.

male, or her coy resistance, serves to increase the male desire to the point of the highest tumescence. She simulates resistance to increase his desire, which is a condition *sine qua non* for the satisfaction of her own libido. The basis of coyness and coquetry is the subconscious intent to increase male desire. The female in the mating stage asks and refuses at the same time. Amorous sportiveness of advance and withdrawal or erotic coquetry is a natural instinct thruout the animal kingdom. Coyness and coquetry are sex-determiners in higher females and both stand in the service of male stimulation.

Judging by analogy[1] the prehuman female was no exception to this rule. As an atavistic inheritance, coyness and coquetry remained sex-determiners in the human female to the present day. Maiden modesty is a product of phylogenetic and ontogenetic evolution. Woman asks while seeming to refuse, she wooes while appearing to be wooed. She affects utmost bashfulness and aversion and assumes an attitude of reserve which serves to feed the flames of love. The erotic stimulation of the male is of the greatest concern to her and to the race. Without his stimulation there is no proper tumescence and no union. The female coy attitude is therefore common in man and animal. But in the other preliminaries to the love drama a great difference exists between animal and human sex behavior.

In the animal the olfactory sense is the main transmitter of sex stimulation, in man the olfactory sense has been entirely eliminated from the transmission of sex stimuli. In the upright gait the olfactory apparatus and the genital system are not situated any longer at the same level. Without bending the trunk to a right angle, the approximation of the male olfactory organ to the female pubic organs is impossible. Besides this impediment, in the erect position, the female genitals are entirely covered by two skinfolds, and these folds are hidden between the thighs in the ordinary standing, sitting or lying position with adducted thighs. Hence with the assumption of the upright gait by man the strong olfactory contact sense failed as a preliminary sex transmitter and decayed in man. The female ceased to emit the useless specific odors.[1]

Since the mammals recognize their females by the sense of smell, man had no way to recognize his if the function of the sense of smell had not been taken over by the distance sense-receptors, especially by the visual sense. This transfer of function from the olfactory to the visual sense had probably taken place about three million years ago, at the time when the quadrumanous arboreal man-ape changed into a bipedal terrestrial ape-man.

In the upright position, the preliminary

[1] The analogy is a valid proof in logic. The well-known syllogism: "All men are mortal, Brutus is a man, consequently he is mortal," is a logical judgment by analogy. In the last analysis all our knowledge rests upon analogy. The writer knows that the house he is just now writing in has once been built by some builder. How does he know it? He has never seen it built. He judges by analogy of houses he has seen built. Even the proof of the existence of what we call deity is a proof by analogy. All terrestrial things and mechanisms have been constructed by some mechanic or architect. The world is a mechanism, governed by strict mechanic law, consequently she has been constructed by an architect. Whether her builder is called "Nature" as by the so-called atheists, or "Brahma," or "Jehova," or "Christ," or "Allah," or by any other name, you mean one and the same Supreme Architect of the Universe. Anyone who cannot see the logic truth of this syllogism lives beyond human logic and understanding.

[1] At present, the cultured, refined man finds the capryl odors of the vaginal contents of his female very repulsive.

sex stimulation is effected in man by the distance receptor, the visual sense. The stimuli do not emanate directly from the genitals but from the female as a whole. The genitals proper are not only inaccessible to the olfactory, but also to the visual sense. In the upright position, almost the entire vulva, up to a small trace of the rima, which is in turn removed from sight by the pubes, is masked or concealed by the internal aspects of the thighs. The genitals, not being subject to exhibition,[1] other parts of the female body had to evolve certain charms for the stimulation of the male sense of sight, such as the luxuriancy of her hair, fineness of her skin, rotundity of her bosom, thinness of waist, smallness of hands and feet, her sparkling eyes, the harmony of head, face, chest, abdomen, limbs and the gracility and daintiness of all her features. These female secondary characteristics are of vital importance to the race. Only variations, or sports, in possession of such charms, appealing to the male sense of sight, could survive in the struggle of existence. In this way specific feminine sex-toned charms have been evolved which serve as an invitation to the male to approach and examine the possessor of such beauty. Without this distance-sense stimulation, he passes her without notice. Her exterior grace and beauty is necessary to awaken his curiosity and to provoke his impulse of contrectation.

The desire to effect a certain contact with an individual of the other sex constitutes the first impulse of the sex instinct in both sexes, the impulses of contrectation. When the contact has been effected, or when the first impulse had found its satisfaction, the second impulse of the sex instinct, the impulse of detumescence comes into play. During the contact or close proximity of the two sexes, thru the stimulation by the way of the tactual sense, the tumescence, or the nervous tension, reaches the highest degree, and the pent up energy and material congestion press for an outlet.[1] This condition constitutes the third phase of the sex urge.

The third phase thus represents the state of tumescence to the point of erection. This phase is brought on in man by the tactual; in the animal, by the olfactory sense. In the animal the second and third stages coincide. One single strong olfactory stimulus suffices to effect tumescence to the highest final point. In the normal man two different stimulations are generally necessary.

[1] This is the reason why the Greek artist who surely was no prude never represents any trace of the female genitals, because in the position of the statue the public organs are inaccessible to sight. The anomaly of exhibitionism in women consists for the same reason in the display of her breasts. (B. S. Talmey, *Amer. Jour. Urol.*, May, 1917.) Even in the doctor's office, in the unnatural stone positions, the genitals are still hidden behind the folds. By the manual separation of the parts, the urethral, vaginal, and anal orifices become also visible, and these organs have an unesthetic effect upon the normal refined observer. No female will hence commit the mistake of exposing herself in such a manner; even if she be tainted, as in exhibitionism.

"Multa viros nescire decet. Pars multaque rerum"

"Offendat, si non interiora tegas."

[1] In this stage the impulse is definite, inclining towards the individual who was the cause of the tumescence. The desire tends toward the discharge of the libidogenous substances into a certain vessel in a specific manner. The man's impluse is: "Semen in vaginam illius feminae ejacere, quae erectionem effecit," and the woman's impluse is: "Membrum illius viri atque semen in vaginam propriam suscipere eodemque modo detumescere, qui tumidam eam fecit."

The pressure in the first stage, if there be any—the pseudosexologists are continually harping on this pressure—has no specific aim or manner for its discharge and may be removed by nocturnal pollutions or diurnal manipulations. But once tumescence has been effected by a certain individual, the detumescence by another individual or the artificial discharge will not afford the desired satisfaction.

Man has the advantage over the animal of being able to be stimulated from a distance by the distance receptors. But this advantage is balanced by the weakness of the stimulation by the distance senses, which provokes only the impulse of contrectation and rarely effects tumescence to the highest point in normal men.[1] Normally tumescence is only effected by the tactual sense.

The female charms serve as an invitation to effect a contact. By them she sends love messages to the healthy man. The contact then creates the state of tumescence, and tumescence provokes the impulse of detumescence, the increased pressure of the libidogenous content seeking a discharge along specific pathways. Without female charms there is no contact, without contact there is no tumescence, and without tumescence there is no detumescence or union. Female grace is thus an indispensable condition to union. This is the biologic reason for woman's constant solicitation of her beauty. Her charms are of vital importance to the preservation of the race. The aristocrates of love suffer more or less from idiogamy[2] and are impotent in the presence of homeliness.

Man's assumption of the erect position has thus changed the entire sexual stimulation-mechanism. The female animal evolved specific odors, the human female evolved beauty. With the advance of civilization[1] and the dawn of culture her natural beauty did not suffice her any longer. The advance of civilization did not remove the hazards of procuring food, and the continual wars still decimated the males, and under monogamic relations, a number of females had to remain unmated. The surplusage of females created competition among the females, each female endeavoring to attract men by artificially beautifying and adorning herself. This desire for embellishment led in the tropics to the development of the tropic garb. (C. H. Stratz, *Die Frauenkleidung.*) The Arctic garb, in the north, had a different origin. It was adopted primarily to prevent radiation and conduction.

[1] Erections may be effected by means of the fantasy, or by reading of obscene books, looking at obscene pictures and in dreams. These stimuli represent virtual female contrectation. In dreams the pressure on the center of erection in the spinal cord causes erection and not seldom orgasm in individuals of both sexes leading an abstinent life. After a long abstinence the sight of the nude or even of the modern seminude attractive female may provoke erection even in normal men.

[2] Idiogamy is an anomaly where in spite of strong male desire and female alluring caresses, carnal relations are impossible for esthetic reasons. To esthetic men, and they are, as a rule, the most desirable members of society, to philosophers, scientists, artists and merchant princes, the satisfaction of their esthetic cravings is a *conditio sine qua non* to sexual union.

[1] The history of civilization dates back to the invention of weapons by the palaeolithic man, when he discovered that a club in the defense against his enemies is a vast improvement upon the unarmed hand. When primitive man threw a log of wood over a rivulet to cross the same, thus constructing the first primitive bridge, he laid the foundations of all future civilizations. Civilization is the control, subjugation or mastery of nature by man. Pithecanthropus erectus (found in Java by E. Dubois), who excelled in size all now living men, may have defended himself by the strength of his arms, but when the Neanderthal man invented the club, he started the wheel of civilization rolling. The Eoanthropus in the stone, bronze and iron ages was already far advanced in civilization half a million years ago, altho he may have still lived in caves in complete nudity.

With the advance of civilization, culture made its appearance. Civilization represents the mastery of nature by man, culture represents the mastery of man by man. Culture began when man had well advanced in civilization. When man had learned to control and improve nature he felt the need of improving himself. Culture rests upon three supporting pillars, knowledge, ethics and esthetics. The ease, comfort and security civilization brought to man made it possible for him to acquire the knowledge of the laws of nature, the rules of ethics, and the esthetic feeling. Culture is thus a child of civilization, but mother and daughter are not identical. The culture of an Aristotle was still possible on the soil of the primitive Macedonian civilization, while in our civilization of wireless telegraphy and aeroplanes there are enough uncultured primitive men to fill up a continent.

In the study of man's decoration, which is made possible by surveying extant primitive peoples, their savage customs and habits, it is found that the remote mode of adornment was the simple paint, in imitation of the war hero. When the hero returned from the war stained with blood, such stains became a mark of honor for the man, and woman imitated such stains by painting certain parts of her body for the purpose of sex lure. The paint is put on by the men on occasion of ceremonies, when going to the assembly, as a mark of distinction. For the war path, he puts on besides the paint, wreaths of flowers or feathers on his head to make himself appear taller and thus frighten the enemy. In his home, cave, hut or tent, the temporary decoration is removed.

The next step in human ornamentation is the decoration by permanent scars. This mark of distinction[1] was also adopted in imitation of the hero's war scars. Later on these decorations by paint and scars were combined into the tatto.

The female adopted paint and scar decorations as a mark of distinction to her natural beauty which biologically serves as a means of sexual attractions. She knew no other distinction but her beauty. Otherwise perfect equality prevailed among women. There were no chiefs, leaders, or war heroes among them. She made herself desirable and respected by her beauty which is her strongest sex lure. For her behind the impulse of adorning her body lies the motive of sex appeal. The tatto is for this reason oftener found in woman than in man.

[1] Traces of these decorations by scars are still found among the German students. The more scars in his face the student carries away in a duel the greater his pride. These duels have often no other cause than the expected scars.

Besides these permanent decorations there are found temporary ornaments, consisting of pieces of plants, minerals, or animal bones which were inserted, at all suitable points of the body, in ears, nose, lips, or in the hair. Another kind of decoration consisted of the attachment of vegetable fibers, at depressed surfaces of the body, above bony projections or muscular protuberances, such as around the head, neck, waist, forearm, wrist, thigh or ankle. To these primitive collars, frontlets, bracelets, armlets, or anklets, which were made of wood, beads or shells, were attached secondary ornaments of shells, beads, bones, feathers, flowers, skins or furs.

Especially from the belt or girdle, which for generations constituted the only garment primitive man knew, were hung leafy branches, bark of trees, feathers, grass or animal and human hair. These appendages were first attached to the back of the girdle as a tail-like ornament, in imitation of the animal tail. Later on a corresponding narrow apron of tumeric leaves, or a shell-bead apron was also worn in the front, thus covering groin and pubes. To these back and front aprons were later added two side aprons made of palm leaves or grass. The attachments thus surrounded the entire lower abdomen like a skirt and resembled the short ballet-dancer's skirt. After the introduction of weaving, this primitive fiber petticoat was later on replaced by a covering made of a certain texture of cloth, which reached to the middle of the thighs. This primitive female skirt represents the beginning of female clothes. By degrees the garment was prolonged, first, to the knees, then to the ankles, and later on ended in a train.

Simultaneously with the extension of the skirt toward the feet, the waistband which

for generations consisted of a single string, also underwent a certain change by being widened towards the head. The string of beads was first replaced by a real girdle of woven banana fibers or other cloth. In the course of time the primitive narrow waistband was widened till it reached first the navel and the armpits. The breasts and arms remained still uncovered.

In a later period the two garments, the wide waistband, which by this time had developed into the waistcoat, and the petticoat were made of one piece and were worn loose around the body, front and back being held together by a clasp over one shoulder, usually the left, as among the ancient Teutons (described by Tacitus in his Germania). Among the Homeric Greeks the loose flowing robe which covered the entire body to the feet or ended in a train was held by two clasps over both shoulders.

The study of the evolution of dress thus shows that ornaments preceded clothes and that clothes were worn by men and women as a decoration, by men as a mark of distinction, by the women as a mark of beauty, and not at all out of modesty. In their homes men and women walked around perfectly nude. In public the primitive aprons were first mostly worn by the unmarried females as a sex lure.[1] Where nudity is the rule, covering draws attention to the parts hidden. When the wearing of aprons became general those who were seen nude in public appeared freakish and outlandish, just as a bare-footed woman or man would appear on the street nowadays. There is an inborn desire in man for uniformity of his group. Where aprons cover rump and groin, such uncovered parts appear out of place and cause shame.[1] Shame was thus not the cause but the result of clothes. In the course of time the appearance in public without clothes was proscribed by law. This proscription created the emotion of modesty.[2]

The development of clothes in the cold zone, or the Arctic garb, took a different course. Here the inclemencies of the seasons forced man to cover himself against the cold long before he ever thought of ornaments. The vegetable fiber being scarce in these regions, he took the skins of animals and tanned them. These coverings had to be worn close to the skin, and he had to sew them together. Instead of the loose skirt the close trouser for each leg was gotten up. The feet had to be covered with boots and the trunk with a close-fitting garment, provided with sleeves, the primitive jacket. The Eskimo was thus the first dressmaker and tanner. Both sexes wear the same garments. Only artistic embroidery distinguishes the female from the male costume, the female garments be-

[1] In some parts of Australia (Goefiry, Chapters on Human Love), girls cast off their aprons after marriage, being no longer anxious to engage the notice of men. This custom shows conclusively that it was not modesty which gave birth to clothes, but that the motive behind female clothes was sex lure.

[1] James says (Psychology 1890, II, p. 449): Emotions follow and do not precede the bodily state. We fear because we run away, reverence because we kneel, love because we kiss. In our case we are ashamed to show those parts of our body which are always covered. It was not shame that created clothes, as Genesis (Mos. I, 2, 25) interprets their origin, but clothes created shame and modesty.

[2] In the course of generations and milleniums the emotion of modesty became so deep rooted in the female heart that its violation caused her the greatest pain and mental suffering and was used as a punishment for female offenders. The ancient Teutons punished the adulteress by driving the naked woman out of the village. In Isaiah (III, 17), the Lord threatens to punish the wanton daughters of Zion by uncovering their secret parts: "Dominus muliebria nudabit."

Even the semiconscious woman will still protect her modesty. When the chest is uncovered by the anesthetist, her arms are at once crossed over her breasts.

ing tastefully embroidered. These clothes are worn for protection against the cold outside of the hut. Within the hut the Eskimo also walks around perfectly nude.

The principle of the Arctic garb is thus the close trouser, that of the tropical garb the loose skirt.[1] In both garbs the female costume is the more decorated because it is of vital importance to her to be beautiful. Her beauty calls out man's generative powers. It is not mere vanity that woman's main aspiration is her own beauty. The existence of the race depends upon this very beauty. She has to enhance her attractiveness and cultivate charms of provocative effects. Hence she bends all her energies upon the enhancement of her beauty by the cultivation of such physical charms. She is highly solicitous over the luxuriance of her hair, fineness of her skin, rotundity and correct lines of her bosom, thinness of her waist, smallness of her hands and feet, daintiness of all her features and other seductive lures which serve to arouse male desire for her body and to evoke his yearning for her. Something in the vital impulse, in the will to live, or in the natural selection impelled her in the direction of developing these corporal charms,[2] just as the male animal developed the mane, the crest, tusk, antler, beard or organs giving him a certain advantage in the struggle for existence. In the course of ages[3] only those females survived who evolved certain sexual secondary characters. The others who failed in their evolution disappeared. The secondary sex characters became thus sex determiners, transmissible from mother to daughter.

These specific female attributes she has to display in order to arouse the man's

[1] The acculturation of clothes took place in Italy during the period of the empire. The two different clothes cultures came in contact in Rome. With the advance of the Teutons, Goths, Vandals, the Germanic tribes, coming from the north, introduced the Arctic garb and demonstrated its higher usefulness for men and soldiers. Thereupon a division in the male and female mode of dress occurred. The women kept the loose skirt of the tropical garb, while the men accepted the more close trousers of the Arctic garb.

[2] This aim is usually hidden to her conscious ego. It is independent of conscious volition. The intention to bring her charms into the contest for his favor only dwells in the subconsciousness of the refined, chaste woman. Still the rivalry for his favor is at the foundation of the cultivation of her physical and mental charms by means of which she wishes to draw the man to her.

[3] Between the time a certain sport among the primates became carnivorous, left his arboreal abode, and adopted the life of a hunter and the period of pithecanthropus erectus, or in which man lived whose oldest remains were found, lies a gap of about a million and a half years. (Carveth Read, *Brit. Jour. of Psych.*, June, 1917, p. 413.) During this long period the prehumans lived in hunting packs, like the wolves and perfected their animal talents, such as the constructive impulse, language, customs, claim of property, sports and games and sympathy. All these qualities are found in many other animals. The constructive impluse is found in the bird's nest, and in the beaver's house. The first traces of language can be noticed in the emotional vocal expressions and gestures in almost all higher animals. The monogamous custom is found in the wolf and in a number of other higher animals. The claim of property is found in the defense of the lair of each family, and the hunting range of the pack, and in the instinctive protection of property by the dog. Many animals possess the instinct of games and sports. Benevolence and friendliness is found in the hunting pack. Without these qualities the pack could not exist for any length of time. The long nonage of the anthropoid developed sympathy.

In the long period of a million and a half years, the prehuman developed and humanized all these qualities. Especially the custom of monogamy was perfected. Pairing as among the strict monogamous wolves (Thompson Seton, *Life Histories of Northern Animals*, p. 757) was the most efficient form of sexual relationship in the human hunting pack. Under monogamous relationship in the hunting pack, where the dangers of the hunt often killed off a great number of the strong attacking males, the surplusage of the females created a certain competition for the favor of the male. Therefore only those variations or female sports who developed certain female charms, provocative to man's procreative powers, found mates and survived and transmitted their charms to their daughters.

desire for her, and only those variations or sports survived who knew how to display their aphrodisiac lures. The display of her charms has thus also become a female sex determinant and represents an inherent expression of the female wants and necessities.

This impulse of display comes in conflict with the law of obstacles (B. S. Talmey, *Woman,* p. 242 and *Love,* p. 390). The public display of erotically exciting and excitable parts of her body is incompatible with her sense of modesty. The normal woman is unconsciously ever bent upon making her charms most conspicuous. Exhibitionistic impulses are slumbering upon the soul-basis of every female. To arouse desire she must display her physical charms, but modesty forbids her the display of the very parts of her body which are of erotic importance. Modesty commands her to cover these parts one way or other. Hence she has to take her refuge to the most subtle contrivances and artifices in dress and ornaments. She must display her person, yet be covered. Her feminine nudity has to be veiled in a manner to intensify her secondary specific female attributes. The veiled display of her aphrodisiac lures thru dress, finery and ornament is of the greatest importance to her and the race. Her constant solicitation is therefore the care of her body and the matter of her toilet. By these means she is capable to stimulate male desire and succeeds in provoking man's procreative powers.

When she has succeeded in arousing his passions, even where the continuation of the drama is not desired or impossible, she experiences the keenest of physical joys, a degree of satisfaction second only to the real libido. She considers his excitement a tacit homage paid to the irresistible nature of her charms. She enjoys the contentment found in having finished successfully the preliminaries and in having prepared the smooth pathway for the continuation of the drama.

In her efforts to enhance her aphrodisiac lures thru dress, finery and ornaments, fashion comes constantly to her aid in a way that her secondary sexual characteristics are greatly accentuated. Female clothes owing their introduction to the irradiation of sex attraction, fashion never disowned their origin. Fashion bears witness of its intimate relationship to sexuality in that it always started from the ranks of courtezans and at the instance of opulent demi-mondaines, who have always, since fashions were in existence, dictated them in Rome, in Venice and now in Paris.

The individual refined and chaste woman is unaware of the underlying principle of the creators of fashions. She is convinced that clothes were adopted for esthetic reasons, altho the sculptor who ought to know most of beauty seldom covers up his statue. By heredity and social custom ornamental clothes have become for refined women a mere side current of sensual irradiation. Ornamental clothing is no longer a simple

[1] Emotionally the normal male also desires a sexually excited female as a partner. This desire is an inheritance from the animal stage where pairing without the consent of the female is impossible. But physiologically the male has no need to have any consideration for his partner's emotions. Her passivity allows the indifferent female to participate in erotic activity. If her resistance is removed by fear, force, or reward, her sexual excitement is not necessary. But the male, to effect union, needs the erotic stimulation by his female. An indifferent, unwilling male is an impossible partner. He needs only to think of himself, he can afford to be egoistic in his sex-life. She has to be altruistic. When she meets him she has to ask herself: "Am I attractive enough to attract him?" He asks almost the same question: "Is she attractive enough to attract me?" Her attractiveness and his power and potency are of great importance to both of them. Hence the man looks in woman for charm and beauty, the woman looks in man for power and potency.

lure as in primitive society. It represents nowadays a means of self-assertion and distinction. It is a sign and symbol of a greater refinement of perception and delicacy of feeling. With the chaste woman clothes direct the attention to the personality rather than to the person. It is an attempt to display psychical rather than physical features.

In her subconsciousness, the unconscious being a product of phylogeny and ontogeny, woman takes it for granted that her clothes just as her body have an erotic effect upon the male. Hence the impulse of the normal woman is to attribute an exaggerated value to clothes. They awaken in women a complex emotion akin to the sight of the female body. (B. S. Talmey, *Love.*, p. 307, footnote.) But the importance woman attributes to clothes is more or less an imaginative radiation, quite remote from the conscious desire of physical exhibition.

Not so fashion. Fashion is still standing in the service of sexuality. The original close connection between female clothes and sex attraction is still its commanding principle. Fashion has in two ways introduced a sensual element in dress. Either it renders conspicuous certain parts of the body and exaggerates their size by the shape of the garment, its drapery and trimmings, or it leaves such exciting parts uncovered to catch the eye. Fashion dictates the exposure of woman's nude charms. It uncovers her arms, shoulders, legs and frees the last intimate details of her chest. Fashion accentuates her hips by constricting the waist thru the corset and marks off rump and groin by the thin, diaphanous materials of the skirt. Fashion ornaments the female charms to emphasize nudity, puts into relief the most intimate organs of the female body and displays all her allurements. Fashion thus shows the female secondary sex characteristics as on a tray. The present fashions mark the reversion to the primitive type. The evolution of clothes has thus passed thru a certain complete cycle. It began at the state of nudity and has returned to the seminudity of the present fashions. The parts which are still covered become more conspicuous thru the contrast against the uncovered parts. Where nudity generally prevails the practice of covering certain parts of the body excites curiosity and solicits the observation of the other sex.

Under the European or North American sky with its inclemencies of the seasons a return to the complete nudity of the savage of lowest culture is unthinkable and really not necessary. Seminudity serves in a higher degree fashion's purpose. A breast or any other secret part of the female body delineated in all its details on the soft diaphanous garment is equivalent to complete nudity in its erotic effects, and moreover, by the teasing cover, is added the effect of erotic curiosity. The prurient moralist, therefore, need not fear that fashion may still go further in the display of feminine charms. Fashion has reached the limit.

The psychic penetrating illumination of the dark nooks and corners in the crude life, led by the prehuman and the primitive type of man reveals the verisimilitude that ornamental clothing owes its origin to the upright gait. In the quadruped the male seeks his female, driven to her by mysterious internal hormones. The strong olfactory contact sense effects at once tumescence to the highest point and nothing more remains for the female to do except to show some coquetry. She needs no other physical charms. The strong odor she emits is suf-

ficient. The male, on the other hand, in competition for the female, especially among polygamous animals, developed beauty which seems to be the impulse of all organic life.

At some remote period of prehistoric ages, say about three million years ago, during the tertiary era, at the end of the oligocene period, one variation of the great orthograde primates changed its mode of diet from the exclusive frugivorous of the anthropoids to the partial carnivorous diet of the beasts of prey and became a hunter of small animals. As a hunter he needed his hands for catching and carrying off his prey,[1] and his locomotion was effected by his feet exclusively. In this way the upright gait was evolved.

This gait changed erotic stimulation from the strong olfactory contact sense to the weaker visual distance sense and the female needed visual distinctive characteristics. Under monogamous pairing as generally prevails in the hunting pack, where the stronger male often loses his life in the fight with his enemy, competition prevailed among the females for the male. Those females who evolved the greater attractiveness and beauty carried off the prize. Once the esthetic feeling which is dormant even in the protoplasma was aroused and the female learned to know the attraction her beauty exerts upon her male, the next step to ornamental clothing was easy.

Thus it was not protection against radiation or economic competition which gave the impetus to the evolution of ornamental clothing, but competitive sexuality. Still those who have learned to perceive the essence of things will recognize as the causative root of clothes and ornaments the remote change of nurture which necessitated and created the upright gait. This in turn changed sex transmission[1] and forced the female to evolve beauty in body and clothes.

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[1] Being originally a frugivorous arboreal animal, his teeth and jaws were not strong enough to carry off his prey as the beasts of prey of the cat and dog families do.

[1] That the change of gait should have had such a remarkable effect upon the sex stimulation of the human species is not so marvelous, as it may appear on the first glance, when its effect is considered which it had upon the pathogenesis of most of the ills humanity is heir to.

Pathology to a great extent deals with the organs situated within the two body cavities, the pectoral and the abdominal and the pathogenesis of these organs is generally due to the upright gait. In the horizontal position of the quadruped all the visceral organs rest upon a solid support. Lungs and heart of the pectoral cavity lie on the bony ribs. So are the largest gland of the abdominal cavity, the liver and the stomach supported by the ribs. The intestines rest upon the strong abdominal integuments. Uterus and ovaries lie upon the bony pelvis. All this is changed in the vertical position. Lungs and heart, liver, stomach and intestines, uterus and ovaries, they are all suspended on ligaments. They do not rest upon some support, they hang. This suspension furnishes the predisposing cause of the prevalence of diseases in these organs.

Now, if pathologic conditions could be attributed to the change of gait, it is easily seen that physiopsychic phenomena may also have their roots in such a change of position. Physiology and pathology stand in close relation. Difficult physiologic problems of a certain organ are often solved by the study of its pathology.

Incidentally the increased pathology of the visceral organs thru the change of position shows that such changes cannot be done with impunity. Humanity had to pay a big price for its change of gait. Humanity owes its civilization and culture to this change, but it has to pay the price in an increased amount of pains, sorrows and sufferings.

Dysmenorrhea can be relieved by the application of a solution of cocaine to the nasal mucosa.—*Munckener medizenische Wochenschrift.*

Vermin.—A mixture of equal parts of oil of peppermint and oil of eucalyptus has been found useful in the treatment of lice. —*Pharmaceutical Jour. and Pharmacist.*

TREATMENT OF CANCER WITHIN THE RECTUM.

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Under this title is considered cancers of the bowel from the level of the pelvic brim to within two inches of the anus. Removal of the rectum by a combined abdominal and perineal operation was first performed by Czerny in 1884. Since that time other surgeons, notably Maunsell, Chaput, Gaudier, Challot, Weir, Boechal, Giordino, Quenu, Reverdin, Tuttle, Gant, Matthews, Sir Charles Ball, Wallis and Aldrich-Blake have employed the method with certain modifications of procedure.

CANCER OF RECTUM.

Where cancer is limited to the colon or movable sigmoid and is entirely surrounded by peritoneum, it may be lifted out of the abdominal wound. This operation is quickly performed and causes no great mutilation of the tissues. But where the growth extends below the promontory of the sacrum, and is but partially covered with peritoneum, a complete removal thru an abdominal incision is attended with many difficulties and mishaps and the combined abdominal-perineal operation is unquestionably the best. It permits a careful examination of the liver and the lymphatics for metastasis and by closely noting the extent of involvement of the rectum and contiguous organs determines definitely whether continuity of the bowel to the anal region may be maintained or whether a permanent artificial anus shall be provided. This operation offers the patient the best chance of ultimate recovery and freedom from recurrence. With perineal methods, even after the most complete and extensive removal possible whereby recurrence in the immediate vicinity is reduced, nevertheless new growths appear in situations beyond the scope of removal via the perineum. Post-mortem examinations show that these recurrences are (a) in the pelvic peritoneum, (b) the pelvic mesocolon, and (c) the lymph nodes situated over the bifurcation of the left common iliac artery. In all cases the infiltration of the parietal

border of the pelvic mesocolon causes shrinkage of the pelvic mesocolon itself, whereby the pelvic colon appears to be bound down, a condition which readily explains the difficulty in obtaining a satisfactory spur when performing colostomy in an advanced case of cancer of the rectum.

From these observations it is obvious that the above mentioned structures constitute the zone of the upward spread of cancer from the rectum, the removal of which is just as imperative as is the thoro clearance of the axilla in cases of cancer of the breast if freedom from recurrence is to be hoped for.

The study of the spread of cancer from the rectum has led me to formulate certain essentials in the technic of the operation which must be strictly adhered to if satisfactory results are to be obtained namely: (1) that an abdominal anus is a necessity; (2) that the whole of the pelvic colon, with the exception of the part from which the colostomy is made, must be removed because its blood supply is contained in the zone of upward spread; (3) that the whole of the pelvic mesocolon below the point where it crosses the common iliac artery, together with a strip of peritoneum at least an inch wide on either side of it, must be cleared away; (4) that the group of lymph nodes situated over the bifurcation of the common iliac artery are in all instances to be removed; and lastly (5) that the peritoneal portion of the operation should be carried out as widely as possible so that the lateral and downward zones of spread may be effectively extirpated.

This is one of the most formidable operations in surgery, entailing, as it does, the removal of practically the whole of the pelvic colon as well as the rectum, and a word regarding the practical anatomy will not be amiss. The pelvic portion of the sigmoid is about 16 inches long and extends from the edge of the psoas muscle to the level of the third sacral vertebra. It makes a horse-shoe-shaped loop and has a mesentery 1¼ to 3½ inches long. The length of this loop and also its mesentery is quite variable.

In all cases a preliminary left inguinal colotomy should be performed at least two weeks before the operation and during the interval such attention given as will help to fortify the patient for the removal of the cancer later. This supporting treatment has been described elsewhere and need not be repeated here. Beginning two days before the operation he is given the usual preparation for a laparotomy. When he is anesthetized, the rectum is irrigated with formalin or bichloride solution, followed with full strength peroxide of hydrogen.

The abdomen is opened with a four-inch incision in the median line. A liberal opening is necessary to allow working space. As soon as the abdomen is opened the patient is placed in the Trendelenburg position and the small intestines are thoroly packed back to facilitate a clear view of the lower sigmoid and rectum as well as to prevent unnecessary handling and encroachment of other parts of the intestines. The patient is then returned to the horizontal and the sigmoid is lifted out of the wound and held taut, thus bringing the sigmoidal artery prominently into view. The peritoneal covering of the mesosigmoid is slit open close to the gut about two inches above the growth, and with a pair of blunt-pointed scissors the incision is continued along about one-half inch from the margin of the gut, thus separating the peritoneal wall from the vessels. This dissection is continued from the sigmoid back to the peritoneal reflexion on the posterior ab-

dominal wall and the ileum. The bowel is then laid over on the other side and the peritoneum similarly elevated on that side. The sigmoid artery is traced to its origin in the superior hemorrhoidal artery and just above the junction the superior hemorrhoidal artery is tied with two ligatures and cut between. In the female the left broad ligament should be detached, together with the left ovary and tube. This having been done, the pelvic mesocolon, together with the adjacent strip of peritoneum on either side of it, is detached from the hollow of the sacrum. By keeping close to the anterior sacral ligaments, the cellular tissue containing the lymph nodes in that situation is detached with the pelvic mesocolon in one piece. This separation is continued downwards in the middle line as far as the sacrococcygeal articulation. The sacral wound is now filled with gauze while a similar method of blunt dissection is carried out anteriorly by which means the bladder is detached as far as the prostate gland. Attention is now paid to the separation of the lateral aspects of the rectum and it is here that great care must be exercised to avoid injuring the left ureter, which adheres closely to the peritoneum as it skirts the wall of the pelvis. When the ureter has been defined it should be carefully freed as far as the base of the bladder. On the right side the ureter need not be seen. The dissection is then carried downwards on either side and the lateral ligaments of the rectum are divided with scissors. In these structures the middle hemorrhoidal arteries are found, but seldom require a ligature. This lateral dissection is carried down to the upper surface of the levator ani. When the rectum has thus been freed on all sides as far as the points indicated, the bowel having been widely loosened should easily reach the normal anus without tension. If it does not do so the operator determines whether it is held by the mesosigmoid or by the blood vessels. If the mesosigmoid needs further loosening it should be incised. The blood supply is next examined to be sure it is sufficient before proceeding. Arterial capillary pulsation must be felt in the parts. At the recto-sigmoid junction is a portion of the bowel sparingly supplied with end branches. The lower sigmoid arteries supply from above, and from this point down the bowel is supplied by the superior hemorrhoidal, but these two arterial systems do not anastomose branches. If the superior hemorrhoid is cut above its distribution to the rectum the lower end of the gut will not have sufficient blood supply and will slough, thus causing infection and death. This is a pertinent question in every case of cancer above the level of the floor of Douglas' pouch. When satisfied that the divided bowel will reach the anus with good blood supply, the whole of the detached structures are crowded down into the pelvis and covered with sterile gauze. Provided that the divided end of the colon has been firmly closed, considerable pressure may be made upon it from above without fear of leakage. The edges of the pelvic peritoneum are now sutured so as to reestablish the pelvic floor, and the abdominal incision is closed. The patient is then placed in the exaggerated lithotomy position and the detached mass is extirpated thru the perineal route as has been described under cancers at the anus. When the cancer is situated high in the sigmoid efforts at removing it, and providing the continuity of the lumen of the gut by end to end anastomosis or lateral anastomosis, have been followed by a very high mortality due to leakage.

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DEATHS FOLLOWING HYSTERECTOMY.

BY

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My understanding of the phrase "operative mortality" is a death that may clearly be traced to direct and immediate interference with the affairs of the human body, such as the administration of a poison for anesthetic purposes, excessive bleeding, or shock of any intensity whatever, regardless of its real or apparent violence. There are other causes of death, due directly but not perhaps so immediately to operative interference, but it is not my present purpose to consider them. It is said that the gravest possible fault in a military leader is the exercise of the faculty of ignoring the strength of the enemy; and no really qualified surgeon will ever be guilty of treating as trivialities even the smallest and apparently most simple of operative procedures.

The human uterus defies precise definition, belonging rather to the sphere of more or less accurate description. Its most notable characteristic is its variation from almost any framework that may be constructed for it by those of the highest skill in linguistics. What many of us, in the abounding plenitude of our mental poverty, speak of as the normal uterus, can no more be described as to length, breadth and location than the human mouth. Altho highly amused at the time, I have learned to reverence the practical wisdom of a veteran practitioner who, when speaking of a patient twenty years ago, declared that "a majority of her womb is outside her body." Neither Prince Metternich nor Talleyrand, both of whom dreaded and perhaps despised majorities, would ever have employed phraseology of this sort, but it cannot be denied that for clearness of meaning the venerable medical man left those illustrious political gamesters where Lexington and Leamington generally left all of their competitors. Like Niagara Falls, the City of New York, and the Rocky Mountains, the uterus when present in woman may be described in a general way, but concerning which no hard and fast description can ever be written.

Next to a mechanical operator, who attacks a diseased womb in a spirit of adventure, the most immediate and fatal danger from hysterectomy arises from unchecked bleeding. I have a death to record from this undoubted cause, and as those tissues cannot speak for themselves I regret to say that I found them as treacherous as a bed of quicksands. It is also certain that this bleeding did not come from the main channels of the uterine arteries, but apparently, and almost beyond doubt, from adventitious twigs in the broad ligaments, near the fundus of the uterus. The patient, already seriously depleted from anemia, had undergone an operation for the removal of a malignant growth of the mammary gland, but there existed nothing more convincing than a well-grounded suspicion that the uterus itself had been invaded by that disease. If I had employed a single large clamp with wide, long jaws, on both broad ligaments, instead of making a piecemeal attack with the unavoidable confusion that always attends the manipulation of a multiplicity of appliances, the patient might have been saved at the time, as little as any one might have hoped for her ultimate cure.

A young woman of 25 (?) years, a hotel waitress by occupation and a prostitute from inclination, who always introduced herself as a single woman, applied to me for relief from uterine hypertrophy and incur-

able prolapsus. She did not appear to be in the least surprised when I told her that her womb was damaged beyond all hope of repair and that her pelvis had been the seat of serious inflammatory changes. Subsequently I learned that she had borne children and had been aborted at frequent intervals for years. The removal of the uterus presented immense difficulties, but the patient left the operating table in apparently excellent condition. On the third day, after the removal of the clamps, I became alarmed at the character of her heart action and summoned in consultation an internist of high standing and mature judgment. The patient died about sixty hours after the operation from the most violent explosion of gonorrheal myocarditis that I remember to have seen. She left with me for my eyes alone a respectful but frivolous note in which she declared that she did not care to live longer as she had been living and that I must not feel too deeply her passing away. Altho naturally greatly disappointed over this unexpected ending, I never placed the blame at the door of operative surgery. The ultimate ravages of gonorrhea are not so well understood as they ought to be by many practitioners of the healing art.

One of my patients died several days following one of the least complicated hysterectomies that I ever performed, death being clearly due to a fulminating appendicitis, as was amply confirmed by a delayed operation performed amid such feelings and surroundings as may readily be inferred by operators of ripened experience.

One illustrious surgeon (Sir Astley Cooper, possibly) speaks of certain occurrences as "surgical calamities"; and these of course no operator, however well equipped, may hope entirely to escape. But while bearing surgical calamities always in mind as a possibility, in perhaps nearly all operative cases, we cannot be too honest with ourselves when passing judgment upon the outcome of such cases. Patients will, I regret to say, at times deliberately assume the most appalling dangers without a blush or a smile by making the most reckless and absurd statements concerning what they know to be their actual condition. In this connection, the great prophet, Daniel, is generally thought to have been far too sweeping in his wrathful statement regarding the universality of the practice of lying among men, but any discrepancy that may be charged against the statement of the celebrated Old Testament writer is clearly offset by the deplorable practice of many women, when they approach the operating table. It is a fact, I believe, based upon abundant experience covering many years of active practice, that some women will lie shamefully and often dangerously to a physician, who speak the essential truth to all others under all conditions. What their motives are may well be left to conjecture, in the absence of a trustworthy text-book on this important subject which, however, in view of Dr. Johnson's well-known remarks, has not as yet been announced in any respectable quarter. I do know that some of this sort of dangerous lying has brought much distress if not disaster and possible ruin, to many an honorable practitioner of medicine.

Another fact, and one that reflects deep credit upon the general moral tone of the medical profession, and stands out with even greater clearness, is that the practitioner who makes a practice of lying about or distorting the real merit of his work cannot at this time, travel far without certain exposure and ultimate disgrace. Some men

doubtless do not mean to deceive their colleagues, but their minds are so beset and befogged by whimsical fancies and speculative visions that they do not know light from darkness.

In some not very distant day, perhaps, the immense possibilities of early hysterectomy, as a life-saving measure in all conditions demanding it, will come to be far better understood than it is today. By untiring thought and incessant effort for improvement, by the comparison of methods and the rigid adherence only to the highest standards of operating, we shall, I feel confident, reduce the true death rate of this procedure almost to the vanishing point; but more will be accomplished probably from an early diagnosis and thoro preparation of our patients than from undue devotion to what may prove after all to be essentially trifles of technic. The chain of surgical success is made up of many links, some of them most delicate ones, and fortunate that surgeon who possesses the breadth of mind and the clearness of vision to avoid the placing of undue strain upon those parts least able to bear it.

We fall to rise, are baffled to fight better. —Browning.

Carbuncles.—Dr. Jenson (*Med. Summary,* Dec., 1917) has treated the worst forms of carbuncles with deep incision, first dressing with carbolic acid, and then following with echinacea internally.

Diphtheritic Croup.—In diphtheritic croup, fill an atomizer with oil of eucalyptus, and oil of turpentine, equal parts, and spray the throat every half-hour; relief in less than an hour.—*Medical Summary.*

THE LIVER IN DIABETES MELLITUS.

BY

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Each embryonic cell has its physiologic individuality. Its life history may embrace the development and activity of special organs of allied functions. The secreting glands and ducts of the liver are derived from an outgrowth from the primitive duodenum of the hypoblast. Hence, the united action of the liver, pancreas, spleen, stomach and intestines in the first steps of metabolism.

These organs intercommunicate by means of the portal vein and its branches. This remarkable vein was the lower portion of the omphalomesenteric or first primitive vein. It existed before as well as after the umbilical development and decadence. It carried all the blood with which the liver was supplied before the umbilical period. All of its blood went thru the liver before reaching the heart, and its purpose was nutritional. At this time the liver constituted one-tenth (or more) of the body weight. The prenatal liver, perhaps, performed the work of the postnatal lungs as well as its own functions.

The two organs (liver and lungs) have more in common than usually borne in mind. The secreting or lining cells of both are derived from the epiderm, while the connective tissues of both are derived from the mesoderm. In both there are the double set of blood vessels, that is, the hypoblastic elements have their arteries and veins, and the mesoblastic elements have their arteries and veins. The portal vein and the pulmonary artery are each without valves, so that the current may flow either way. The prenatal blood supply in both

organs differs from its postnatal construction. Both organs guard the blood supply going to the heart. Both organs possess the power of detoxication; both organs eliminate metabolic waste.

The prenatal liver decreases with the loss of its vicarious function at birth, and the prenatal lungs increase at birth and upon the assumption of their function. Probably both are controlled by hormones. Certainly the chlorides affect both in a similar way. The connective tissue of each may be the seat of inflammation without involvement of the secreting structures or *vice versa*. Both derive their nerve supply from the pneumogastric and sympathetic nerves. A closer analogy is unnecessary for the present occasion.

The functions of the liver are: (a) the formation and storage in the liver cells of glycogen, (b) the formation of urea and the pentoses—creatin, uric acid, etc., (c) bile secretion and excretion, (d) a detoxicating power, probably hepatic lipoids, (e) a power over the coagulability of the blood. Possibly it possesses an ability to form electrolytes. It seems to be the final "melting pot" thru which all the nutritional elements of the blood must pass before going to the heart and lungs. It seems quite rational to believe the liver functions are controlled by hormone action, also that the liver possesses hormones of its own. Probably a secretin, a glycogenic hormone, and possibly a hormone governs each special function.

Glycogen is formed within the liver for the most part from the carbohydrates of the food which have been converted within the intestine by amylopsin into dextrose. Dextrose, along with elements from the stomach and pancreas thru the spleen and from the pylorus, is poured into the intralobular plexus. Glycogen is C.6 H.10 0.5, or dehydrated dextrose or glucose (C.6 H.12 0.6). In health it is stored in the liver cells, but in diabetes it is never stored. The normal liver of life always contains glycogen, but after death glucose only is found. If the pancreas be removed the liver ceases to store glycogen. Most authorities admit glycogen may be derived from proteids under some conditions, but few believe it may be derived from fats. Fats seem to be the reserve for future use, while sugar is for immediate consumption.

Fat may be stored as fat, or it may be oxidized into carbon dioxide and water, and its energy converted into mechanical or chemical work. Fat, however, may be stored from sugar conversion. Normally, the liver can store glycogen to the extent of fourteen per cent. of its own weight. Equally as much is stored in the muscles. In the tissue cells glycogen is converted into glucose, which in its turn is acted upon by a glycolytic substance found in the leucocytes. The dextrose is oxidized into paralactic and glycuronic acids and carbon dioxide.

The carbon dioxide is "taken up" by the veins and eliminated by the lungs. Pavy does not think glycogen ever becomes sugar. His view would serve the hormone theory. It is now a well-known fact that muscle juice, or pancreatic juice, alone, treated with glucose results in no changes; but muscle juice, pancreatic juice and glucose mixed result in the complete combustion of sugar. Blood "cut off" from the liver rapidly loses all traces of sugar. "Glycogen never finds its way into the lumen of the glands and tubes," but remains in the leucocytes. A glycolytic ferment, trypsinogen (conveyed by leucocytes) and a heat stable hormone, derived from the islands of

Langerhans and glycogen, are always to be found where sugar combustion occurs.

A diabetic condition has been found to exist normally in the early fetal period, possibly before pancreatic activity, certainly before pulmonary oxidation. The glycogenic function, however, is known to begin at an early fetal period. Possibly the thymus gland, which, like the liver, is largest during fetal life, prevents acidosis and helps the glycogenic function. In postnatal life a physiologic hepatic hyperemia attends the formation of glycogen. The rate of secretion is found to be closely related to the blood supply. This hyperemia, since it occurs when the portal vein is richest in material from the intestines, stomach, pancreas and spleen, must in part be due to the portal circulation, yet quickening the arterial flow also produces increased glycogenic function. Hence, the hyperemia must be the result of the combined vascular systems.

Puncture of the floor of the fourth ventricle in health causes glycosuria. If, however, the suprarenal bodies be removed, no glycosuria occurs either from this or any other experimental cause of diabetes. If the spinal cord or splanchnic nerves be divided above the third or fourth dorsal vertebra, no glycosuria follows puncture of the floor of the fourth ventricle. Hence, we may say glycosuria results from such causes as paralyze or pervert the nerves of inhibition and acceleration to the abdominal viscera. In the light of the observations of Sajous and others, this may be due to the neutralization of the hormone of the islands of Langerhans by an increased adrenal secretion.

It has been found that applying adrenalin over the islands of Langerhans, or injecting over-doses of adrenalin, results in glycosuria. When pancreatic substance was injected with the suprarenal substance no diabetes occurred. "This may be due to the fact that pancreatic substance destroys the adrenalin, as it may be shown to do in the test tube." Sajous considers disturbances of the adrenal system (pituitary, thyroid and suprarenals) as the cause of glycosuria. From Cushing's observations it seems a normal performance of this system is necessary for the conversion of carbohydrates into sugar. But diminution of the infundibulum secretion increased the tolerance for sugars. That bears out the above statement from Sajous, since diminishing the posterior pituitary substance lessens the source of stimulation to the thyroid and suprarenals.

Suprarenal extract dropped into the eyes of subjects of pancreatic disturbances causes a dilation of the pupil, while in health it causes a slight contraction. Hyperthyroidism is often attended by diabetes, while marked sugar tolerance is the rule in myxedema. Secretory pressure of the pancreas is very low. Suprarenal substance may so increase pancreatic pressure as to arrest its secretion. Stimulation of the medulla increases the pancreatic secretion, even after section of the vagi. Pancreatic juice is supposed to flow continuously, altho its greatest quantity is secreted two or three hours after eating. During this state of activity its blood vessels are dilated; altho no vasomotor nerves have been generally recognized.

Glycosuria is said to precede death following the removal of the pancreas. If one-fifth of the pancreas be left neither glycosuria nor death occurs. When the pancreas is removed the animal often dies in sepsis. Hence, a reason for tuberculosis which is so often a complication of diabetes.

The activity of the pancreas is lowered by removal of the parathyroids. Parathyroidectomy is followed by symptoms similar to those arising after removal of the liver, and the administration of liver substance doubles the length of life of the animal after parathyroidectomy. Parathyroid disorders are supposed to be responsible for the opacities of the crystalline lens. The parathyroids prevent acidosis. After parathyroidectomy dogs develop acidosis, eliminate urinary nitrogen in excess, also diacetic acid; show a low sugar tolerance, and manifest carbamic intoxication.

The spleen has been found to possess two proteolytic ferments. Both are easily destroyed by heat, hence are not hormones. One ferment is active in acid, the other in alkaline media. Zuezer believed secretin was stored in the spleen. It was found that splenic substance increased peristalsis, but that adrenalin stopped it. Splenic substance increases pancreatic flow, but the volume of bile secreted after the removal of the spleen is increased. Sajous says trypsin in the white blood cell is activated by the splenic hormone.

Glycosuria occurs in acromegalia and other disorders of the pituitary body. A cysticercus found in the floor of the fourth ventricle produced fatal diabetes. Arthaud and Butt arrested diabetes by ligating the veins of the pancreas. Charin and Carnot produced diabetes by injecting dilute cultures of the bacillus pyocyaneus.

I remember a patient with fracture at the hip joint in whom diabetes appeared with the beginning of bed sores. Both sugar and bed sores were transient. No cultures were made. The patient lived seven or more years without sugar reappearing.

The sugar output has been reported diminished by the use of typhoid vaccine. The vaccine, probably in stimulating the hormone which inhibited the bacillus typhosus, also stimulated those hormones controlling the glycogenic function.

Transitory glycosuria has been observed following gall-stone colic. Cane sugar injected into the tissues does not produce glycosuria, but given by the mouth may do so. Physical strain (disturbed muscular metabolism) and mental worry aggravate and sometimes causes diabetes.

Cohnheim thinks the pancreas secretes two substances, one inhibitory, the other stimulative, to glycolysis; *i. e.*, a chalone and a hormone.

Blows upon the epigastrium have caused diabetes. I observed a healthy contractor in the fifth decade of life who was thrown down by a sudden movement in a street car and developed diabetes which terminated fatally within six months. No autopsy. Hunger produces diabetes in the dog, but relieves alimentary glycosuria in the human. Arteriosclerosis exists both as a cause and consequence of diabetes. Chronic interstitial nephritis and melituria often occur in the same individual.

In diabetes arterial blood contains more glucose than the veins, and the carbohydrates are not converted into fats as in health. The leucocytes which act as carriers of so many zymogen bodies are found in the lymphatics, tonsils (Stewart), etc., but it is not known whether they are destroyed in the blood plasma or elsewhere. Some phagocytes are the fixed endothelial cells of the lining of blood vessels. The ferment (?) which causes fibrinogen of the blood plasma to form fibrin and coagulation is in the leucocyte. Calcium, which is always necessary for blood to clot, is in the blood plasma.

Electrical conductivity depends upon the

calcium electrolytes probably formed in the liver. "Death or shedding of the blood, liberates the electrolyte, and permits the clot formation." This may also be the reason that glucose and never glycogen is found in the dead liver. The red blood cells are used by the liver for its bile pigments.

Diabetes in man seems due to the liver being unable to form and store glycogen. The liver is usually found to be enlarged and the seat of fatty changes. From the complicated (bronze) diabetes, to the simple alimentary glycosuria, this holds good. All other causes simply modify the liver's glycogenic function.

Naunyn believes diabetes due to organic disease of the liver. Phloridzin diabetes, of course, is an exception. There the renal cells have probably been rendered so sensitive to sugar that they "pass out" the sugar from the blood, even tho the blood contains no more than two per cent. of sugar. Toxic glycosuria and that from shock, inability to oxidize, etc., are probably due to a disturbance of the glycogenic function thru the infundibulum. If the removal of the pancreas, or inhibiting its hormones, prevent the liver hormones from being activated, glycogen cannot be formed.

Dropping adrenalin into the eyes of eighteen diabetics is reported to have shown pancreatic disturbance in ten by the dilatation of the pupil. If ablation of the suprarenals or a suprarenal deficiency occur no inhibiting chalone prevents the liver and pancreas from doing their work. Sergent describes a white line (the opposite of the red tache cerebral) in conditions attended by an absence or diminution of suprarenal substance; this of course will not be present in any form of diabetes in which adrenal chalones predominate.

The fact that the bacillus pyocyaneus has so disturbed the glycogenic function as to produce diabetes makes it possible to believe conjugal glycosuria may be due to an infection and not necessarily alimentary. Such cases might be given a pyocyaneus vaccine. A gouty diathesis, obesity in from fifteen to forty-five per cent., and deficient oxidating powers, are associated with diabetes. The Chinese, altho living upon a carbohydrate diet, rarely have diabetes. Hence, the freer use of these articles of diet in its treatment is rational.

An exaggerated destruction of nitrogen occurs in diabetes; hence, the usefulness of beans in the diet to prevent destruction of nitrogen of the tissues. Even after the removal of the pancreas, levulose (honey, fruit, sugar, etc.) may be "used up" in the system and glycogen stored in the liver. Therefore, levulose should be added to the dietary.

The constant "sinking feeling" in the epigastrium in diabetes is probably due to an acidosis (acetone, diacetic, etc.) and portal engorgement combined. Hence, the parathyroid, thymus and portal stimulants (apocynum, etc.), should be used, together with the alkalies both by mouth and rectum.

Lactosuria sometimes occurs at the end of pregnancy and during lactation. The escape of carbohydrates from the breast into the system has been suggested as the cause of this. Dr. Gary's disturbed mammary metabolism or hormone is more probably the cause. Since this is controlled either indirectly or directly by the pituitary, its substance should be administered. Fat is difficult of oxidation in diabetes and oxybutric acid may result therefrom, hence animal fats should be restricted in the dietary. There is a general loss of the mineral constituents of the blood in diabetes, there-

fore the mineral waters prove often of service.

Sajous says coal tar derivatives stimulate the sympathetic centers and provoke constriction of the arterioles. From Dr. Bolling's report of coal tar effects in the gas poisoning of miners, we may believe the carbon dioxide excess in the blood of diabetics is rendered inert by these coal tar preparations.

Labbi and Bouchage (Harrower) consider glycosuria as quite often of hepatic origin. They divide hepatic diabetes into five classes: (1) The glycosurias that occur during hepatic lesions; (2) hepatic congestion of the overfed; (3) the post-infections or toxic disorders; (4) the diabetes without nutrition, with enlarged liver of the overfed; (5) the hepato-pancreatic cirrhosis with diabetes.

In the language of Sir Walter Scott, this paper appears like "cutting down a tree to get a few twigs with which to build a fire." The twigs: In all forms of diabetes the altered glycogenesis is due either directly or indirectly to the liver. Altho the pancreas or other structure may be primarily at fault, the disease with its consequences is the altered glycogenic function. Therefore, all treatments should bear this in mind and not one of the glycogenic factors alone be resorted to, but if occasion demand, supply all such factors as may be necessary to artificially perform sugar metabolism. Hence, mesoblastic and hypoblastic liver substance should be used just as in the pancreas. Even tubercular complications may be averted by its use. (Harrower: Value of Liver Extracts.) Cushing concludes pituitary deficiency is attended by "marked changes in the histologic picture of many if not all of the other ductless glands." Consequently, to establish ductless gland activity in general, the posterior pituitary hormone should be administered.

From previous postulations the opotherapy of diabetes should also embrace, in proper combination or singly, the hormones of the parathyroid, the thymus, the pancreas the spleen and the lungs; secretin, including enterokinase and, under certain conditions, small quantities of thyroid and suprarenal. Surgical operations upon diabetics have been followed by perfect granulation and union where opotherapy was used conjointly. To organotherapy we must likewise look for overcoming sterility and abortions in diabetics, also to overcome the glycosuria of pregnancy and lactation. Pyocyaneus vaccine in infectious cases seems indicated.

A coal tar preparation should be used in those cases eliminating large quantities of carbon dioxide. The diet should contain only white meats, green vegetables, some levulose (in the form of honey or fruits), such carbohydrates as oatmeal, vegetable proteids like beans, milk in any form is desirable, and the food selected with reference to its vitamines.

Hygiene should embrace sunshine, bathing, etc., everything promoting oxidation. Perhaps no single therapeutic agent accomplishes more than the normal salt enema about three hours after the largest meal. It probably dilutes the contents of the portal vein, as well as favors zymogen activity. I have seen the comatose recover and speak, and the epigastric pain entirely dispelled by its use.

Rosenbloom (from the Biochemical Laboratory of the Western Pennsylvania Hospital) concludes diabetic coma is often from aminoacids, polypeptides and other intermediary products of metabolism and

urges the necessity of a change of views as to the exciting diabetic causes.

The views upon diabetes mellitus, as published about fifteen years ago, concerning the use of antiuric acid diet (especially no red meats), small doses of suprarenal substances in certain types (now shown by the white line upon the skin after passing the finger nail or other substance across it), and the use of such other opotherapeutic substances as indicated, together with the alkaline plan, I think still afford the best results.

SPINAL SIGNIFICANCES, REACTIONS TO MECHANICAL STIMULI.

What is the Common Denominator?

BY

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The subject of mechanical stimulation of the back bone deserves openminded consideration. From the maze of opinions and of cults arisen, especially since the bone setters forced recognition for valuable clinical results, there should emerge a group of uniform principles of action. Long before the bone setters annoyed and bewildered the surgeons of England, and Wharton Hood wrote his interesting and helpful little book, similar methods have been employed and rendered conspicuous service.

The first reputable attempt to explain scientifically phenomena and physiology of spine tenderness, etc., was made by the brothers Griffin, prominent physicians in Great Britain who wrote a book published in 1845. The whole subject seemed to become anathema to the profession. This is unfortunate and by no means justified, since there can be no doubt now entertained of the usefulness of these measures, notwithstanding they were first exploited chiefly by shrewd irregulars. The body framework (static mechanisms) may get out of adjustment and by orthopedic measures, chiefly crude manipulation, they can be set in order for the benefit of those who need them. To neglect them is to omit doing duty to the group of sufferers from disordered reflex equilibria, unless it can be proved that more effective measures exist for obtaining the same kinds of relief. Educated physicians are amply capable of making use of special stimulation in suitable cases, necessarily limited.

It has always seemed to me there must be found some sound physiologic principle underlying all those highly extolled measures directed to readjusting or mechanically stimulating the spinal column; some common denominator capable of explaining the clinical phenomena and effects obtained, or apparently obtained, by the various methods exploited for exerting shocks upon the vertebral masses. Body function is evidently influenced uniformily by these crude measures and oftentimes restored to normal in varying directions and degrees.

The question arises: How do they come about and how worth while is it to study and adopt them? Accident directed my attention that way, and whatever of culpable enthusiasm may have animated me originally, the disapproval, the jeers, even contempt I first aroused, would have deterred efforts did not the evidence amply warrant further pursuit.

I approached the subject with open mind; went to the claimants of special expertness, submitted my own body and also that of certain patients to whom I could afford no re-

lief, watched the progress of their treatment, oftentimes cure; I conferred candidly and critically with the healers and, being myself equipped with good motor apperception, deftness and kinesthetic sense, attained some personal expertness. By methods of readjusting the back bone certain uniform effects follow; certain similar phenomena appear and reappear. They oftentimes effect economies of time and restore disabilities not otherwise obtainable.

When skilfully done by concussion or manipulation or a combination of adjustive and readjustive measures eliciting also the orthopedic principles of kinesitherapy, muscle tonus, plus or minus, the actions and reactions obtained follow well known physiologic responses.

It must be borne in mind that by no means every one is endowed with niceties of motor or kinesthetic (muscle sense) apperception, hence is scarcely capable of appreciating the phenomena exhibited. I incline to the opinion that when specialization in medicine shall be based on proper selection of types of men and women as to aptitudes, and when these are trained suitably from early youth, this subject of developmental or manipulative orthopedics will take a high place in the departments of clinical medicine. Hence the subject deserves openminded attention as a rich field of auxiliary diagnosis and remediation.

II.

The special subject here being considered is manipulative or manual orthopedics of the spinal column. What is the common denominator, the mutual integer, or expotential?

It would seem to me it will be found in a state of relative rigidity, loss of normal mobility, impaired pliancy of the paravertebral structures (those lying along side the back bone) whereby some kind of degree of interference is exerted upon the out-going nerves. There are thirty-one pairs of spinal nerves, each with their lateral processes, which divide the posterior primary divisions going to the erector spinae muscles about two or three inches on each side of the midline of the back, and the other to the anterior structures, organs, etc.

There is pretty well established a clinical relationship between these subsidiary centers in the cord and diseased conditions. These morbidities are shown by alterations in the paravertebral structures both morphologic (structurally) and sensory, as will be later pointed out in diagnostic contrasts. The fact is demonstrable that when these recognizable uniform phenomena disappear, there follows coincidentally a lessening, modification or disappearance of the morbid phenomena.

What causes these manifestations of disorder to disappear?

It would seem to me the common denominator or generic agency is the application of judicious minor shocks to the vertebral bodies or those structures intimately associated with them.

Good and fairly uniform results follow almost any form or kind of rightly directed force, gentle, firm or emphatic spinal impacts, so long as they are capable to stimulating certain definite reflexes. Results follow in accord with known nervous associations (innervations). In states of health these reactions, these comings to rest after stimulation (equilibration) are so automatic that they escape notice. In ill health they are readily noticeable, determinable and controllable; they follow in due order, and in accord with biologic laws.

III.

What is the nature of effects wrought by agitation, commotion or jolting of the spinal masses?

Probably there are several varieties of the same grouping of effects, manifested all the way from the bone and adjacent structures along the nerves to the part out of gear and, collaterally, by the complex innervation of the vegetative or autonomic nerve distributions.

Some part of these effects are produced by influencing the spinal reflexes (motor) of contraction in the hollow and tubular viscera. These are capable of demonstration upon the heart, the aorta, the lungs, the stomach, the kidneys and other structures.

Some part are produced by reflexes governing the contraction of blood vessels (vasomotor), whereby the ebb and flow of fluids are enhanced, thru contraction induced in the arteries; also increased dilation follows. (I am inclined to think not much can be done to isolate arterial relaxation.)

So far as adducing massive and convincing data, to sustain these postulates, it is true the subject has not yet been accorded such a degree of scientific scrutiny as shall satisfy the hypercritical. Much reputable research has been already done however.[1]

IV.

What are the gross phenomena of disordered states reflected upon the paravertebral structure?

The intervertebral spaces and the paravertebral structures are together capable of cooperating in influencing a general or mass movement of the vertebrae of considerable extent. It is fair to assume that the integrity of the delicate structures, constituting the subsidiary spinal nerve centers in the cord, depends in large measure not only on the normal pliancy or movability of these masses, but that they should be regularly moved or made to move—that is be exercised. If they are extensively disturbed, that is if disease has induced deleterious effects on the nerve cells between the individual bones of the back (intervertebral cell bodies), a certain degree of sensory discomfort follows upon their being unduly moved or impinged upon.

Hence arise those sensory phenomena to be later described.

When the diseased state has been long protracted, these paravertebral structures suffer morphologic (mass) changes, hence arise the local bogginess, later the rigidities, the overtense (spastic) muscle fibers to be described.

V.

Why direct so much attention to the back?

A well known primitive remedy, not only for an injury but any painful state, practically instinctive, is stroking, rubbing, soothing pressures; often firm seizure of parts; gentle separation of adherent, contractured, spasmodic, or otherwise suffering structures. These have been developed among early peoples into systems of manipulation, squeezings and pressures. Experience shows these procedures are peculiarly efficacious and grateful when done upon the back.

A measure I have described and extolled was suggested by Edwin Cordery Lee, of

[1] In my filing cabinet is a mass of original articles in which there is abundant incidental evidence found in observations directed to other subjects. Some one with more leisure and exact knowledge of pathology than myself will correlate the evidence in time.

lifting and pulling at the skin and underlying structures, called "subdermal traction." As has been shown this measure is peculiarly valuable not only to expedite circulation and generate or induce heat, to soothe, to relieve, but also there will be found over an affected spinal area almost always *adhesions* and when these adhesions are pulled upon, pain is felt there and at no other place; also when they "fetch away" there is a noticeable "snap" or tearing of binding fibers. This also is a characteristic phenomenon of a spinal as well as a paravertebral irritation.

My experience would lead me to infer a direct significance exists in these rigidities, limitations of movement; hence any carefully applied mechanical shock, push, pull or twist capable of freeing them and restoring full pliancy, mobility, flexibility will contribute to betterment of the condition correlated with (or produced by) these limitations. These spinal reflexes are the dominant phenomena of the body; less fine, less highly differentiated of course than those of the sense organs, but of direct import on the main functions—those of the vegetative, nutritive, circulatory, respiratory, genito-urinary and other vital functions.

These phenomena not only lessen as a rule during the few minutes occupied by touch explorations (palpations), but when these same areas are again touched (the next or even two or three days after), a change will be noted in the character of; (a) the resistancies, spasm, local rigidities, etc., but also (b) in the kind of sensation felt (it is now more of a dull soreness like a bruise or fibromyositis, and it is also of less intensity); but also (c) there will ensue almost immediately (*i. e.* in a few minutes) a lessening of the characteristic sensations marking the ailment, *e. g.* congestion, as of the nose, the eyes, suffusion, lacrymation, "burning"; of tickling as in the throat and of various pains, colic, headache, and the like. The pulse if quickened, febrile, is usually lowered in rate and tension (it can be notably reduced if skilfully done). In short there is displayed the phenomena of lowered vasomotor tension.

Again the "thrust," after the manner of the chiropractors, is followed often by "cracks" which at first alarm, but are followed as a rule by conspicuous modifications of the outstanding discomforts, distresses. These "cracks" can be elicited in the back bone of almost any person of middle or later years as any one can demonstrate for himself.

It may be admitted that some part of any, or all, of these effects are "due to suggestion"; so frequently are they induced, however, upon persons who have had all sorts of other "treatments" without desired result, that their capability of inducing mere suggestion is reduced to a minimum.

TYPES OF MECHANICAL STIMULATION EMPLOYED AS REMEDIES.

(1) *Spondylotherapy* (or *Reflexotherapy*) Albert Abrams, A. M., LL. D., M. D., (University of Heidelberg) F. R. M. S.

A highly elaborated, scientifically verified and clinically demonstrated system of exerting impacts (concussions) on particular vertebral prominences eliciting the reflex of contraction of hollow and of tubular organs. This deserves candid consideration as being the product of close study, experience and submission of findings to leading authorities here and abroad by a highly educated, skilful physician.

(2) The *"Lummi-Lummi"* of the South

Sea Islanders—a crude method of tapping the spine and back structures employed by the well-to-do natives with obviously good effects, peculiarly suited to the excitation of function and vigor in hot climates. Those who use this most are said to become extraordinarily well conditioned. Other more or less similar methods have been employed thru oriental countries and in early history. Some form of tapping, "hacking" or "tapotement" is used as part of most European systems of massage.

(3) *Osteopathy* consists of a diversity of manipulative procedures directed chiefly to the vertebral column with the avowed purpose of "replacing vertebrae," or overcoming "lesions," mainly of bones and joints, which have "become subluxated." In effect this is the induction of a series of minor shocks designed to keep the paravertebral structures mobile, flexible. In doing this the structures, thru which the primary division of the spinal nerves pass, are agitated, elasticized and more or less moved.

(4) *Chiropraxy* consists of forward pressures of supposedly backward displaced vertebrae, by sudden carefully directed "thrusts" whose aim is to replace vertebral masses which have "become displaced" posteriorly. It is claimed that the procedure should be repeated a certain number of consecutive times, a dozen or more, for the purpose of making sure these bones stay when replaced; admittedly also to keep the adjacent structures mobilized.

(5) *Mechano-neural Therapy*—a System of Gentle Manipulations or Palpations, described by John P. Arnold, M. D. and Harry Walter, for the avowed purpose of influencing the reflexes of vasocontraction in the vasomotor nerves.

The methods which have afforded me the best results consist of a combination of several of these but chiefly of number 5. Here are a few points from experience:

In all acute, in all subacute, and to a less degree in most protracted or chronic disorders, there will be found characteristic phenomena on palpation of the paravertebral structures adjacent to those intervertebral spaces in which lie the cell bodies from which arise the spinal nerves innervating the part affected. Any one can test this for himself. The one provision which must be insisted on is some accuracy and precision of awareness, some expertness in tactile apperception and also compliance with a few plain precautions. These will be described later, along with certain subjective phenomena.

There will be perceived thru intelligent, educated finger touch:

(1) A state of tension, amounting to varying degrees of rigidity in the structures parallel to the vertebral axis chiefly and also often in the transverse muscle fibers; also a density or spasm, so giving a sensation (to the fingers) of strings taut, a clearly defined fibrous resistance.

(2) A state of tenderness is also felt by the patient, often a sharp pain, described usually as like a hot object pressed in, or a penetration as by a pointed object, *e. g.*, a finger nail.

(3) By gently alternating the pressures applied above or near this rigidity, tension and subjective tenderness, these phenomena will usually lessen notably even during the procedure or soon thereafter.

(4) By making pressures after an interval of a few, two or three, minutes and again exerting them phenomena of tension will lessen yet more. The recommendation is to repeat this procedure three or, better, four times. The last time the phenomena

perceived, both by the physician and the patient, will have usually lessened at least 50% —often more.

(5) There will also be found by the patient distinct relief from distressful phenomena in those peripheral parts affected, *e. g.,* irritation in the respiratory or digestive tract, cough, soreness in throat, etc., or discomforts, notably distresses, tenderness and the like in the intestines.

A PLEA FOR THE SCIENTIFIC TREATMENT OF THE JUVENILE DELINQUENT.

BY

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Penology is a science and a very important one. It belongs in a class by itself, but is nevertheless so closely allied to the science of medicine that it almost constitutes a special branch.

The sooner we get away from the popular idea that the inmates of our prisons and reformatories are simply lawbreakers who are paying the penalty for their misdeeds, the sooner we will be able to approach the problem intelligently. The well known epigram that a bad boy is simply a case of misdirected energy is on a par with the one that says dirt is only misplaced matter, and while it is somewhat illuminating in a general way, it goes a very short ways toward an explanation of the question. A bad boy's misdeeds are misdirected energy; but not simply that, by any manner of means. It is not adequate that we provide the stereotyped routine of the average institution for delinquents, such as good nourishing food, proper clothing, military instruction, schooling, moral teaching, the usual course of study practiced in our public schools and some sort of vocational work. All of these are of basic importance; but, while housing, food and clothing should in the main be the same for all classes of children, the other kinds of treatment he receives, or should receive, depend upon the boy's individual needs, and open up a very interesting and fruitful subject for study and investigation, the threshold of which we have as yet barely crossed. Delinquency is almost invariably an abnormality, and the normal boy is not delinquent to the extent that he becomes, on account of it, an inmate of our institutions for correction. It follows logically that this abnormality should be diagnosed and treated just as we would treat any other abnormal mental or physical condition; and the diagnosis and treatment should be arrived at by scientific methods if at all. Family history, personal history, present physical (and emphatically mental) conditions should all be gone into carefully and thoroly, and etiology should play a very important part. Under this caption come the all-important questions, What offense is he guilty of? Why did he do it? This looks at first glance to be purely psychologic and difficult. Much has been written and preached concerning the cause of crime, and the subject has been treated usually in a large, comprehensive and economic manner. But we are concerned now with the individual, and, if we expect to benefit him, we must not treat him until we have done our best to diagnose the condition we are attempting to cure.

It is not possible to go very far, in view of the limits of this paper, toward covering all of the abnormal conditions which we meet in these children, and which in most cases explain the delinquencies.

It will be useful to point out, in a general way, diagnostic methods and to mention some of the abnormal conditions which are most important as causative factors. Mental deficiency by long odds is the most important of these. The result of an examination at the House of Refuge, New York City, of all inmates (which is a routine practice) shows, out of over 1,000 examinations and reexaminations by the Binet system, about 25 per cent. mentally defective; and by this is meant a pronounced defect which will prevent the boy from ever becoming self-supporting by any honest method. It is appreciated that mental deficiency is a much abused and rather indefinite expression, and, in arriving at the 25 per cent. mentioned, the Binet alone has not been depended upon.

Over 15 years more or less daily association with delinquents, which service has included many thousands of physical and mental examinations, together with a consideration of the school records, shop work, and general deportment, has forced the conclusion that a considerable percentage of this class of children is mentally subnormal. Lack of education, so-called backwardness, or retardation mentally, fails to fit the mental status of many of these children. Logically then, the first duty which confronts us is the segregation of the lower grade defectives; and this should be done in a clearing house connected with the courts, which should select for the judge's information all cases of pronounced mental defect in order that these may be sent to an institution for defective delinquents for an indefinite stay with proper treatment. Of course classification in the institution is necessary if we want to help these children and prevent the serious evil of contamination which is the inevitable result of indiscriminate confinement in large institutions; proper classification should begin immediately after the arrest and before commitment, so that he or she may be sent to an appropriate institution for treatment. This leads naturally to the conclusion that not only inmates but the institutions themselves should be classified, and this seems to be most important. The day of the large reformatory, harboring a thousand or more delinquents, is over, or ought to be. There seems to be no sufficient reason why the reform system of the state should not be readjusted so that we might have one institution devoted to the care and treatment of mental defective delinquents, where treatment of these unfortunates could be specialized and carried out scientifically; a place where these unfortunate children might have a glimmer of hope which is now denied them.

Another institution should be provided for the chronic offender, who is also a serious menace in institutions of this kind by defiance and infraction of the necessary rules of conduct; and, what is a great deal worse, his influence on the other and better class of boys is most deplorable and often does more harm than the institution with all its officers is able to offset. Such an institution is badly needed in this state, and could be made in part self-supporting. Commitment should be made only after a most careful mental and physical examination, and a consideration of the heredity, and personal and family records. Indeterminate sentences and parole should be given in selected cases only after careful clinical study. Work shops in such an institution could be made a source of considerable income, a part of which might be sent to the inmate's family if they were needy, or a part might be allowed to accumulate for the benefit of the inmate himself, with the

stipulation that he must show sufficient improvement to earn it with his parole. Of course it may be difficult, in some cases, to determine which is the real criminal, but there will be no difficulty, in the majority of cases, remembering always to give the boy the benefit of the doubt in the border line; eliminating these we will still have enough left who are undoubtedly criminal in instinct and practice to fill a reasonably large special institution for this class of children. Now separation of the mental defectives, about 25 per cent., and the professional criminal and recidivist will leave a class of delinquent children to deal with in the reform school which we can promise to benefit more than contaminate. Proper classification, in any big institution taking delinquents more or less indiscriminately, even under the cottage system, is impossible and impractical, as every one knows who has had sufficient experience with these children. There seems to be a rather common opinion that mental defectives of the higher or moron type, and the persistent law breaker, would be apt to receive some benefit by association with boys of normal mentality, and with those younger boys who are as yet on the threshold of their career. This view is not only unscientific but pernicious; the mental defective is a drag on the normal boy, and more or less of a demoralizing influence in the classroom, shop and playground where he is kicked about by his playmates, and is easily coerced into submitting to perverted practices, which a more normal boy would be apt to successfully resist. The confirmed criminal's influence on any reform is wholly pernicious. A good many inmates are entered in the records under false ages, so that you will find many over 21 years of age; some of these have been returned three, four, or five times; and some have been in the penitentiary or workhouse in the interim, so that the greater part of their lives, after having passed the twelfth year, has been spent in institutions for correction. Now is there any excuse for sending boys of this class to the same reformatory which receives large numbers of smaller boys, boys who have been committed for the first time, many of them guilty of trifling misdemeanors, who under proper influences would be sure to reform? I say there is none, and will go still further and say that such practice cannot be too severely denounced. Every judge in the state who is called upon to commit boys to reform schools ought to visit these institutions, not in any perfunctory manner but to familiarize himself with reformatory life, at least in a general way, so that he knows under what conditions the boy is going to be placed, bearing in mind the important fact that the year or two in which he works out his first commitment is apt either to make or break him for life. The confirmed criminal receives little or no benefit and manages to upset discipline, remaining a constant menace and disturber from the day he enters the institution to the day he leaves it; his "bits" are long and he comes back often, so that his bad influence is in the nature of a continuous performance. The only law the criminal respects or invokes is the law of the individual; he never delivers any one into the hands of justice except to save himself; his idea of law is to administer it himself and when he has been wronged, or even mortally injured, he almost never tells who did it. He promises to get even or "hunk" later; his relation to law and government is one of hate and fear.

The average reformatory school system is much hampered by the indiscriminate nature of the students; defectives and hope-

less criminals are a drag on the teachers and the rest of the pupils. Time wasted on these kinds of boys might much better be employed to advantage on the brighter and better disposed children with whom much good may be accomplished. Mental defectives go so far and no farther; for example a boy of 17 who measures below 10 will, as a general rule, reach a grade suitable for a boy of 10, and there he will stick in spite of anything that can be done to advance him in the way of book instruction.

Manual and vocational work is what that boy needs; dawdling in school, wasting his time and exasperating the teacher, he is deteriorating while he might be getting some real benefit from vocational training. Of course the lower grade defectives, of whom there are a good many in our reformatories, should be gotten rid of by transfer to suitable institutions; or, better still, should never be sent to institutions receiving children of normal mentality.

It is a most difficult matter by any known system to accurately determine the exact mental measurement of these delinquent children and, as they grow older, the more difficult it becomes. The Binet, or modified Binet is undoubtedly the best we have and is most useful in spite of its limitations. It is perfectly safe to say that at least 5 per cent. of the inmates of reformatories are low grade defectives, who will never make good under any line of treatment; that is they will not be able to make a living in competition with the average young man. Left to themselves their mental limitations result in their being pushed into the discard, and their only resource is to steal a living unless cared for. Of the inmates of the average reform school about 15 per cent. are defectives of higher grade, or morons, who are able to perform some kinds of elementary vocational work for a living but whose future will be uncertain under any except the better kind of influence and environment.

What these delinquents lack most is inhibition. Resistance to impulses and desires seems in many cases to be entirely wanting. This naturally is intimately associated with mental deficiency, and reformatory boys as a class show traits preponderating in the mental weakling, such as bed-wetting. Between 5 and 10 per cent. of the inmates of the House of Refuge are persistent "floaters," a habit common to the demented and feebleminded. This is often a baby-habit persisting to adolescent age thru lack of inhibition. Many of these boys are prone to remove dressings and bandages which have been applied in the hospital, another trait which you will not find in the average normal boy. The subject of resistance has almost revolutionized the practice of medicine. Building up the body resistance to the point of immunity has proven brilliant in its results. After making an accurate diagnosis of these delinquents it might be possible by psychical methods to build up the inhibition of these children to the point of immunity to crime. Many people subscribe to the theory that there is good in every boy; and, by training the good, we will be able to cure his bad traits. There is much fallacy in this theory; as well attempt to cure a sick man by administering tonics, to improve his general health, without attacking the disease which is undermining it. So whether we build up resistance or attempt to cure the existing defect, it will be necessary to make as accurate a diagnosis as possible at the outset.

Practically all criminals are either subnormal or abnormal mentally. Any psychologic study of the inmates of our reforma-

tories must follow special lines of investigation which later should be checked up, and used as helps in any broad conception of the subjects. Institutions for the treatment of delinquents are what is needed, and not jails and prisons under whatever name they might masquerade. These institutions should have officers and teachers who have received, or will receive in the institution, special training for the work expected of them and not merely guards and executives.

Institutions receiving juvenile delinquents should maintain some sort of a clinic for the study of the individual delinquent, where a diagnosis of the condition responsible for the delinquency should be made, and treatment suitable for the case carefully prescribed. Teaching should be rational, with a leaning toward the vocational in selected cases; there should be special methods for special needs, based upon a study of the individual. Of course as these children are studied they will fall naturally into classes, in accord with the mental and physical characters and personal and family history, so that teaching and general treatment based on these classes would be the rational and simple method.

Give the reformable boy a chance. Separate him absolutely from the mental defective and criminal. The idea that association of bad boys with better ones helps the bad boy works always the other way in a reformatory where the predominance is so strongly in favor of the offenders. Furthermore to keep the mental defective with normal children does not help the defective, and it is not fair to the normal boy; and, as in the case of the criminal, the practice is pernicious and inexcusable. There is no justification for the practice of returning boys to the reformatory three, four and five times. These chronic cases belong to a special institution, and have no place in a real reformatory receiving boys for the first time.

Children who lie, steal and play truant repeatedly, and those who are guilty of more serious offences are psychopathic and as such need psychologic study and treatment. It is a fair statement that such children will show, as a class, some more or less certain deviation from the normal; if not a pronounced mental defect, at least some abnormal mental state which it should be our duty to correct. The somewhat prevalent notion that when we provide delinquent children with food, shelter, clothing and military training, together with some more or less perfunctory school and shop work, we are doing our duty by them is a false conception. We are, by so doing, merely scratching the surface of the boy's real needs. By the time he gets to the reform school he is usually a decidedly bad boy; for the courts, especially in Greater New York, are very lenient with the first offender; parole and the suspended sentence are the rule in such cases, and often the lad is paroled several times before he is finally committed.

We must recognize the fact that 25 per cent. or somewhere near that number are defective mentally, and weed them out of our reform institutions.

We are not getting desired results now. Why not? Our present methods in the average reformatory are not successful either in actual reformation or from an economic standpoint, and it is high time that these methods were improved radically. It is wrong to give a boy marks and discredits simply because he is stupid and makes mistakes. Often the officer responsible does not recognize the fact that the

boy is mentally subnormal. It is still worse to slap and browbeat an inmate because he blunders from sheer stupidity; yet this often happens in institutions receiving boys of all grades of mentality where there is no scientific and painstaking classification, and where is there such an institution? Any mental defective delinquent of the lower grades is out of his environment in any kind of an institution receiving normally constituted children. The benefit to be derived from vocational work is not utilized as it ought to be. From my observation it is a good deal of a farce as now practiced. An attempt is made to teach carpentry, telegraphy, blacksmithing, shoemaking, painting, etc. How many boys of 16 to 21, after 1½ to 2 years in the reformatory shops are fit to take a position as journeymen in any of these trades? Very few, if I am not mistaken. Teaching in both the school and shops should be by men and women trained for this kind of work and a system of training for these teachers could well be maintained in the larger institutions. This kind of training would be of incalculable benefit to the inmates, enabling them to earn good wages when they are paroled, and thus giving them confidence which would exert a decided moral uplift. As to the treatment by purely moral methods, (and by that is meant the emotional, such as honor systems, welfare leagues and all other attempts to appeal to the law breaker's moral nature) these things are both important and interesting, and should have a large place in any scheme having for its object the reformation of the delinquent. Properly managed these methods should be tried out as far as is compatible with safety; but they should never be used to replace the rational and scientific method here advocated. I shall be more than satisfied if these rather rambling observations serve as a stimulus to the study of the delinquent himself, and so lead toward a new conception of the treatment of these patients and away from many of our present obsolete methods.

LONDON LETTER

(From our own correspondent.)

In beginning a series of letters addressed from London to the readers of AMERICAN MEDICINE I venture to define a little what may be expected in it.

London is a very real center of Great Britain as well as of the British Empire, and in London as a center is received information and impressions from the whole of an extensive and varying periphery. As far as the medical world goes, everything that happens in medicine, whether in its scientific, social, military, naval, or international aspects, is reflected directly and indirectly in London, where the state bureaus and the offices of the leading medical corporations and associations, the admiralty, the war office, the embassies and the consulates are situated. It is medicine seen in London as a great place of exchange that will favor the subject of these communications.

But London has a life of its own, which is led by seven million persons in every grade of wealth and poverty; and the urban aggregation of the county of London—*i. e.*, the middle of London with a population of four and a half millions—produces problems of medical organization which are not met with in such accentuated form elsewhere in the Empire. To discuss such problems, however, will only be written the scope of their votes where the circumstances in which the problems manifest themselves happen to affect medicine generally, and not only London proper. If, for example, the proceedings are mentioned of a London medical society it will be not because the session was in London, but because the experiences, recorded in London, have general application and are worthy of general attention.

THE PHYSIOLOGY OF DRINK.

In Great Britain as quickly as in any of the belligerent countries it was seen that the control of the sale of alcohol would be a vital necessity for a nation at war, which was only to say that it had really been a necessity for the nation at peace, tho the less urgent circumstances allowed a toleration of evils whose danger now became obvious to everyone. The man of poverty, misery, crime and disease

that could be traced to the abuse of alcohol was admitted on all hands to be immense, but one of the factors in preventing earlier measures of restraint in the sale of alcohol was that of overzealous teetotalers magnified the size of the mass, difficult tho the task was, and thus supplied their interested adversaries with scientific ground for laughing at them. Doubt as to the direction or extent of the new legislation required was in this way inspired in the official bosom, and hesitation as to the precise things which should be done was used by legislators, seldom persons of enterprise, as an excellent excuse for doing nothing.

The war forced the hands of timid and greedy people, and shortly after hostilities began restrictions in the manufacture and sale of alcohol were enjoined by law whose extent had previously never been contemplated. Sobriety was enforced by shortness of supply, by a consequent enormous rise in price, and mainly by the many difficulties with which all the machinery of retail became hedged about. The people stood the military discipline wonderfully well; the murmurs were limited and sporadic, and before they could swell anywhere into serious protest vast benefits in health and comfort, as well as the cessation of certain forms of crime, became manifest.

But the operation of this Central Control Board, the statutory body erected by the Defence of the Realms Act to regulate the liquor traffic after the outbreak of war, while justified by their success from the first, emanated from a lay regard for existing circumstances, and the physiologic grounds upon which the measures of restraint were founded had for a long time to be taken for granted, with the result that the scientific wisdom of the new legislation was challenged in many directions and on many counts. The challenge has now been taken up by the Central Control Board, who have issued an official study of the physiologic action of alcohol, prepared for them by an advisory committee of unimpeachable strength. The committee, presided over by Lord D'Abernon, who made his fame as Sir Edgar Vincent, governor of the Imperial Ottoman Bank, and later financial adviser to the Khedive of Egypt, includes Sir George Newman, (medical officer to the Board of Education) Professor A. R. Cushing (pharmacologic chemist), Dr. M. Greenwood (medical statistician), Dr. H. H. Dale, Dr. W. McDougall, and Professor C. S. Sherrington (eminent in their various lines of physiologic research); Colonel F. W. Mott, now the leading British alienist, and Dr. W. C. Sullivan, superintendent of an important criminal lunatic asylum. The report of such a committee, composed thruout of persons whose right to speak on their particular subjects is unimpeachable, was found to obtain an immediate and respectful hearing, and the publication in this form of the scientific basis for the energies of the Central Control Board has proved to be a thoroly sound proceeding. The report gives formal and explicit evidence of the direction in which the evils of alcohol are undoubted and an also amenable to restraint, while the analysis of their evidence, written in the simplest words which can be employed without introducing doubt into the message of the report, is truly critical, proving that the desire of the committee has been to state the case for and against the right use of alcohol, as it now presents itself, while holding themselves ready, after further research, to formulate more definite or detailed conclusions. The work is as much a confession of doubt as a résume of knowledge, and its educational value has been much enhanced by its temper of moderation. To the old and vexed questions, is alcohol a food or a poison, the report gives a delphic reply, neither and both, showing that its food value is indirect and dependent upon its narcotic power, and its poison effect commensurate with dose and personal habit. The report is a valuable guide to the alcohol question both for the laity and the medical profession.

THE MEDICAL SERVICE OF THE BRITISH AIR BOARD.

The medical service of the British air forces is, and none too soon, to be constituted more or less on the lines indicated by the existing position of affairs. By the third year of the war at all events, if not before, the air force had attained to the rank of a district service whose importance, separately and in alliance with the military and naval forces, could not be exaggerated. But while the army and the navy enjoyed the ministrations of special medical corps—of which the permanent officers had received training directed toward the responsibilities assumed with their commissions—the air force was medically examined, safeguarded and treated by medical officers, detached from the army and navy corps or commissioned from civilian medical practitioners, who had received no particular instruction in the subjects where their opinion would be most valuable to flying men. Further, neither the military, the naval authorities, nor the medical profession had arrived at any definite idea what the directions were in which medical aid would be particularly required by flying men. Vaguely it was felt that the flying man's arduous and perilous work made it necessary that he should be fit and brave, but from what sources breakdown might usually come, from what accidents protection was most called for, and upon what method of standardization the aviator could be most safely selected—on all these vital points neither official, medical, nor even general British opinion was ever expressed until what was being done in America and in France roused public attention. Then, and quickly, things began to move. A committee under the chairmanship of Sir Watson Cheyne, a late president of the Royal College of Surgeons of England, and now a surgeon-general in the navy and member of Parliament for the University of Edinburgh, was appointed to advise the air board upon matters medical, and especially upon the pattern which a medical service for the air force should assume. The committee was a really stray one and made powerful representations, all tending to show that the medical serv-

ice of the air force ought to be an individual service and that its members required careful selection for their high scientific and professional quality. The committee pointed out that when aviation first commenced accidents were usually attributed to faulty machines, but that, during the conduct of the war, it had become immediately apparent that in many cases accidents were due to the physical and moral conditions imposed by aviation upon the pilots and observers. The strain thrown upon the human organism by aviation is greater than any to which it has been yet exposed in the history of mankind; all other pursuits pale in intensity before the life of the fighting aviator, if only because all other energies are evolved at a normal barometric pressure and in the presence of an ample supply of oxygen. The nervous mechanism of the aviator is perpetually acting under strain in the maintenance of equilibrium. Then obvious things were brought by the committee to the notice of the air force in terms compelling the knowledge that in the selection of pilots and observers the most scrupulous medical inspection made by thoroly well equipped surgeons, physicians and specialists was needed. And more, it was shown that the aviator required medical inspection and protection thruout his active career, if accidents were to be prevented and tragedies obviated. It was proved that only after careful research, by observers competent for the difficult work, could all the medical details be elucidated which would enable pilots to be graded according to the type of work for which they were best fitted, and at which they would suffer the least physical wear and tear, thus claiming for the medical service of the air force the assistance of experienced aural and ophthalmic surgeons as well as medical men trained in applied physiologic methods. For the psychologist again, it was pointed out, there would be a large field of inquiry, as an examination of the causes of groups of accidents was suggestive of the existence of a real flying temperament, tho its presence as yet evaded anything like certain detection. But despite the unanswerable arguments for the immediate constitution of a highly endowed medical service for the air force, arguments which were accepted at their high value by the officials of that force, difficulty was experienced in getting the scheme for a separate, special and highly graded service put into force. The navy and army viewed the detachment from their available medical personnel of medical officers of the indicated quality with natural qualms, and for a time it seemed likely that nothing would be done. The Air Board, however, has tactful and vigorous people at its official head, and as they were resolved to have its pilots and scouts as well selected and fully protected as possible, there was much debating, and some of the opposition "tactics" savored of intrigue, but in the end a scheme was got thru, more or less of a compromise nature, which however creates a medical service for the air force, with proper rank and administrative machinery, and controlled by a committee which includes representatives of physiology and neurology. From this beginning it is confidently hoped that a service will develop of the sort that was originally recommended by Sir Watson Cheyne's committee.

THE COMING MINISTRY OF HEALTH IN GREAT BRITAIN.

That the care of national health should be erected into or placed under the ægis of a great government department has been recognized by all classes of British society and all shades of political opinion as a move for good as, indeed, a legitimate development of the public health work undertaken in England with increasing success for half a century. But while this consensus of opinion has been arrived at, neither the date when an actual start should be made in procuring the necessary legislation, nor the machinery which it is most advisable to create, has been decided upon with similar unanimity. The question of when new legislation should come into force is an example of the dilemma that always occurs in public affairs in the preliminary stages of what is felt to be a revolution. Should action be taken at once, altho it is certain that some of the preliminary measures will later require much modification? Or should action be delayed until, with the careful scrutiny due to delay, the necessity for many of these modifications has been obviated? One school of thought in this position always says, If you do not begin you will never get on. The other school of thought, inevitably falling back upon the Latin tag *festina lente*, points out that time is not saved, but rather is wasted, by taking hasty steps, which may have to be retraced. The probability is that the British Government will in this case follow the example of all governments where two utterly different courses meet with equal support, and will compromise—they will wait a certain time, but not a very long time. From the medical profession the Government is receiving no definite advice, but encouragement to act in each of the two directions; for while one section of the medical community, irritated by certain obvious muddles in health administration, is pressing for the immediate introduction into Parliament of a bill constructing a Ministry of Health, another section, equally influential, points out that there is considerable risk from the medical point of view in proceeding to definite measures when the interests and energies of many of the most representative medical men in the country are entirely absorbed by the conduct of the war. Undoubtedly the fact that no scheme for the constitution of a Ministry of Health has as yet met with anything like general medical approval makes for delay. At the present moment the health of the country is maintained by energies which are curiously diverse and in some places overlapping. The sanitary administration is in the hands of the local government board; the various medical officers of health of counties, towns, and districts, are under the ægis of the board which has also some power of veto in the selection of the personnel, altho the actual choice is made by the popular local representatives or sanitary authorities of the localities. So much for preventive medicine and general sanitation. But the medical care

of more than half the population has devolved under the National Insurance Acts upon the members of the National Insurance Medical Service, who administer treatment to about half the population on a system of "panels," the medical man's "panel" being those patients falling within the category of the acts, who place their names upon a doctor's regular list and obtain advice and treatment from him in satisfaction of capitation fees. Preventive medicine and therapeutic medicine it thus will be seen are administered by two totally different public bodies, while vital statistics are largely controlled from the government statistical bureau at Somerset House; and the Board of Education has considerable responsibility in health matters with regard to children of school age. The new Ministry of Health, it is proposed, should roll all these energies into one, thereby preventing much overlapping and disorderly effort, but a homogeneous plan, under which the efforts, now carried on by these separate bodies, may be continued and improved, appears to be difficult to devise. The probability is that the new Ministry of Health will center round the Medical Department of the Local Government Board, inasmuch as it is a first-class government department, whose president is almost invariably in the cabinet and whose officiate is always of a high standard and carefully selected. Those who urge that the medical service set up under the National Insurance Acts, because of its immense responsibilities with regard to the health of the people, should be the nucleus of a new Ministry of Health, are face to face with the fact that all the most important developments of medicine are towards prevention. The scope of preventive medicine is boundless; not only all drainage, all water-supply, and all housing construction, but even questions of transport, of supply, and of fiscal rating, play an intimate part in it. Now the management and control of these matters are in the hands of the Local Government Board and must remain there. If that board becomes the central medical authority, any difficulties arising between therapeutic medicine, preventive medicine, and general local amenities, will be adjusted within the walls of the same department, a thing which could not possibly happen if the commissioners under the National Insurance Acts became the authorities of the Ministry of Health.

At any moment friction might arise between the Ministry of Health so constituted and the Local Government Board, and overlapping would continue to avoid such friction. There is a third alternative, present to the minds of many out and out reformers, namely the creation of a new department, entirely independent and inclusive, but the sacrifice of continuity which this would curtail would be dearly bought. All probability points to the creation in a short space of time of a Ministry of Health, as a wing of the Local Government Board, to which the medical duties of other government departments will be affiliated, and no one doubts that the new legislation will have a valuable effect upon the science and practice of British medicine.

NEED FOR MORE MEN IN MEDICAL RESERVE CORPS.

To the Editor,

AMERICAN MEDICINE, New York City.

1. I wish to call to the attention of the profession at large the urgent need of additional medical officers. As the war progresses the need for additional officers becomes each day more and more apparent. Altho the medical profession of the country has responded as has no other profession, future response must be greater and greater. The Department has almost reached the limit of medical officers available for assignment.

2. I am, therefore, appealing to you to bring to the attention of the profession at large the necessity for additional volunteers. So far the United States has been involved only in the preparatory phase of this war. We are now about to enter upon the active, or the fighting phase, a phase which will make enormous demands upon the resources of the country. The conservation of these resources, especially that of man-power, depends entirely upon an adequate medical service. The morning papers publish a statement that by the end of the year a million and a half of men will be in France. Fifteen thousand medical officers will be required for that army alone. There are today on active duty 15,174 officers of the Medical Reserve Corps.

3. Within the next two or three months the second draft will be made, to be followed by other drafts, each of which will require its proportionate number of medical officers. There are at this time on the available list of the Reserve Corps an insufficient number of officers to meet the demands of this draft.

4. I cannot emphasize too strongly the supreme demand for medical officers. Will you give the Department your assistance in obtaining these officers? It is not now a question of a few hundred medical men

volunteering for service, but it is a question of the mobilization of the profession. In the large centers of population and at other convenient points, as well as at all army camps and cantonments, boards of officers have been convened for the purpose of examining candidates for commission in the Medical Reserve Corps of the army. An applicant for the Reserve should apply to the Board nearest his home.

5. The requirements for commission in the Medical Reserve Corps are that the applicant be a male citizen of the United States, a graduate of a reputable school of medicine, authorized to confer the degree of M. D., between the ages of 22 and 55 years of age and professionally, morally and physically qualified for service.

6. With deep appreciation of any service you may be able to render the Department, I am,

W. C. GORGAS,
Surgeon General, U. S. Army.

Allergy in Skin Affections.—Lutz (*Correspondenz-Blatt für Schweizer Aerzte,* Dec. 1, 1917) discusses the term allergy which was introduced in 1906 by von Pirquet to signify an altered capacity for reaction toward a given irritant. As allergy is preeminently a cutaneous phenomenon it should play a rôle in cutaneous medicine, and, as a matter of fact, is well demonstrated in the ringworm group of dermatoses. This is readily shown in animal experiment. If a pure culture of fungi is rubbed into the smoothly shaven skin of a guinea pig a lesion is visible on the fourth day, reaching its acme on the twelfth day. An area of skin is inflamed and surmounted by a scab which, when removed, exposes an ulcer. After the twelfth day rapid involution occurs, the hair reappears and by the end of the sixth week there is no trace of the lesion. If now the same culture is rubbed into a new shaved area a reaction is seen to occur in twenty-four to forty-eight hours; but, despite this brevity of the incubation period, the inflammation is much less pronounced and quite atypical. It may be decidedly abortive, lasting but three days, and at most does not exceed two weeks. A crushed ulcer never forms—only scaling or pustule formation. The allergy consists of a great diminution in the severity of the reaction, and must not be confounded with anaphylaxis. In allergy the toxins produced by the fungi are absorbed and engender antibodies which bring the inflammatory process to a sharp arrest. After the second inoculation the antibodies which still circulate in the blood inhibit the development of the fungi, and, generally speaking, the phenomenon of allergy is a simple one. In the clinic the phenomenon of allergy is not markedly evident in the trichophyton group, otherwise an affection like tinea sycosis might be self-limited, but it is otherwise with so-called tuberculides which occur in great variety, altho having common traits. While these dermatoses are benign, and cannot be brought into direct relationship either with tubercle bacilli or toxins, they are in some way related to foci in the body of actual tuberculosis. While direct proof cannot be furnished, animal experiment illuminates the problem. If a culture of tubercle bacilli is rubbed into the shaven skin of a guinea pig a small, firm nodule forms, and ulcerates. It does not heal, and the lymphnodes and entire organism become fatally infected. If now an animal thus inoculated is reinoculated, the incubation period, instead of being eight days, as in the first case, is but one day. At first intense, the inflammation soon aborts, and the necrotic hemorrhagic center cicatrizes. In other words, the antibodies in the blood, altho powerless to defend the organism at large, are able to inhibit the action of the newly inoculated bacilli, as in the tricophyton case. We must infer that the same analogy holds good for tuberculides in the human clinic, *i. e.* these are made possible because of antibodies generated as the result of a focus of true tuberculosis in the body. The human subject, by reason of the presence of these same antibodies, has not succumbed to the disease like the much more susceptible guinea pig. Should the protection fall short of a certain degree we see develop not a lichen scrofulosus, or other tuberculide, but actual cu-

taneous tuberculosis—some form of lupus vulgaris. Between the true and allergic forms we may see transitions. In so-called serum allergy, which corresponds to anaphylaxis, we see a behavior quite analogous to so-called idiosyncrasy (toward shell fish, in particular), due to the presence in the blood of foreign protein. Drug idiosyncrasy and anaphylaxis, on the contrary, are not due to protein antigens, but to chemical reaction bodies of specific character. Second injections of quinine or salvarsan may cause anaphylactic reactions quite analogous to the phenomena of serum anaphylaxis.

Radium Therapy in Uterine Cancer.—Stone in *Amer. Jour. Obstetrics and Diseases of Women and Children* (March, 1918) regards the use of radium in the treatment of uterine cancer as of definite service.

1. It is an agent peculiarly suitable for the treatment of uterine cancer and is more effective for the arrest of the progress of the disease, as it is ordinarily presented to the clinician, than any other method that has hitherto been employed.
2. It is more effective in primary lesions than in recurrences.
3. It will occasionally relieve pain in the terminal stages of the disease.
4. It will relieve pain, stop hemorrhage and discharge and restore the general health in a large number of advanced lesions more effectively than any other agent.
5. It will convert borderland lesions into such as are plainly operable and without surgery it will effect a disappearance of the gross evidences of the disease and restore health in a large number of such lesions more effectively than surgery alone has hitherto been able to do.

Ethyl Chloride as a General Anesthetic of Choice in Operations of Short Duration, with Special Reference to Its Value in War Surgery.—Hagler and Bowen in *Surgery, Gynecology and Obstetrics* (March, 1918) report their observations and state that when clearly indicated and when administered according to the described technic, ethyl chloride is preferable to local anesthesia, because the patient is spared *all* pain and because there is great conservation of time and energy. In the stress of active military service, simple and time-saving procedures are welcome aids. As compared with ether and chloroform, ethyl chloride has the advantages of being more rapidly effective, of producing a transient anesthesia, from which recovery is immediate, and of freedom from disagreeable after-effects. It is also simple of administration and in an emergency may be given by persons altogether unskilled in the technic of anesthesia.

The following conclusions are arrived at:

1. Ethyl chloride as a general anesthetic agent has a definite field of usefulness in surgery and is particularly adapted for use in many conditions peculiar to war surgery.
2. When administered carefully *and for short periods only,* it is apparently free from danger.
3. It is not suitable for the reduction of fractures and dislocations on account of failure in producing thoro muscular relaxation.
4. Its usefulness deserves wider recognition among members of the profession and particularly among those at present engaged in the national service.

Rational Organotherapy

Treatment of Thyrosis and Goiter.—White in *Chicago Medical Recorder* (Dec., 1917) writes that thyrosis seems to be the best term to use when speaking of the complex nervous symptoms arising from an abnormally functionating parathyroid and thyroid gland. He has found it to be extremely prevalent in both animals and men at all periods of life, and the blood from animals affected with hypoparathyrosis furnished a thyroid antitoxin which experience has proven to have little less than a specific curative effect in the treatment of thyrosis when injected either into the thyroid gland or into the muscle of the arm in 2 c.c. doses at intervals of once or twice a month.

It was found when treating thyrosis with the goitrous thyroid complication other than

colloidal, that it was necessary to use, in association with the serum, a chemical or iodine preparation to aid in the absorption of the fibrous and cystic goiters and restore the thyroid to normal size and function by injecting the chemical into the goiter, usually at intervals of once a month.

Thyrosis is so frequently primary to other affections and so often in association, that to get permanent and complete curative results in the particular case, you are compelled to give the patient treatment for the thyrosis.

Serum Treatment for Hyperthyroidism.—Beebe in *Interstate Medical Journal* (Feb., 1918) states that the medical treatment of hyperthyroidism, to be successful, requires a careful study of each patient. A simple diagnosis followed by the more or less perfunctory injection of antithyroid serum will in a small percentage of cases be followed by favorable relief, but to restore the patient to complete good health requires a careful analysis of the conditions in each individual. The degree to which each individual patient is subjected to these measures is a matter that can be determined only by the individual conditions in each case.

1. Rest; physical, mental, emotional.
2. Diet; rigid meat free diet, and exclusion of all forms of stimulation, such as tea, coffee and alcoholics.
3. Administration of antithyroid serum.
4. Clearing up of all chronic affections.
5. Maintenance of hygienic conditions of the intestinal tract.
6. The judicious administration of small doses of iodine, always in the form of potassium iodide. This agent is not indicated in all cases, and is used only when the intense activity has been controlled.
7. The proper use at the right period of the treatment of suitable doses of X-ray.
8. The administration of neutral hydrobromide of quinine in a small percentage of patients during the later periods of treatment.

The administration of antithyroid serum is an essential part of the program. Its therapeutic usefulness and its entire harmless effects, when properly administered, have been demonstrated in so conclusive a fashion that it deserves a recognition which the large economic and social importance of hyperthyroidism justifies.

Hyperthyroidism is not exclusively a surgical condition, altho many enthusiastic surgeons so classify it. The operated patient is by no means well and needs long continued medical treatment to make a complete recovery.

Eczema Due to Deficient Thyroid Secretion.—Edelman in *New York Medical Journal* (March 9, 1918) asks "Can the disturbances of the thyroid produce eczema?"

Sajous states that a perfect secretion of the thyroid is necessary for, 1, proper relationship of the amount of fat to the rest of the body; 2, proper nitrogenous metabolism of the body; 3, proper health and functions of the skin and its appendages, hair, nails, etc. Hence, deficient secretion is apt to produce disturbances of skin functions and to interfere with the metabolism of proteins and fats. The skin, being the largest fat organ in the body, therefore bears the brunt of the manifestations occurring in deficient thyroid secretion. It must, therefore, be conceivable that changes in the hormone producing organs, resulting in disorders of general nutrition as above mentioned, may influence the evolution of such skin manifestations as dermatoses and eczemas.

In considering the treatment, we must bear in mind that a child with deficient thyroid secretion has lessened metabolic powers.

Fairly large doses of thyroid should be administered at first, in order to remove results which have been produced by deprivation of thyroid secretion. Later, smaller doses are given to maintain a normal equilibrium and prevent a recurrence. Following improvement, the dose of thyroid which at first was sufficient later becomes an overdose, increasing the oxygenizing process, and the patient begins to consume his own fat. Thyroid, therefore, should only be given when definitely indicated. In conclusion, if we regard the lesions of the skin as merely a symptom rather than a disease, greater progress will be made. In every obstinate skin manifestation, a thoro physical and chemical examination of secretions and excretions is indispensable for determining the proper method of treatment. The clinical picture of disturbances of internal

secretions should always be kept in mind, for it is very important that they should always be estimated in connection with any other symptom, since upon the proper treatment of this factor usually depends success or failure.

On the Internal Secretion of Marrow.—Ord in *Lancet* (Mar. 9, 1918) recalls that in our early days we were taught how well the important parts of the body were protected—the brain by the skull, the heart by the ribs, the large arteries by the large flexures and bones. But the marrow is better protected than any if we except the pituitary body, which has not only a bony bed, the sella turcica, but is also slung, to prevent a jar, and therefore a derangement, of that which is admitted to be present, its internal secretion. This wonderful bony protection points to the importance of marrow.

What is shock? This will be the general definition in a few years' time: "The symptoms giving rise to the condition known as 'shock' are caused by a deficiency of the compensation of the balance of all internal secretions when one or more are inhibited" owing to: (1) jar, (2) trauma, (3) exposure to heat, (4) exposure to cold, (5) too much handling or bruising of internal organs, (6) some poisons.

The shock of simple fracture of both femora nearly always causes death. Thus the author states that he saw once in Aberdare a young miner, aged 17, with simple fracture of both femora and no other injury, whose death occurred within 12 hours of the injury. There is marked shock after amputation of humerus at shoulder joint. Now, most of the marrow in the human body is in the femur, and next to the femur the humerus, and following them the long bones in this order—tibia, fibula, ulna, radius. One femur contains probably a sixth of the marrow of the whole body and there is "shock" with simple fracture, while there is practically no shock with fractured tibia. But when two femora are fractured, then you have shock to the marrow of each —*i. e.*, one-third of the marrow of the whole body. This, too, is fatal shock, altho the marrows of the two tibiæ and the two fibulæ are still uninjured and doing their work. This shows that something has been shocked which was, in the case of the fractures of both femora, absolutely necessary to life itself. What can that "something" be but marrow—marrow the best protected organ, marrow the most richly supplied by blood-vessels. And here comes the possible explanation of the 60 per cent. mortality after secondary operation—*i. e.*, the compensation of internal secretions, which in these secondary cases should be interpreted thus: That disease sufficiently serious to cause amputation having attacked the limb, the internal secretion of the marrow of that limb was affected and limited long before the operation and that the marrows of the other bones were and had been for months, doing compensating duties and that it is *this compensation alone* which allowed life to remain, even at 60 per cent. mortality, after so serious and so severe an operation.

Why should marrow be only for the nourishment of a bone? Many bones get on quite well with little or none. Why should it not have at least a dual function—that is, to nourish the bone, and also to supply a most important internal secretion? Ord suggests the following procedure to the operator before amputation of middle thigh for primary injury and consequent loss of marrow of the thigh, tibia and fibula. Delay the amputation 48 hours, or as long as possible, to allow the other marrow in the body to compensate. Order warmth, stimulants, strychnine. Kill bullocks or wounded horses immediately on seeing the case and commence getting marrow into the patient. This may be done (1) by mouth (mixed with water); (2) by rectum; and (3) by cutting pockets beneath the skin and inserting the marrow.

Judging by the efficiency of the experiments, both with thyroid and pancreas after hypodermic insinuation, this last should be valuable, for thereby, in the first instance, myxedema was kept at bay, and, in the second, glycosuria failed to appear as long as any of the glands planted subcutaneously remained.

The Use of Hormone Equations in Acute Infectious Diseases.—Carpenter in *Medical Record* (March 30, 1918) points out that organotherapy has made great strides in the last twenty years but the bulk of experience has been in its application to

the treatment of functional and chronic diseases. Latterly much attention has been given to the study and treatment of organic disease of the ductless glands and so absorbing has become this interesting and important study that the possible use of hormone therapy in acute infectious diseases has been almost overlooked.

The one great source of immunity from disease is within the body and not outside of it. Until very recently it was the prevailing opinion among those who thought enough about it to have an opinion that the source of immunity and resistance to disease lay primarily in the leucocytes. Such a position is entirely untenable. In the nature of things whatever powers the leucocytes have must be conferred upon them by the organs that produce them. And it is well known that the action of the plasma is due to the antibodies contained in it.

But if the presence of antibodies in the plasma determines its effectiveness in combating disease, it becomes a very important matter to determine what these antibodies are and especially their origin.

There is ground for belief that the antibodies and the hormones are identical. If this is true there is but one conclusion that can be drawn and this is the third and most important proposition to be stated: The endocrine organs constitute the defensive mechanism of the body. If this is true, then it is clear that by the administration of those organs or their products we should be able to prevent disease by increasing the body resistance at will; and in cases where disease has already become established in the body we should by the same means be able to restore it to normal.

It is not claimed that hormone equations have been constructed for all infections. Only a very small number out of the many that have been tried have proved specific, but enough it is thought to prove the truth of the principles involved.

The infections in which practically specific effects have been produced are pneumonia, acute pneumonococcic laryngitis, erysipelas, some pus infections, puerperal sepsis, measles, scarlet fever and dysentery, both amebic and bacillary.

Altho they cannot be classified as acute infectious diseases, it is just as well to mention, in this connection, carcinoma and sarcoma. Two cases of the former and one of the latter have quickly disappeared under treatment and have not returned. Epithelioma strangely enough has not yielded to the same hormone equation, but it is thought that a slight change in the proportions may fulfil the indications and produce a similarly happy result.

Some hormone equations, while markedly specific when given subcutaneously or intramuscularly, do not give comparable effects when administered internally. The effects are either much diminished or even wanting.

At this particular time when large numbers of men are being brought together in army camps where they are susceptible to acute infectious diseases, it is important that the possibilities of this specific treatment be recognized and made use of.

Report of Nineteen Cases of Hyperphasia of the Thymus Gland Treated by the X-rays.—Benjamin in *Archives of Pediatrics* (Feb., 1918) reports that the diagnosis of an enlarged thymus is usually simple. The chief complaint is nearly always coughs or attacks of choking which come and go, appearing frequently in paroxysms. One point of interest is the fact that the mothers usually explain that the child does not show the prodromal symptoms of a cold but while apparently well begins to cough during the night. This is repeated for several nights and then disappears, to return in a similar manner in a very short while. Only on further cross examination is the information elicited that there is noted occasional cyanosis or tendency to choke or stridor. Most of the cases were very well developed and nourished. The lymphatic glands, other than the posterior cervical glands showed no hypertrophy as a rule. The spleen was found enlarged in only 2 cases. The lungs were, as a rule, peculiarly free of râles.

The condition is important enough to deserve more attention than has been given to it in the past. Early diagnosis and prompt therapy may be the means of eliminating most of the sudden deaths among infants and young children.

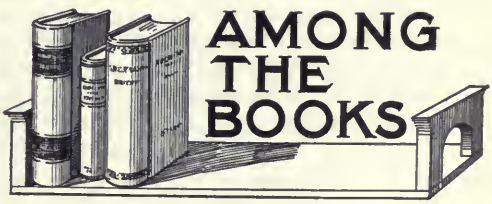
All of the children who were referred to the X-ray laboratory were first radiographed to confirm, if possible, the clinical diagnosis.

The interval between treatments was usually one week unless the urgency of the symptoms suggested more frequent applications. The treatments have proven entirely harmless to young children and if the symptoms are very urgent a second dose may be given within a day or two after the first. In order to get results it is essential that the treatments be comparatively heavy and that they be repeated at sufficient short intervals. The failure to administer full doses and to repeat them promptly has in very urgent cases led to fatalities under X-ray treatment. Such a distressing occurrence is fortunately uncommon but when it does happen it casts a doubt upon the diagnosis or upon the efficiency of the X-ray therapy. To guard against sudden deaths before the full destructive effect of the X-ray upon the thymus gland has been elicited, all cases with urgent symptoms should be kept under close observation and the X-ray treatments should be pushed boldly.

In the average case improvement of symptoms has been noted within 24 to 48 hours after the X-ray treatment. It is possible, however, as shown by animal experimentation to elicit changes in the thymus gland within 8 hours after the X-ray exposure. Therefore the most urgent cases can be saved by this treatment.

Mouth Infection.—Osborne in an interesting article in *New York Medical Journal* (Mar. 2, 1918) declares that these mouth infections can cause a disturbance of the suprarenal secretion as seems to be shown by many instances of greatly increased blood pressure without any evidence of arteriosclerosis or any apparent kidney defect. The suprarenal glands may also be inhibited in their activity as well as stimulated, as very many instances of low blood pressure occur coincidently with mouth infection. Whether infection in the mouth interferes with the pancreas or with the suprarenals, or with some other factor in carbohydrate metabolism, it is a fact that many instances of glycosuria are associated with such infection. This glycosuria has not polyuria or excessive thirst as symptoms and is generally readily stopped on a diet free from starch. It is not often necessary to place the patient on a starvation diet to eradicate the sugar in the urine; in other words, a real diabetes mellitus does not seem to be present. Patients with glycosuria and with mouth infection are at times cured of the former when the mouth is made clean.

As we know more and more of the type of disturbance called cardiovascular renal disease, as we have long ago learned of the irritation to arteries and kidneys by toxins absorbed from the intestines, and as we recognize the danger from irritants caused by preserved foods, we must now recognize the possibility, if not the probability, of chronic mouth infection causing the absorption of sufficient toxins or irritants to produce arteriosclerosis and chronic nephritis. We must recognize the enormous increase in heart affections and in blood-vessel disease that is shown by the statistics of the last twenty-five years, and this has been the period in which more crowns and bridges have been placed in the mouths of the civilized human race. Consequently, is it too much to assume that many of the functional disturbances of the heart and much of the chronic myocarditis may be due to infected mouths, as we so well know that serious endocarditis can be caused by some of these mouth germs?



Photography.—A feature which will at once appeal to the purchaser of the new edition of this popular annual is the fine *genre* study taken "In the Pushcart Market" by the well-known New York photographer, Mr. A. E. Churchill.

The other illustration shows how pictorial even war may be when it is photographed by an expert. It is entitled "Out of a Cloud of Dust into a Cloud of Bullets," and it is a record of an incident on the Belgian front from the camera of W. Gore, who brings his experience in the Turco-Balkan campaign to bear on the present war, in the interests of *The Daily Sketch,* London. The negatives of both

subjects were developed with "Tabloid" "Rytol," a British product supplanting German-made developers.

As for the book itself, it is wonderful, especially in war time, how its good features are maintained and how it has been found possible to make this edition even fresher and more up-to-date than ever.

This is largely due to the fact that the main article has been entirely rewritten and under the title of "Photography Simplified" we have the whole art of successful photographic practice, except exposure, which is dealt with in a separate article, made as clear as A, B, C in about 50 pages.

The great charm of the book is not merely its simplicity, but its precision. The instructions given are so definite that no one can mistake them and if they are followed no one can fail to obtain successful results.

Ready reference tables for development, printing, enlarging, focussing, etc., are a great feature in this pocket book, which is a veritable compendium of photographic information.

As for exposure—this book has been the guide, philosopher and friend not only to thousands of beginners, but to thousands of expert photographers in every quarter of the globe for many years now, and whenever we meet anyone who has used it we hear praises as to its accuracy, simplicity and reliability.

The little mechanical calculator fixed to the back cover really does tell the correct exposure by one turn of one scale and that alone is worth the small sum for which it may be obtained from any photographic dealer.

In addition there are plenty of ruled pages for recording exposures and for photographic memoranda of all kinds and a diary for the year.

We are glad to note that only plates and papers manufactured in Great Britain, the United States, Australia, or other of the allied countries are given in the list of plate speeds and it is obvious from the length and character of this list that goods are available for the photographer's every need without going to enemy sources.

Good Health.—It is natural that the tendency to raise the health standards of the community should give rise to new volumes for the use of the laity for the purpose of teaching them the basis of self-protection. The safety-first movement has worked to the great advantage of those engaged in hazardous occupations and has protected onlookers from injuries due to carelessness.

Henry Dwight Chapin in *Health First, The Fine Art of Living* (The Century Company) has sought to adopt the safety-first movement to the medical needs of laymen. His book is intended to serve as a first aid to the well. With a broad outlook of the health values in living he recognizes the importance of developing the body into an efficient machine. The physical aspects of health, however, are not made superior to the requisites of hygiene in education and the benefits of moral influences in the production of healthful, vigorous bodies and minds are rationally discussed.

With great wisdom, the definite advice as to treatment has been entirely omitted, inasmuch as diagnosis and treatment are deemed to be within the function of trained physicians and consequently not to be trifled with, even by intelligent laymen.

Especially commendable are the scope of the subject-matter, the careful selection of the topical arrangement and the simplicity and clarity with which his point of view is unfolded.

Another book which seeks to combat physical inefficiency in health and disease thru the cooperation of intelligent laymen is *Good Health, How to Get It and How to Keep It* (D. Appleton and Company).

A careful resumé of medical progress is interpreted for the benefit of the general reading public. The volume is distinctly one on popular hygiene covering the various themes from first aid to disinfectants, touching upon tuberculosis, personal hygiene, bacteria, infectious diseases and methods by which they are transmitted and various special topics, such as air, water, food and ventilation.

Illustrations add to the completeness of the exposition, which covers the general application of hygienic principles that, elaborated in technical form, would involve the publication of a large volume.

The usefulness of these two books is

unquestioned, and as they do not approach their common subject from the same angle, they are particularly valuable in a supplemental way for those engaged in the popular exposition of the fundamental principles, necessary for maintaining general health for the benefit of the individual and for the advancement of social welfare.

Mental Hygiene.—William A. White in *The Principles of Mental Hygiene* (The Macmillan Company) points out in a most interesting manner the development of the human minds from the physical and physiologic planes to the psychologic reactions and the higher psychologic levels of social reaction.

To attribute all the ills of society to mental inefficiency, causing social inefficiency and antisocial conduct, is a unique conception of the all persuasiveness of mental motivation. In considering the mental mechanisms, all difficulties apparently arise from a clash of the instinct for the familiar —the safety motive—and the normal tendency to grapple with the unfamiliar.

The discussion of the problems of the insane, the criminal and the mental defectives, is most stimulating and of interest to those who welcome new points of view and more or less consistent exposition of new ideas. Regardless of whether one accepts mental inefficiency as the basis of prostitution, pauperism, inebriety and homicidality, there is a wealth of mental stimulation to be derived from a perusal of a discussion of these topics.

The contrast between the individual and the herd is everywhere accentuated and an effort is made to reveal the antipathic emotions in their spheres of greatest effectiveness. The most striking phase of the volume is the recognition of man as a social animal and the acceptance of his failures as forms of social inadequacy. While in many instances the problems of man's social failure are well presented and the underlying principles of treatment are discussed abstractly, there is a lack of definite detail as to method that is applicable for the development of rational mental hygiene among all types of people.

The organic bases of maladjustment are well presented in a consideration of the neuroses, while the subject of psychoanalysis is projected as an educational procedure whose purpose it is to make possible mental advancement of the patient.

Whether one be a follower of Freud, Jung or Adler, or merely a mind groping after a greater light, the thoughtful consideration of White's latest literary effort will yield a due meed of psychic stimulation, tho the answers to the problems discussed are not to be found right at hand.

Medical Diagnosis.—Successful treatment is impossible except a correct diagnosis has been made. It is only an accurate diagnostician who becomes a great physician. Indeed a man will never gain first rank as a physician unless he is able to diagnose quickly and surely. It is, to some extent, a natural gift to make accurate diagnoses, but the ability can be acquired to a marked extent by experience. In fact, whatever aptitude a man may possess which aids him to recognize the cause of a disease or condition, it is only by experience that he can become highly proficient in this direction. It, therefore, behooves every medical practitioner to learn to be as good a diagnostician as is possible. But while clinical experience is absolutely essential it is well known that a great deal may be gathered from dependable books. Indeed, books are necessary and books on diagnosis and clinical experience should go hand in hand. They assist to lay the foundation upon which the superstructure of correct diagnostic ability is laid. *Medical Diagnosis* by Dr. Charles Lyman Greene (P. Blakiston's Son & Co., Philadelphia) is a splendid presentation of the subject written by a man who is not only himself a good diagnostician and clinician, but one who knows how to deal with his subject in a particularly clear and understandable manner.

This is nominally a fourth edition, but it is virtually a new book. The section in which the diseases and abnormal conditions of the heart and blood-vessels are discussed is very complete and the remarkable advances which have been made in recent years in this branch of medicine are exhaustively and clearly described. All the newer methods of diagnosis, manual and instrumental, are dealt with at gratifying length. The author has expressed his own views with regard to certain minor cardio-

vascular insufficiencies and has especially drawn attention to the clinical importance of the asthenic "drop" heart.

The latest methods of urea determination and tests of renal permeability are given the consideration which is their due.

The work contains not only the facts concerning diagnosis which have been collected since earliest times but also those which have been gathered so abundantly in recent years. In short it represents the garnered knowledge of centuries together with that which has been gained in modern times. It is well written from the strictly literary point of view and is copiously illustrated. We do not hesitate to say that it is one of most satisfactory expositions of modern medical diagnosis in the English language. It gives what the practitioner needs without needless verbiage and so arranged and condensed that he is not obliged to wade thru a mass of unnecessary material to find what he wants.

Helping the Helpless.—In every large city there is a goodly proportion of the population that require assistance, not only aid of a material nature, but moral and spiritual uplifting. In the "slums" of a big city are to be found all sorts and conditions of men and women, many born to better things, but who have become human derelicts indifferent to their fate and allowing themselves to drift with the current. To many of these sympathy and encouragement mean more than the giving of money and some have been lifted from the depths because they have discovered that they were not regarded as hopeless but still believed in as human beings possessed of soul and intellect. In short, their self respect has been brought back. In no other city of the world is there so cosmopolitan a population as in New York, nor where the poor are herded together as in its tenement district. There may be cities in which poverty is more intense and sordid, but few if any others in the civilized world in which poverty and vice are more obtrusive.

Missionary work in the poorer sections of New York calls for the exercise of a good deal of courage and a considerable amount of tact and discretion. *Helping the Helpless in Lower New York* by Lucy Seaman Bainbridge (Fleming H. Revell Company) tells in a series of tales some of the incidents of life in lower New York. Mrs. Lucy Seaman Bainbridge, who for many years was superintendent of the Woman's Branch of the New York City Mission Society, was peculiarly well qualified by her previous experience in various mission fields in different parts of the world for her work in New York. That she entered into it with zest and that she carried it on with ability and energy is vouched for by the President of the Society, the Rev. A. G. Schauffer, D. D., in a scholarly introduction. The incidents which Mrs. Bainbridge depicts are narrated in good literary style and marked both by pathos and humor. It is obvious to the reader that the author was filled with zeal for her self-imposed duties and imbued with a deep Christian spirit. Indeed she lays stress upon the point that in dealing with the helpless, the poverty-stricken, and especially with the vicious and degenerate, you can reach such effectively only by "plumbing the deeps," that is, by invoking the aid of spiritual natures and instincts that are latent in the most degenerate and evil. Work of the kind that Mrs. Bainbridge has done among the "submerged tenth," the weak and the helpless, is in the best interests of public health. Where poverty and vice flourish like noxious weeds, disease will also gain a strong foothold and spread. Missionary work, then, that teaches the lesson of clean living is really excellent. As fiction, Mrs. Bainbridge's book is interesting and thrilling, but from the health point of view it is equally valuable. This book, which is well and appropriately illustrated, is dedicated by the author to her son, the well-known surgeon, Lieutenant-Commander, William Seaman Bainbridge, M. D., M. N. R. C.

The History of Medicine.—There have been comparatively few histories of medicine written in the English language. It is certainly not that medicine does not deserve to have its doings and triumphs chronicled, for there is no profession of which the members have been so prolific and prodigal of good deeds and so chary of words. It

may be on account of the long standing tradition among medical men of the English speaking race, that the members of the profession should be self-effacing, that histories of medicine have been so few and far between. However, Dr. Fielding H. Garrison in his *Introduction to the History of Medicine* (W. B. Saunders Company, 2nd edition, Philadelphia) has given an account of the origin and development of the science of medicine which will go far to supply the lack that has hitherto existed. The development of medicine has ebbed and flowed. In the times of the ancient Greeks and of the Egyptians, medicine reached a high standard, and modern physicians and surgeons are being astonished constantly by the discoveries made by archeologists, showing that in those days the medical knowledge was considerable, and in some instances, even profound. The knowledge of sanitary science was often advanced, judged by present day standards. As Dr. Garrison points out in the preface to this edition, the excavations of Sir Arthur Evans in Crete, the *Minoia regna* of Virgil, have shed much light on the unique postneolithic culture and wonderful sanitary appliances of Knossos, and while little is known of Minoan medicine, it is likely that much remains to be uncovered or deciphered. Greek medicine established an era, as did Egyptian and Saracen, or rather Arabian. The Arabians were undoubtedly the best chemists and pharmacologists of all the ancient peoples. Many of their prescriptions of vegetable remedies have been handed down. After the fall of the Egyptian, Greek and Roman empires, medicine lapsed and in medieval times became a curious compound of quackery and the remains of the knowledge bequeathed from earlier days. Hippocrates and Galen held sway up to nearly one hundred years ago, when medicine began to be lifted out of the slough into which it had fallen. Since then, more rapid progress has been made both in medicine and surgery than in any other period. Medicine is now more nearly approaching an exact science than ever before.

Dr. Garrison has set down the fascinating tale of the history of medicine in a most attractive manner. He has traced its ups and downs, its developments and retrogressions until it has reached the pedestal on which it stands today, altho, of course, this by no means represents its zenith. It is pointed out by Garrison that in the evolution of modern medicine, as in the development of pure science, of which it was a part, three factors seem of special moment. *First,* the great industrial or social democratic movement of civilized mankind which, following close upon the political revolutions in America and France, intensified the feeling for intellectual and moral liberty and upheld the new idea of the dignity and importance of all kinds of human labor as exemplified in Napoleon's famous device, "The tools to those who can handle them." *Second,* the publication of such works as Helmholtz's *Conservation of Energy* (1847) and Darwin's *Origin of Species* (1859) did away forever with many of the silly anthropomorphisms and appeals to human conceit which have always hampered the true advancement of medicine in the past. *Third,* as an inevitable consequence, physics, chemistry and biology came to be studied as objective laboratory sciences, dissociated from the usual subjective human prepossessions. An interesting feature of the book is that short biographies are given of the men most concerned in the development of modern medicine, together with pictures of those who may be termed the makers of present day medicine. It has been brought against the author by a well known Viennese physician that he "sees things thru English spectacles." This charge seems to be far fetched, the German men of medical science are given the credit that is their due. Garrison gives a fair meed of praise to the modern German organization of science, but confesses that much of present day scientific intelligence and perspicacity are of French origin.

The book is an entirely adequate and excellently compiled and written history of medicine and provides both interest and instruction to the medical man in particular. The typography and illustrations are distinctly good and the book is a credit to both author and publisher. No educated physician will fail to add this book to his library.

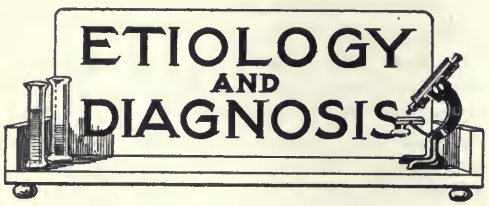
The interest in eugenics is by no means confined to those who devote their lives to laboratory experimentation or those who

or those who enjoy self-indulgence in theorizing as to the effect of the principles upon the future of the race.

It is of the utmost importance, therefore, that reliable books, not too technical in character, but possessing verity and accuracy, be provided for the general reading public. *The Third and Fourth Generation,* by Elliot R. Downing (The University of Chicago Press), represents an excellent example of the type of book which possess many advantages for young people and laymen untrained in technical matters.

The author has crowded an immense amount of accurate information into comparatively few pages and has presented his material with clarity without sacrificing any element of interest.

The series of questions at the end of each chapter enables the reader to formulate his knowledge so that it may be available when the occasion demands. There is the stimulus to thought and a constant guidance of ideas on bases that make ideals founded on science. The problem of human heredity is presented as the conclusion, after building up stone by stone a structure which is a temple of truth, embellished with a vision for the race.



Acute Anterior Poliomyelitis.—Tumpowsky in *Illinois Medical Journal,* April, 1918, says the diagnosis may be made on the presence of an epidemic, history of exposure and the onset with the symptoms of an acute infection followed by the more pertinent symptoms of hyperesthesia, headache, irritability, drowsiness, tho easily arousable, rigidity of the neck, falling back of the head, the "spine sign," Colliver's coarse twitchings and the spinal fluid findings of increased cell count, the presence of globulin and a clear fluid under increased pressure. The early symptoms are only diagnostic of an acute infection. Later the signs of meningeal irritation, spinal fluid findings and nervous involvement are manifested. The most common difficulty in diagnosis is the resemblance to epidemic meningitis. The character of the spinal fluid and the presence of the meningococci determines the diagnosis. The same holds true for the other purulent meningitides. Tuberculous meningitis may be simulated. The spinal fluid in this case may contain tubercle bacilli and injection of the fluid into a guinea pig may facilitate the differentiation. Tuberculous meningitis terminates fatally, while poliomyelitis manifests paralysis and usually recovers. There may be a primary focus evident in the former case and also choroidal tubercles. Syphilitic meningitis is determined by a positive Wassermann test and precipitation in the lower dilutions in Lange's test. Other diseases to be excluded are gastro-intestinal disturbances, rickets, scurvy, acute arthritis, and tuberculosis of the hip.

Army Nephritis.— Coombs in *Lancet* (London) April 6, 1918, states that there is a striking incidence of the disease in officers and in men. Only 6 of 160 patients were officers. Apart from this the most evident predisposing factor is that of age.

The usual history given is that of an insidious onset. The man says that he began to feel out of sorts, had severe headache and sometimes vomiting, and that after a day or two of this he noticed his face and ankles swelling. When questioned further he says that the first symptom of all was shortness of breath which came on gradually.

In another smaller class of cases the first symptoms are those of urinary irritation, and especially hematuria. Micturition is frequent and slightly painful in a few of these cases, but generally what attracts attention is the presence of blood in the urine. In a day or two casts begin to make their appearance, and if the man is up and about he may become edematous and short of breath. But if he is already in hospital, or is admitted in good time, these systemic symptoms very often fail to develop.

In the rush of military work a case of nephritis may easily escape detection. The plan that works best is to have a simple test, such as that with salicyl-sulphonic acid, ready to hand, and to apply it whenever there is the smallest suspicion of the case being one of nephritis. I tried the plan of testing all cases admitted, and found the percentage of possible "oversights" so small as to be negligible.

The other mistake, that of diagnosing nephritis when it is not there, is particularly likely to occur when one is seeing large numbers of nephritis cases, as one does in military hospitals in France. It happens in this way, that albuminuria is looked for and found, say, in a case of lobar pneumonia. The urine is searched for casts, and these also are found. Nephritis being prevalent, one is too apt to assume that this also is a latent case and the pneumonia is a secondary lesion. But unless there are other symptoms of nephritis, such as edema and the cardio-vascular phenomena described above, it is more correct to regard the pneumonia as the primary lesion and the urinary changes as secondary. They are, of course, important even in a secondary capacity, as indicative of an intense degree of infection. But nephritis ought not to be diagnosed unless there are symptoms,

urinary or general, or both, which bring the renal lesions into the forefront of the picture.

Nasal Headaches.—Putnam, in a recent issue of the *St. Paul Med. Journal*, points out it is not strange that pain in the teeth and gums could be due to disease of the nose, or that pain about the nose could be due to disease of the teeth, as all have noted the anesthesia produced in the teeth and gums when cocaine is applied to the septum of the nose.

Headache is the most common symptom of affection of the nose and its sinuses, and is of great value in arriving at a diagnosis. Many cases of nasal accessory sinus disease go thru life with a diagnosis of chronic headache.

There are many varieties of nasal conditions causing headache:

1. Swelling of the mucosa with pressure of its nerves.
2. Contact of the swollen mucosa.
3. Stasis following obstruction of the drainage passages.
4. Negative pressure in the sinus.
5. Reabsorption of toxins formed within the sinus.
6. Ulceration of the mucosa involving the nerve supply.

Direct contact of the swollen mucosa, such as pressure upon the septum from turbinal hypertrophies, is a very common cause of headache. These cases are being repeatedly refracted without relief of the pain or examination of the nose.

Periodic headache should suggest sinus disease. If referred to the top of the head or described as a dull, heavy feeling of weight on the head it suggests a chronic inflammatory condition of the frontal sinus. Pain at the back of the head, back of neck, or deep behind the nose and eyes, suggests chronic inflammation of the sphenoid sinus or posterior ethmoid cells.

Pain and tenderness over the malar bone radiating upward toward the outer canthus suggest inflammation of the maxillary antrum. Pain thru the forehead, thru the eyes, or between the eyes with a sense of weight, suggests inflammation of the anterior ethmoid cells.

Severe pain thru the temples suggests sphenoid inflammation. The pain accompanying acute sinusitis is more definite. For example: An acutely inflamed antrum is tender directly over the cavity and an acutely inflamed frontal is tender under the brow.

Colon Bacillus Infection in Pregnancy.—Davis, in *Surgery, Gynecology and Obstetrics*, (Feb., 1918) concludes that it is especially important for the welfare of pregnant women and their children that colon bacillus infection be promptly recognized and thoroly treated. The dangers of appendicitis in the pregnant woman far exceed those of the non-pregnant, and while a patient during pregnancy may escape apparent injury from cholecystitis, an infected gall-bladder rarely recovers after pregnancy without drainage. In the puerperal period it sometimes happens that cases of this condition are confused with puerperal septic infection located in the genital tract and are so regarded and treated. There is no evidence that this condition affects the infant and it seems remarkable that the secretion of milk is so slightly retarded.

Scarlet Fever.—According to Cloak in *Medical Council*, March, 1918, the symptoms are usually of sudden onset, practically always with vomiting, followed by general febrile symptoms.

Twelve to twenty-four hours after onset, sore throat develops and on inspection the palatine mucous membrane is seen markedly red, with a sharp line of demarcation toward the hard palate, and on the red surface are small discrete macules. In adults the sore throat is frequently the first and only characteristic symptom.

The tongue is covered with a white furry coating thru which are seen enlarged red filiform papillæ. In three or four days the coating disappears, leaving the tongue very clean and red and covered with enlarged bright red papillæ, the so-called strawberry tongue.

The characteristic skin eruption makes its appearance in from eighteen to thirty-six hours after the beginning of the illness. There are two peculiarities about the skin eruption which are more or less diagnostic: first, at the onset of the eruption it consists of small red points, distinctly separated, and in the course of a few hours to a day coalesce, forming a uniform connected mass of red appearance; second, at the onset it is of a delicate red, rapidly or even slowly in the course of several days assuming a saturated, burning, flaming, fire-red appearance.

The face frequently remains entirely free of the eruption. When it does appear on the face it is confined to the temples, the dorsum of the nose and the outer surface of the cheeks. The skin about the mouth and chin invariably remains free. The eruption reaches its acme in three to five days and then declines, being usually well faded in six to eight days.

Some variations from the typical: first, eruption absent or only limited areas involved, as the groins, flexure of the knees and the neck; second, angina and no eruption, distinguished by sharply defined area of redness in the throat; third, scarlatina fulminans descends and strikes like lightning, and in a few hours the patient dies; sometimes it begins mildly and in one or two days suddenly develops a malignant character.

Common complications are otitis media, nephritis, arthritis, necrosis in the throat and pyemia, all due probably to secondary invasion by streptococci.

Orthopedic Diagnosis.—Young claims in the *Medical Council*, March, 1918, that few general practitioners recognize the importance of a knowledge of orthopedic surgery, and appreciate the advantages it would be to their pa-

tients, if the latter received a thoro orthopedic examination, in conjunction with the physician's diagnosis, in some of the doubtful cases. This has been largely brought about by lack of knowledge on the part of physicians as to the definition and scope of orthopedic surgery. Most of the laity and some practitioners of medicine consider orthopedic surgery as including only deformity of the feet.

In examinations of the spine careful attention should be directed to the presence or absence of curvature, the existence of normal movements, the exhibition of muscular rigidity, swelling, or tenderness. If the deformity involves a joint, the other joints should be carefully investigated, as to their proper motion, the existence of muscular rigidity, tenderness, swelling, crepitation, and foreign bodies; their size and shape should be carefully noted, and accurate measurements taken for comparison with the affected joint. In examining the feet, both the long and the transverse arch should be examined and the presence of callosities be looked for. The toes should claim attention both as to position and deformity. The condition of the various tendons about the foot and ankle should be carefully sought, and the presence or absence of tenderness and pressure should be noted.

Examination of the nervous system should be most exhaustive. It should include the various tests to determine the condition of the reflexes, the integrity of the motor tracts, of sensation, and the condition of the sympathetic system.

Examination of the orthopedic case is not complete without such laboratory examinations as may be required, in order to determine definitely the pathologic character of the disorder under observation. It is unnecessary to enumerate these, as they will present themselves to the attention of the intelligent practitioner as to what examinations will be necessary. The importance of these examinations will at once become apparent when we consider the study of an orthopedic case, such as the knee joint. There are so many lesions of the knee joint that a man presenting himself for example, with a painful, swollen, sensitive condition of the joint, may be suffering from either simple synovitis, tuberculosis of the knee, a gonococcus infection, a sarcoma, syphilis, arthritis deformans, etc., or from a chronic toxic arthritis due to some remote pocket of infection, as of the jaws, tonsils, chronic lesions of the kidneys, etc.

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FIG. 1. Mrs. Anna Coleman Ladd, American artist, who is helping in Paris to restore the shell torn faces of soldiers.

Extra-uterine Pregnancy.—Henry in *Southern California Practitioner*, Mar., 1918, reports that the symptoms of an ectopic gestation until an abortion or rupture takes place are very like an ordinary pregnancy. The patient does not suspect anything unusual about her pregnancy until hemorrhage occurs or some pressure symptoms call her attention to it. Menstruation is arrested just as in a normal pregnancy, and there is no hemorrhage, show of blood or shedding of the decidua until some internal hemorrhage develops. But if, for any reason, the physician is called upon to make a pelvic examination in a woman with an ectopic gestation during the early weeks and before internal bleeding occurs, he will find a mass more or less boggy on the side of the uterus or in the location of the implantation of the impregnated ovum.

There will be found softening of the cervix, enlargement of the uterus and the discoloration which obtains in a normal pregnancy. Even in the earliest days of an ectopic gestation there will be a marked increase in the arterial pulsation on the pregnant side not found in other conditions. The softened bulging of the anterior uterine wall in the medium line just above the junction of the body and cervix so common in normal pregnancy is rarely, if ever, found in ectopic. These symptoms, with the history of the case and the probable elimination of inflammatory conditions or growths in the pelvis, will make the diagnosis fairly certain and will justify at least a careful watching of

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FIG. 2. A soldier wearing a mask to cover the frightful disfigurement caused by a war injury. This is one of the cases that Mrs. Ladd, an American artist, has helped to restore to something of his original appearance.

the case in a hospital, if not an immediate operation. However, most cases do not come under the physician's care until an internal hemorrhage occurs and he is hurriedly called in, either on account of the severe pain or the shock and collapse. When, therefore, either a tubal abortion or rupture takes place there is a quick, sharp cramping pain low down in the abdomen in the ovarian region on the side where the bleeding occurs, and the patient may drop to the floor in a faint or she may be curled up on the bed.

If the loss of blood be great she will become greatly shocked, with pale, blanched and shrunken features. She will have a rapid weak pulse, and sometimes will break out in a cold perspiration.

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FIG. 3. A soldier wearing a mask to replace lower portion of his face, blown away by a piece of shrapnel.

Trench Shin.—Lind in *New York Medical Journal*, Feb. 9, 1918, quotes Chamber as giving seven symptoms on which to base a diagnosis of trench shin: 1, history of headache and fever in the early stages; 2, a leucocytosis, even without fever; 3, pain and tenderness over the tibiæ; 4, neuritis of the arms; 5, pain in the ligaments and the bony prominences around joints; 6, increased pain at night; 7, prolonged course of the disease from one to three months.

The most delicate problem is to separate trench shin from trench fever. Houston and McCloy say they are the same and described four types, the two described by McNee, Renshaw, and Brunt, and in addition type 3, a myalgic tpye, where myalgic pains persist after pyrexia has disappeared, and type 4, a septicemic type, in which there is a fever lasting from eleven to thirty days, with persistent headache and sometimes rigors, nausea, and vomiting. Chamber says that such a concept would make what he calls trench shin only type 3 of trench fever, but he believes trench shin is a real disease entity on account of the fever, leucocytosis, headache, and rheumatic pains. The pain in the shins also lasts longer than it does in trench fever. The distinction, he thinks, rests in the fact that it is a fibrositis. A periostitis of the tibæ in typhoid can be easily excluded by the Widal, also by examinations of the blood and stools. Syphilis can be excluded by the Wassermann reaction.

Treatment of Burns.—It is stated by Tuder in the *N. Y. Medical Journal*, March 2, 1918, that the burned area should be cleansed as effectively as possible with warm phenolated solution, a moist compress of neutral solution of chlorinated soda left applied for ten minutes, or, if there is much dirt or grease, 0.5 per cent. iodine in benzine. A saturated solution of bicarbonate of soda is very effective in relieving pain. The burned part may be immersed in it or covered with gauze kept continuously wet with this solution. A paste, made by adding boiled water to bicarbonate of soda and applied over the burned area is an ever available home remedy for burns. Picric acid, in the strength of 0.5 to one per cent. aqueous solution, is a most desirable moist dressing for burns of all degrees of severity. It is non-irritating and analgesic, it coagulates albumin, a protective scab is formed by coagulation of the secreted serum, the ruptured lymph spaces are sealed, the exposed nerve endings protected, and the wound is splinted so that epithelial proliferation may proceed. Ehrenfried concluded after extensive experiments that picric acid is fifty times more effective as an antiseptic than the same strength phenol solution, hence this treatment is particularly desirable in septic cases. Sterile gauze is applied in several thicknesses over the burn and thoroly saturated with the picric acid solution, and over this oiled silk and a gauze bandage are applied. On the third or fourth day the dressing is renewed, after all vesicles are punctured, and this is repeated every four or five days or oftener if there is much infection. If the urine becomes cloudy, stop these applications.

The open air treatment is the best for burns of the face and other exposed parts of the body and where cleanliness can be maintained. In this treatment, blebs and all necrotic tissue are removed as soon as practicable and the entire area is left open; the lesions are exposed to the sunlight at first for half an hour, this period being gradually increased to an hour or more each day. The temperature of the room is kept high to favor drying and the action of the skin. Bland dusting powders, such as stearate of zinc, zinc oxide, or one part salicylic acid to three parts boric acid, are applied daily. Vesicles are evacuated as soon as formed, and when pus appears the scabs about it are removed and the parts thoroly cleansed. The pain under this treatment usually soon subsides, but, as the suffering is ordinarily more intense in burns of the first degree because the nerve endings are exposed, whereas in those of the third degree they are destroyed, in the former the picric

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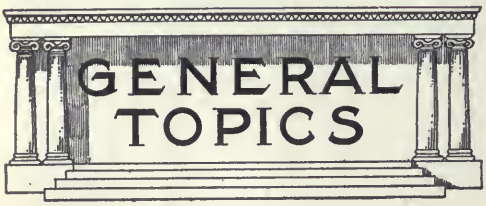
FIG. 4. Showing the wonderful results surgery and art combined have been able to produce in cases of these two soldiers whose faces were terribly injured by shells.

acid applications are employed for the first few days, especially when the pain at first was agonizing, and then later resorted to the open air treatment.

The following formula is not claimed to be identical with ambrine, but it is believed to embrace all the virtues of that exploited article:

Resorcin	1 per cent.
(or betanaphthol, 0.25 per cent.)	
Eucalyptol oil	2 " "
Olive oil	5 " "
Paraffin, soft	25 " "
Paraffin, hard	67 " "

It is important to secure a good grade of paraffin. After the preliminary cleansing, the burned area is thoroly dried by fanning, or with a small warm air electric blower, such as hairdressers use for drying hair. A thin layer of this preparation is now applied with a camel's hair brush, or better with a spraying device, sufficiently warm to be liquid and not hot enough to be uncomfortable to the patient.



Recent Advances in Dermatology in Connection with the War.—MacLeod in an interesting article in the *Practitioner*, Feb., 1918, says all of us who have been working in the dermatological clinics in London and in certain districts in the provinces have been familiar since the beginning of the war with various degrees of dermatitis which have resulted from the handling of high explosives with irritating properties, such as tetryl, trinitrotoluene, lyddite, etc.

Tetryl.—The irritating properties of this substance are so great that it is liable to produce dermatitis in a considerable proportion of those working with it. It is in its powdery form that it is most potent as a mechanical irritant, for it is composed of fine crystals with sharp edges, which have no great tendency to agglutinate. The dermatitis usually comes out within a fortnight of beginning to work with the irritant.

As a rule it attacks only the exposed parts, and is generally more pronounced on the face and side of the neck than on the hands, but it may also involve covered parts should the powder become insinuated beneath loose clothing.

Symptoms of absorption are, as a rule, absent or transitory, and the serious toxic symptoms which occur in connection with trinitrotoluene are unknown.

The dermatitis heals rapidly when the worker is removed from exposure to the irritant under simple local treatment. Edema may be reduced by calamine lotion or cold compresses; lead lotions should not be employed, owing to their affinity to the tetryl.

Prevention.—The workrooms should be kept clean and cool and well ventilated. Closely fitting overalls of some glossy material should be worn, and before leaving the factory these should be removed, the skin thoroly washed and the outdoor clothes put on. As prophylactic measures, hardening the hands with methylated spirit and the application to the face of a bland powder, containing zinc oxide and starch, have been recommended. On no account should persons be employed who are suffering from inflammatory affections of the skin, such as eczema, psoriasis or impetigo.

Trinitrotoluene.—Trinitrotoluene is given off in the form of a fine dust in sieving or filling canisters and shells. The general effects, which may be of a most serious character, consist of toxic gastritis, toxic jaundice, and toxic anemia.

Lyddite.—Lyddite has an irritating action on the skin, due to picric acid it contains, and gives rise to an acute dermatitis similar to that caused by trinitrotoluene. As a rule, it is especially evident on the hands and the forearms, and is accompanied by a canary-yellow or greenish staining of the skin.

For the prevention of the dermatitis and the symptoms of absorption, similar measures should be adopted in all cases.

Diagnostic Sign in Ruptured Digestive Ulcers.—Willan (*British Med. Jour.*, Feb. 2, 1918) describes the occurrence of a transverse band or ring of constriction across the abdomen at the level of the lower rib margins and extending into both flanks. With this constriction there is no marked hyperesthesia and the patient is not conscious of its presence. Above the level of the constriction the abdomen is convex, below it is normal in appearance. The constriction disappears with the development of abdominal distention, but it often remains under general anesthesia. It is impossible to state whether or not the same phenomenon is to be found in other conditions than ruptured digestive ulcers. It seems to be associated with irritation of the ninth intercostal nerve and lies at the level of that nerve's distribution.

Preserving Rubber Goods.—Some years ago English surgeons in India found that if rubber goods were kept in a closed receptacle containing a small quantity of oil they were kept soft and pliable. Dr. Annie Young in a recent issue of the *J. A. M. A.* says that a suitable receptable can be made by taking a tin bread box with a close-fitting lid. A tinsmith can fit into it one or two perforated trays, the lower one sufficiently high to prevent oil from touching it.

In India a five-gallon oil tin answers for the bread box. In the bottom of the box a few spoons of kerosene oil, just enough to cover the bottom, are placed, and then the trays for the rubber are put in. The box should be marked, "Do not shake." I have used the oil method and know that rubber apparatus so cared for has a period of usefulness much longer than usual.

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Bacteriology and the War.—Military strategists recognize the advantages of manpower properly supported by sufficient death-dealing appurtenances. Military problems are calculated with due relation to the possibility of casualties and the reduction of daily strength by the inroads of disease. Bacteriology and sanitary science with their correlated branches are as essential to the success of armies as the provision of food and ammunition. The most difficult foe to fight is the one lying in ambush and generally invisible. Those who scan casualty reports probably evidence more interest in the records of those killed in action or dying of wounds or gassing than those undramatic figures whose lives have ebbed with the back wash of a tide of disease. The death from wounds among the American overseas forces has been approximately about five per cent. The triumph of the military surgeon is based upon the fundamental bacteriologic facts announced by the French Pasteur, the English Lister and the German Koch.

Of even greater significance than the prevention of death from wounds is the remarkable accomplishments of those countless workers, who, by applying the principles of bacteriology and immunology, have attacked the invisible bacterial foes and stopped their rushes, thus preserving thousands of men for effective duty.

It is difficult to believe that only twenty years ago, in the Spanish-American campaign, 86 per cent. of all deaths were due to typhoid fever which attacked and weakened practically 20 per cent. of the small army employed for a few months. In 1911 antityphoid inoculation was made compulsory in the United States army. From September 21, 1917, to January 25, 1918, a period one month longer than that involved in the Spanish-American conflict, there was an average of over 742,000 men in American cantonments and camps, and only 114 cases of typhoid fever occurred. This is a triumph far larger than that accomplished on the battlefields of Cuba.

Bacteriologic methods have achieved remarkable results in the early diagnosis, treatment and prevention of paratyphoid fever, cholera, yellow fever, diphtheria, typhus, meningitis, pneumonia and tetanus. The attacks now being made upon gas gangrene, infectious jaundice and trench fever will undoubtedly conserve a large number of men for the fighting forces who otherwise would constitute a serious charge and burden upon the hospital facilities of the U. S. Army and Navy.

In the Civil War, the federal forces lost 110,000 men as the result of wounds, and 249,000 who perished because of disease. What a striking contrast is afforded by the statement of German casualties up to January 31, 1917, when 929,116 were reported to have been killed in action or to have died

of wounds as compared with only 59,230 deaths from sickness. According to Surgeon-General Gorgas, the death rate of our American forces of over 1,000,000 men on March 11, 1918 was at the rate of ten per thousand, while a few years ago the Japanese mortality rate of 20 per thousand was hailed as a remarkable achievement!

The fight against bacteria has resolved itself into a great many special problems requiring specific sanitary campaigns for the protection of the fighting forces against the diseases directly or indirectly transmitted by cows, horses, sheep, rats, mosquitoes, flies, flees, lice and similar pests large and small. In 1898 there were numerous camps totally devoid of bacteriologic equipment—even lacking the advantage of a single microscope for diagnostic purposes. It is not strange that bacterial infections flourished.

Two decades have worked wonders in the medical organization of military forces. The influence of the public health movement, the rapid advancement of bacteriologic and allied sciences, the rapid development of the ideals of modern preventive medicine have given laboratory research a definite and permanent place in military art. The theories of a decade ago have been put to the test and those of demonstrated worth have been applied with the utmost vigor and determination. Vaccines, sera, antitoxins are as vital to the health and welfare of military forces as the daily ration. The inroads of bacterial diseases are more deadly and incapacitating than the hail of lead from high-powered weapons. The microscope and the test tube, the Petri dish and nutrient media, are allies of the fighting hosts that will accomplish more for humanity than the first-aid package, the Carrell-Dakin technic or the paraffin protectives for the relief of burns, indispensable as these are.

The work of the bacteriologist, like the heroic service of ambulance drivers, relief workers and the subordinate officers in the medical corps, is not fully appreciated by those who picture the glories of war as concentrated in the khaki-clad men who, bayonet in hand, charge over the top at the approaching foe.

The strength of armies in the long run depends upon health. Money, munitions, men avail naught when pestilence stalks with terror thru the ranks. When the history of this inferno of conflict is written, the glory and honor of nations will be enriched by the remarkable exploits of the countless unknown workers who, without medals or acclaim, have worked loyally and assiduously in their fight against the deadly and invisible bacterial foes. The constructive phase of military medical service will be hailed as the crowning success of this war to make the world safe for humanity.

Laboring Women and Childhood's Mortality.—The casualties of war attract public attention because they represent the deaths of sturdy young men who have battled for their country or who have exposed themselves to the rigorous environment of war without hope or promise of personal advantage. The mortalities among laymen are less dramatic and consequently make less of an appeal to the public conscience or imagination. It is difficult to make people realize the wastage in human life that constantly exists in every country. In the United States, there have been yearly 300,000 deaths among children under

five years of age. The mere citing of the figures fails to create any pangs of horror or grief. There is no record of the number of children suffering from blindness or deafness, or who are forever handicapped thru injuries at birth or crippling due to diseases or accidents.

When comparisons are made and all extenuating circumstances are considered, the truth becomes apparent that childhood possesses more and greater hazards than soldiering.

In the transformation of industrial society occurring at the present time, women are entering into all forms of occupation in large numbers. Mothers, or potential mothers, are volunteering or are forced thru circumstances to jump into the industrial hopper as their part of war service.

The mortality among working women is higher than that of men at work or of women not in gainful employment. The increased mortality, however, is not due to childbirth and its various strains and disabilities, but is primarily influenced by the devitalizing circumstances of industry, among which overwork and night work are of especial importance.

In the national campaign for the reduction of mortality during childhood, education is of the greatest moment, but adequate consideration must be given to the part that is played by the conserved health of the mother as a factor in maintaining the welfare of her child. War should not be permitted to serve as an excuse for increasing the maternal death rate any more than it should be permitted to be regarded as a reasonable explanation for a heightened infant mortality rate. War labor constitutes a serious economic and social problem, but it also is to be viewed as an important medical problem demanding constant attention on the part of those interested in preserving the welfare of the growing generation.

In "A Case Against Night Work for Women," revised to March 1, 1918, Brandeis and Goldmark present the world's experience upon which legislation prohibiting the employment of women at night is based. The introduction summarizes the results of the experience with labor laws in war time. The first steps taken among warring countries involved the repealing of protective legislation or the granting of liberal exemptions so that the purpose of the laws practically was nullified. A short space of time sufficed to demonstrate the necessity for returning to the protective restrictions, the worth of which had been proven thru the long era of peace. The results of the facts and figures developed by the operation of the British National Insurance Act forcibly illustrated that women among the industrial classes are more liable to sickness than men. The low standard of health among female workers was responsible for a large increase over the actuarial estimates as to the benefits which would have to be paid under the governmental system of social insurance. There is a large mass of evidence to indicate that continuous night work of women is an economic failure insofar as output is concerned.

It is obvious that women at work are also taxed with the responsibilities and labors attendant upon caring for the household. To quote from Memorandum Number 4 of the British Health of Munition Workers Committee: "It may be stated broadly that conditions which press hardly upon the average man, press, because of her different constitutional development, with greater severity upon the average woman; while similarly, tho conditions of mental

fatigue are probably equally injurious to boys and girls, conditions of muscular strain well borne by the ordinary boy may be highly detrimental to the girl of corresponding vigor and physique. It is therefore especially important that women and young girls should be relieved from those conditions of over-strain to which they are now so widely exposed."

The severe effects of industrial overstrain are harmful to female functions and react unfavorably upon parturition and the safety of the new-born child. The interference with breast-feeding and the enforced absence of the mother from the home are natural causes of the higher mortality rate among infants. The *Fifth Annual Report of the Children's Bureau,* United States Department of Labor, 1917, calls attention to the increase in the number of married women in industry and presents this thoughtful consideration: "Local councils of defense may well question the necessity for such work on the part of individual mothers and resort to pensions and allowances as a substitute, if the family needs demand, rather than permit the increased infant mortality, which follows the employment of the mothers of nursing infants away from the children." *The Bulletin on Infant Mortality* in Manchester, New Hampshire, issued by the same bureau points out: "Mothers gainfully employed had a higher percentage (of infant mortality) than all mothers or than those not gainfully employed, but the highest percentage occurred among the mothers gainfully employed away from home and the lowest among those gainfully employed at home."

The United States was not a party to the Berne Convention held in 1906 which was signed by the representatives of fourteen European nations who, after deliberation, set their seals of disapproval upon the employment of women at night in factories. Nor has there grown up in this country a large body of legislation designed to safeguard women from the hazards of such employment. It is natural that under the pressure of war, the few states possessing high labor standards should be in danger of relaxing their efforts at protection. The fact that belligerent nations, under the stress of conditions more pressing than those which exist in the United States, had let down some of their bars but since have found it expedient to return to their earlier standards makes it of paramount importance that their errors be not repeated.

The industrial system in war times presents exceedingly complex problems whose adjustment is admittedly difficult. It would be an evidence of blindness and indifference if the experiences of allied countries were ignored, or disregarded, in the development of our plans for relieving the industrial labor market. The six-day week, the eight-hour day, the exemption of women from night work, the proscription of the exploitation of children have been proven to be essential factors in promoting national efficiency, security and health. Insofar as these principles are accepted and placed in operation in this country, the campaign for the promotion of child welfare will advance with the greatest certainty.

The social and economic causes operating to increase child morbidity and mortality must be recognized and opposed in every way possible. The war for existence, the industrial struggle for the manufacture of adequate supplies for the army and navy, should not be permitted to interfere with the natural development of a numerous and

a stronger generation. Women and children first is a cry of honor, respect and character in the Navy; its connotations may be applied properly in our consideration and practices related to the maintenance of our armies—military, naval, civil and industrial.

Is the Race Endangered?—A very serious problem comes to mind on reading Dr. Talmey's very thoughtful article on "The Psychology and Genesis of Female Clothes," which appeared in a recent issue of AMERICAN MEDICINE. In this article the author pointed out that, when man first assumed the erect position, the olfactory sense, on which he had depended chiefly for sexual stimulation, fell into disuse because no longer of service in this respect, and gave way to the dominance of the visual sense as the prevailing stimulus. Hence the female, no longer able to count on her exhalations to lure man on, adopted the alternative of seductive clothing.

Dr. Talmey's logic is interesting and convincing, but it is exceedingly disquieting at the same time. For no man who has observed the change in woman's dress in the past year can escape the conviction that we are on the verge of a new era in which the visual sense is threatened as the dominant source of sexual stimulation and is about, in its turn, to give way presently to another sense. Which sense will it be this time?

It is well to bear in mind that in the romantic and picturesque days that followed the Middle Ages, dress, as a weapon of coquetry and allure, was not the exclusive property of woman. In that period, man's dress, with its frills and laces and silks, was preeminently designed as a lure to the feminine eye; and, in fact, he was able to achieve a higher degree of coquetry in this respect than the more deadly species. But with the introduction of machinery and the growth of industry, man, in his struggle to master these new elements, was obliged to devise and affect a simpler garb, more suitable for and efficient in his new activities. And in time dress, as a sex lure, became the special province of woman. Herein lies the secret of the odd circumstance that, while in the animal kingdom it is the male who is the more seductive in outward appearance, among humans the female makes a stronger appeal to the eye and thru the eye to instincts vital to the preservation of the race. This sex lure, of such indispensable importance to the race, had to be preserved, and it fell to woman, in view of man's modified rôle, to preserve it. In doing this, woman has not only gratified her own vanity but has fulfilled her obligation to the race.

But a new era is approaching. The visual sense is threatened as the prevailing method of allure. As in the case of the man in the romantic period, woman's dress is undergoing a change, due to altered conditions of life. This change is manifest to even the most casual observer. The war is calling woman into its service; she has found her place in the munitions factory, on the farm, in the subway, on street cars and railways, and all these activities demand a simplification of dress. This simplification is now in process of taking place. We see it in the farmerette's costume, in the uniform of the woman conductor, in the overalls of the woman munitions worker. And dress, as woman's special province, is falling into disuse. Her appeal to the masculine eye—the supremacy of the visual sense as the dominant sexual stimulus—is falling, or will inevitably fall, into disuse.

Unquestionably this is a problem which

should receive the most thoughtful consideration by our scientists. Are we approaching a new era, in which a new sense is to be called into the service of the race? If so, which sense will it be? The sense of smell having outlived its usefulness, and the sense of sight being threatened with the same fate, there remain but three other senses to choose from: hearing, feeling, tasting. The race must not perish for lack of sex stimulation. One of the remaining senses will have to be chosen. Which?

American scientists may not find a ready answer, but American humorists have here a rich field for the exercise of their talents. Woman must devise a new trap for man. What choice will her resourcefulness lead to? If it is to be the sense of taste, will she make herself perfect in the fabrication of sweets and delicacies and lure man to his fate by coqueting with his palate? If it is to be the sense of hearing, will she cultivate her neglected musical talents and charm the beast in man with celestial strains from a violin, or lute, or harp, or victrola? If it is to be the sense of feeling, will she need to be versed in the mysteries of osteopathy, or at the least become a skilful *masseuse?*

There suggests itself a simple solution and a not altogether improbable one, that man, with accustomed unselfishness and eager to sacrifice himself for the good of the race, will consent to revert to his ancient rôle, resume once more the frills and laces and silks of the romantic past, and thus preserve the refinements of the visual sense as a sex stimulus and save the race from an untimely end by maintaining the balance of attraction between the sexes. Our hard-working women will have no time for such things now, but no doubt, in their new prosperity, they will gladly consent to keep their favorites in finery and frills to their hearts' content!

Sacro-iliac Strain.—Every medical practitioner has been consulted at one time or another, and even been bored by female patients who have complained of pain, persistent and sometimes acute, in the small of the back, or down the thigh. It is ascribed to many and diverse causes, and oftentimes defies the efforts of the general practitioner, or even the specialist who may be called in to help diagnose it. Of course, it is in diagnosis that failure most often occurs, for with a correct diagnosis, treatment of one kind or another usually cures or, at least, affords decided relief. Professor William S. Baer has called attention, in a recent issue of the *Bulletin of the Johns Hopkins Hospital,* to the fact that many of these constant backaches, mild, severe, acute or chronic, are due to sprain or strain of the sacro-iliac joint. Professor Baer points out that the term in use—sacro-iliac synchondrosis—is a misnomer. It has been demonstrated by recent investigations that a true joint is present, and when the space allowed for motion, the angle at which the joint is placed, and the weight carried, are all considered, it is not surprising, at the time of parturition, when it plays an important part in the mechanism of labor, that strain is common.

This strain is exhibited in two forms, in accordance with the swinging of the sacrum backward or forward on the axis of its third segment. Professor Baer has also noticed another interesting fact, that pain is invariably present over what he terms "the sacro-iliac point, a point just to the side of, and just below the umbilicus." It is said that this point is so frequently mis-

taken for McBurney's that many operations for appendicitis have been erroneously performed thru its misinterpretation.

As is generally the case when a correct diagnosis of a surgical condition is made, appropriate treatment rarely fails to give satisfactory results, and appropriate treatment for this condition under discussion is comparatively simple. When the pain is acute, but the case mild, great relief is afforded by strongly compressing the buttocks and applying strips of adhesive plaster across them from trochanter to trochanter. In women the corset may be used as a support for a webbing pelvic belt, or a pad which presses on the sacrum may be combined with the corset. In severe cases manipulation must be performed under anesthesia. The discovery that pain in the small of the back or down the thigh, which is so frequent, especially among women, is often due to a lesion, which has only been described within recent years by American orthopedic surgeons, would appear to be of very considerable value since, as previously pointed out, when the cause of a pain is definitely known, its successful treatment, especially if surgical procedures are indicated, offers few difficulties. Professor Baer is to be commended for his exceedingly practical and interesting article calling attention to the frequent occurrence of sacro-iliac strain. His suggestions for treatment should prove of great service to medical practitioners, and lead to the relief of much unnecessary suffering.

The Hair Brush.—While various diseases such as tinea sycosis, sycosis vulgaris, impetigo and ring worm have been attributed to infection in barber shops, there has been a paucity of scientific investigation of the instrumental carriers used by barbers and hairdressers. In the December issue of the *Quarterly Bulletin of the Louisiana State Board of Health,* there is reported the result of the laboratory examination of 405 hair brushes gathered from tonsorial establishments from 13 different points in the state. The results, while of superficial examination, suggest the importance of attention to the hygiene of hair brushes in public shops dealing with all conditions of men and women.

Cultural examinations demonstrated the growth of staphylococci in 325 instances, while six developed streptococci; 246 brushes gave rise to gas-forming colonies, 307 to Gram-positive bacilli, 229 to Gram-negative bacilli, and from 42 brushes growths of moulds were obtained. From two brushes a mould was cultured identical in appearance with *trichophyton tonsurans,* while the other moulds were principally of the varieties *pencillium* and *mucor.*

That the bacterial contamination was more than a mere indefinite amount only to be discovered by culture was manifest by the microscopic examinations showing cocci on 368 brushes and bacilli on 383. The presence of moulds, epithelia and dirt bore witness to the uncleanliness of the hair brushes chosen at random from shops of various grades.

The meager literature on the laboratory examination of articles used for esthetic and cosmetic purposes indicates the need for investigation of this character. While rules and regulations have been established demanding the disinfection of brushes and combs, the scientific data proving the necessity for such care have not been thoroly studied.

The washing of brushes with a five per

cent. carbolic acid soap or, preferably, sterilization in the autoclave are precautionary steps which safeguard patrons of commercial establishments. The fact that so large a percentage of hair brushes prove to be contaminated and are potential bearers of infective material should serve as the basis, not merely of the enactment of more stringent regulations, but the enforcement of barber shop hygiene.

Incidentally, the provision of individual hair brushes in barber shops and in the home recommends itself as a necessary procedure. The individualization of hair brushes, however, does not lessen the necessity for their periodic cleaning. The scalp and hair are collectors of extraneous material, some of which is undoubtedly pathogenic. The hair brush affords an opportunity for autoinfection, especially in the presence of pediculosis capitis, furunculosis of scalp or similar evidences of pyogenic infection.

The Occupational Therapeutist.—The need for vocational education has been recognized thruout our American educational institutions. The vast problems of the war have accentuated the lack of adequate facilities for the training of men and women in the types of industry essential for the maximum development of the nation. The results of war injuries have demonstrated to all belligerent countries new values for vocational education in the reeducation and industrial placement of disabled sailors and soldiers.

A considerable percentage of the national man-power has been mobilized and the direction of all energies towards winning-the-war work has required wide transformations in occupational application. The incapacities which are bound to result among our forces will tend to weaken the total skill and power of the country unless adequate steps are taken to insure the more or less complete rehabilitation of our war cripples.

The self-reliant, vigorous, courageous man, who has offered himself to his country, must be restored to a state of economic independence in the interests of national efficiency. It is well known that disabled men, under the depressing influence of prolonged hospital treatment, frequently lose their ambition and interest in life, and possibly lapse into states of incompetency that are difficult to counteract, unless particular attention is given to their needs. The vast number of pensioners resulting from the injuries incident to the war of '61 bear witness, not so much to the liberality of a grateful nation, as to the lack of a plan to conserve for useful pursuits those whose bodily injuries reduced them to units incapable of functioning in the highest degree.

Vocational education and reeducation is more than a scheme devised to prevent the exploitation of disabled human beings or to conserve the trade skill weakened by bodily injuries. While skilled men will be in greater demand than ever after the war, owing to labor shortages, there will be a greater benefit to the nation thru the general improvement in the health and welfare of the injured as a result of the general introduction of purposeful occupation therapy. The surgeon, the educator, the psychologist, the economist, the sociologist, the public health demonstrator, the philanthropist—all recognize the importance of linking up physical and mental welfare as a means of securing a sound and healthful being, fully capable of reestablishing himself in the affairs of the world.

It is estimated that about 80 per cent. of all the disabled may be enabled to continue their former occupations. The remaining 20 per cent. will be obliged to take up and learn new occupations, the nature of which will in large part be determined by the character of their handicaps. The proportion of men who will become permanently invalided or who will be able do some work but will be unfit to enter into competitive occupations is relatively small.

The reconstruction of men and the industrial rehabilitation of the nation involves a new phase of work for the medical profession. The real results of medical care are not to be gauged by the physical restoration of the individual, but in terms of his psychologic and industrial restoration. A new type of medical work will be developed combining medical experience, educational ability, a knowledge of the psychology of work and workers, an understanding of the nature and strains of various industries, together with a high degree of educational resourcefulness. The occupational therapeutist will become a prominent factor in the future development of the program for rehabilitating those disabled by war. Unfortunately, inadequate attention has been given to the relation of this problem to those crippled in the struggle for existence, those who have suffered from the all too numerous accidents which have characterized our industrial development.

The place of occupational therapy in the treatment of neurasthenia and psychoses has been recognized and considerable progress has been made in this direction. The problems of occupation involved as a result of blindness, deafness, epilepsy, tuberculosis and similar handicapping defects and diseases have received constructive consideration and moderate attempts have been made to secure the adjustments after due training required by such physical incapacities. A broader view must now be taken, and the occupational therapeutist is already in demand with a supply so limited as to require the immediate institution of training courses to remedy the lack.

The economic returns of rehabilitation are the ones which are usually urged and stressed by those interested in the organization under federal auspices of a reeducational program. From the public health standpoint, equally valuable results are to be attained as a result of the strengthening of national vitality. Gross handicaps, unfitting for employment, are responsible for the reduction of power and vitality. Industrial incapacity, with decreased economic rewards, results in lower standards of living, with consequent limitation of physical, mental and moral welfare. The health-giving environment depends upon an adequate living wage. Rehabilitation is a health problem of no mean proportions, and should engage the serious attention of the medical profession, not merely in connection with war injuries, but with those arising in every phase of civil and industrial life.

Learning from the Enemy.—Medical experience has universal application. While individual nations may at various periods assume leadership in the development of certain branches of medicine or surgery, their methods and accomplishments are available for imitation or improvement by all peoples. The surgeon of Berne, the syphilographer of Paris, the cardiologist of London, the gastroenterologist of Berlin and the dermatologist of Vienna vie with

their colleagues in other lands in developing the science and art of modern medicine. There is a reasonably definite international spirit in the medical sciences and arts.

The brutalizing tendencies of war give rise to a large measure of hysteria which deadens the sense of some so that they are unable to see any contribution to the knowledge of the world that can possibly have arisen thru the efforts, researches, or attainments of scientists and investigators chancing to have been born under the flags of belligerent countries. One hears on all sides opprobrium heaped upon the people of Germany, and rarely indeed is there discrimination among average persons as to the value of studying the plans and methods responsible for the almost pernicious efficiency of the enemies, the conquest of whom is naturally the first thought of England, France, America and their Allies. The wise man seeks to understand the character of his opponent and to take advantage of discerned strength and weakness in determining his own mode of attack. Obviously much may be learned from a study of the methods and devices practically utilized by Germany in carrying on war.

It will be a source of amazement to many good Americans to learn that a war manual authorized by the Secretary of War and under the supervision of the Surgeon-General and the Council of National Defense is not only temperate in expression and courteous in acknowledging the opportunity of studying the German medical military system but is almost enthusiastic in referring to the tremendous power of Germany that has arisen from the fact that its community life had been "organized for health, both for peace and for war." Major John R. McDill, M. D., M. R. C., U. S. A., in the recently published Medical Manual No. 5, *"Lessons From the Enemy—How Germany Cares For Her War Disabled,"* has made a valuable contribution to the literature of the day. The careful organization of the material which he presents merits unusual commendation. His point of view is expressive of the splendid feeling of a discussant of the accomplishments and methods of co-workers in science. The picture which he presents demonstrates the full measure of preparation which Germany had made for world conflict. In every field of official and volunteer service the detail of organization has been almost unlimited. Problems of personnel, equipment, training, organization of sanitary service, ambulance and hospital systems had been anticipated and provision was made for meeting them so that within three days after the outburst of flame the entire machine was in regular running order for the care of the disabled.

The most important task of caring for and training those disabled by war has been worked out in a painstaking manner thru the cooperation of the civil and military authorities. The Welfare Commission for the War Disabled sought to effect a "joint collaboration of the military and civil authorities and a cooperation of all industrial and trade organizations, together with the various polytechnic and commercial schools." The actual steps toward vocational guidance begin while the patient is confined to his bed. Doctor, nurse, orderly, visitor—everyone—is charged with the responsibility of encouraging physical and psychical rehabilitation. As McDill properly points out, the key-note of their system is found in a legend over the doors of workshops connected with an orthopedic institution in Dantzig: "Will power conquers."

A careful study of the previous personal

history of the disabled man forms the basis for consultation with a vocational adviser, while the physician or specialist is called upon to express his opinion as to the potentialities of the patient so far as future occupation is concerned.

The hospital school, of which there is one in each army-corps district, serves as a basis of directing the reeducation of the soldier so that he may finally be discharged fit for some service, retrained for his own or a new profession adapted to his capabilities after most thoro investigation and instruction.

Psycho-therapy and occupation therapy are employed in the most practical method, so that many men return to civil life with technical capacity and earning power increased beyond that which they possessed when they entered the ranks of the army.

Inasmuch as the reeducation of the war disabled is a new departure in American military affairs, the German system commands attention. Learning from the enemy is an important element of intelligent planning. Germany is using its entire manpower and is under the obvious necessity of safeguarding and reconstructing every individual, regardless of the character or extent of his injuries. It is patent that under such circumstances, unusual thought and attention has been and is being given to every phase of protective and reconstructive work. With only 40,000 physicians to call upon, the organization of the medical work has necessarily been unusually thoro with the elimination of all unnecessary red tape and retarding routine work. This fact becomes apparent when one realizes that there are 600,000 military hospital beds in Germany and about 80% of them are constantly filled; and the basis of the entire care of the sick and wounded in wartime is the medical department of the army.

McDill draws attention to the fact, "That the officers of the medical corps of the German army are able to carry out the duties for which they are held responsible, but without interference or unnecessary delay and in a really efficient manner, is due to the fact that they are equal in rank and authority with line officers and that the department is as independent as practicable of other corps. The use of medical officers in administrative positions other than as chiefs of services and their executive officers has never been practised." There is a wealth of suggestion in this idea for those presiding over the destinies of the medical department of our own army.

Our cordial detestation of the very efficiency of German organization should not blind us to an understanding of the methods by which it has been accomplished. If the powers of destruction are in any way counterbalanced by the development of constructive plans, it is imperative that we should study them. "If we overlook this and fail to learn this great lesson from the enemy and allow our genius for organization to continue in the orbit of private interest, and too often contrary to the public good, we will have missed one of the most valuable lessons of the great conflict and something which naturally belongs to a democratic form of government."

Education and Recreation, the Foes of Venereal Diseases.—The tremendous success of the Third Liberty Loan was evidenced more by the total number of subscriptions than by the mere fact of oversubscription. The spirit of the nation has been aroused. A single idea dominates every section of the country. The people

have rallied financially to the cause which they have espoused thru their duly elected representatives.

As a by-product of war there is being developed a remarkable situation with reference to venereal diseases. The government has assumed a moral leadership in the interests of the physical welfare of the country. The seizure of police power in Philadelphia with a view to cleaning up the vice districts is in a sense a war measure of unusual significance. The present war depends for its successful outcome upon the maintenance of manpower. Every effort to conserve and protect the welfare of soldiers is essentially of military value. It has long been recognized that syphilis and gonorrhea are serious invaders of national health. National propaganda against these diseases has been undertaken upon a large scale. Education and healthful recreation are being utilized in the widest sense to safeguard the battalions at home and overseas. In order to be successful the cooperation of states and municipalities has been solicited. The maximum results, however, are unattainable until every section of the land is aroused as to the enormity of the problem, its significance and the necessary methods of control.

The elimination of recruits with marked disabilities of venereal origin is by no means protective of soldiers and sailors, but does exclude from service men who have been reduced below the requisite standard of physical efficiency. In every sense it is unfortunate that venereal disease is able to interfere in any way with national service and this becomes more patent upon realizing that these conditions are to be grouped among the preventable diseases. The punishment of enlisted men for failure to evade infection has a definite restrictive influence, but falls short of the main purpose of the federal authorities who are seeking to preserve the physical strength of the army and navy. As an illustration, one may cite the fact that for the week ending April 12th, among the new cases reported for the camps of troops in the United States, there were 2,485 cases of venereal diseases as compared with 838 of pneumonia, 677 of measles and 294 of scarlet fever.

The Commission on Training Camp Activities seeks to fight the spirochetae and gonococci with baseball, football, handball, athletic games, boxing, with music, song and drama. The Y. M. C. A. and kindred organizations are endeavoring to supply the outlets for normal activities by catering to the normal daily needs of the men held in service "over here" and "over there." Lectures are being given by military and civilian authorities with a view to inculcating a thoughtful patriotism sufficiently strong to dominate temptation and passion. Zones around cantonments are being cleared of vicious institutions and potential parasites are being driven out of their wonted stamping grounds.

The Crusade Against Venereal Diseases.—For the first time a definite campaign has been inaugurated which seeks to enlighten girlhood and womanhood as to their duties and responsibilities during these times of stress. Ordinarily, war is regarded as an excuse for unshackling those formerly bound by high moral principles. The present trend is directly in opposition to the unhallowed traditions of the past. No longer are prostitutes and brothels, saloons and pernicious dance-halls following in the wake of advancing armies. The great problems of camp sanitation reach out beyond the confines of barracks and encampments.

The possibility of the interchange of dis-

eases between civilian and military populations has been duly recognized. Military authorities are endeavoring to perform their duties with due skill and enthusiasm. Civilian bodies have been stimulated to realize their opportunities for the protection of their respective communities in no uncertain way. Police authorities, social workers, physicians, politicians, legislators are joining hands with military and naval leaders in an attempt to wage a successful war upon the invisible foes marshaled by Venus and Bacchus. A clean army for a clean fight is a new slogan worthy of being emblazoned upon flags to be borne to the front by thousands of willing workers who are keenly interested in national security, decency and success.

The foresight which has given rise to this new crusade is founded upon a knowledge and understanding of the fundamental sex problem underlying much of the discord, unhappiness, vice, crime and disease which have severely taxed young manhood and young womanhood during all generations.

Unwittingly, a new loosely organized branch of national service has been developed. The forces of health have been aligned and the process of equipping them for the consummation of their fullest purpose is going on. The mobilization of these remarkable resources for the control of gonorrhea and syphilis is a tribute to the standards which have been established since the war began.

It is fitting that the United States, representing leadership in a movement to make the world "safe for democracy" should assume a richer and deeper meaning for the word "safe." The world is not safe while disease breeding areas are tolerated or condoned, while segregated areas possess a quasi legal status, while prostitution is accepted as a normal necessity or a healthful institution. The tax upon the vitality of the country which has been collected by venereal diseases is greater than that which has arisen from all other contagious diseases. The insidious poisons which have permeated the vital stream have weakened the body politic more than any other single agency. The traditions of silence respecting sexual themes are vanishing. The torch of knowledge is now ablaze. Its light is penetrating the consciousness of America.

The medical profession, while keenly alive to the medical and surgical facts, has not fully appreciated the possibilities of a constructive exposition of its knowledge as a valuable prophylactic measure. Dr. Prince A. Morrow, a quarter of a century ago, initiated a movement of the profoundest importance, but his efforts received comparatively little assistance or support from his confreres upon whom he had hoped to depend. The campaign for prophylaxis against venereal diseases secured the support and respect of laymen thru whose efforts the movement gained adherents thruout the country. The exigencies of war find the propaganda carried on at the instigation of a national commission headed by and largely composed of laymen. Fortunately, physicians are being called upon to serve as the educators of communities and to participate in the attempts to make cities and villages safe for visiting soldiers and sailors.

What should have been a natural course to pursue during the days of peace has assumed unusual importance during and despite the confusion and hustle of war. The venereal diseases are as frankly national foes as the Huns. The large bulk of the profession which must remain in civil life can find no more patriotic duty to perform than to enter vigorously into the campaign against the venereal diseases.

The Anti-narcotic Law.—The so-called Whitney anti-narcotic bill has been passed by the Legislature and signed by Governor Whitman. It is highly desirable therefore, that the physicians of the State familiarize themselves with the law as it now stands, in order that they may not only obey its mandates, but also avoid violating its regulations. The law is open to some criticism —what law is not?—but on the whole it shows a commendable effort to control one of the most insidious and deplorable evils society is suffering from today. In some respects it is lacking, in some ways it goes too far, but there is nothing in the law that aims at other than its obvious purpose. It may not be entirely just to the great body of the medical profession; it imposes a considerable burden and hardship on busy practitioners; but we can be very sure that no honest physician, who follows the requirements of the law in good faith and with an earnest intent to carry out every regulation, need have any fear or anxiety in regard to its administration.

For instance, the monthly registration of addicts has been abolished. This is a commendable improvement over the previous law, and one that the profession will earnestly approve because of the evils and pernicious features inseparable from the registration plan. The use of triplicate blanks for prescribing narcotics is also provided for, but there are certain exemptions in connection with the use of these special blanks which may entirely defeat their laudable purpose. For example, under the law considerable amounts of narcotic drugs —cocaine 5 grains, opium 30 grains, codeine 6 grains or morphine 4 grains—can be prescribed on the physician's "unofficial" or ordinary prescription blank. Only amounts in excess of the foregoing quantities have to be placed on the official triplicate blanks, but that these quantities are sufficient to make any number of narcotic addicts, and to enable shysters to supply addicts with all they want on ordinary blanks without any record, must be evident.

It would certainly seem that if the use of opiates in prescriptions require triplicate prescription blanks for one case they certainly should for all. If there are to be any exemptions at all, they should be left to the later administrative ruling of the Commissioner as a result of careful investigation, and not made statutory, at least at this stage of the proposition. Statutory exemptions to the extent of those in the law offer too great opportunities for wrong doing on the part of the unscrupulous.

The appointment of a Commissioner is the bright particular feature in the new law that offers greatest promise, provided, of course, the right kind of a man is chosen for the position. The "right kind of man" will be one thoroly familiar with all aspects of the problem of drug addiction, and of known integrity and courage.

To a great extent the success, or failure, of the law will depend upon the man who is made Commissioner. A medical man should not be appointed; nor should a lawyer. A jurist or official engaged in institutional or public charity should not be considered because they have come to view the people from a standpoint which prevents them from understanding the drug addict. This problem of drug addiction is too complex and too important to the community to place the administration of the law in the hands of anyone whose training and experience have been along circumscribed lines or whose work has created fixed views. Such a person would be very apt to defeat the humane purposes of the law.

Another thing, the controversies in re-

spect to the proper way of handling the narcotic drug situation have been so strenuous—and acrimonious—that no one who has taken part in any of the discussions, or who has expressed personal views should be appointed, for the obvious reason that he would undertake the position with too many active antagonisms to overcome and too many enemies to watch.

With the exception of two or three of the officials of the United States Department of Internal Revenue, men whose work we have been glad to speak of in the highest terms on several occasions, we know of but one man in this State whose knowledge and personal qualifications fit him for this office. It may be out of the question to hope for the appointment of this man. It may be difficult for reasons carrying no reflection on him in any way to secure his appointment, and it might be equally difficult to get him to accept such an appointment if it were offered to him. His appointment, however, to the position would inspire unlimited confidence and satisfaction in the minds of everybody interested —with the possible exception of the charlatans, and the illegal and illegitimate practitioners and vendors. The man we refer to is Senator George H. Whitney, Chairman of the recent Legislative Investigating Committee, the only man we know of who has the requisite knowledge of the narcotic drug situation, combined with the necessary administrative ability, a sufficiently sympathetic attitude toward the needs of the addict, and who can approach the whole question with an open, yet well-posted mind.

He conducted hearings on this most complicated question, under conditions alive with all sorts of dangerous possibilities, and yet he conducted them with a fairness and fearlessness that earned him the respect and appreciation of everybody concerned.

We do not know whether or not Senator Whitney would consider an appointment to this position, but we do feel that if he could be induced to undertake it, not only would all those interested be much gratified, but he could count on the cooperation of all who wish to see the narcotic drug situation handled humanely, efficiently and with due regard to the rights of all concerned. Without claiming any authority, we know that we are voicing the sentiments of a good many earnest physicians when we say that before any appointment is made it is sincerely hoped Senator Whitney's name will be considered for the office of Commissioner of Narcotic Drug Administration, and if it is at all possible, that he be persuaded to undertake the work. The appointment of no other man will do more to bring hope to the thousands of drug addicts in the State, or fear and trepidation to those who traffic on their affliction. The appointment of Senator Whitney will also make sure the cooperation of the Revenue Department, a consideration of no little importance in view of the excellent work that our Federal officials are doing.

Shall This Great Wrong Be Permitted? —There is something distinctly alarming and sinister in the position certain congressmen have taken on the postal zoning plan. In spite of the presentation of incontrovertible evidence that institution of the complicated zone system will drive hundreds and thousands of moderate sized publications out of business, that it will mean the contraction of the activities of those that can survive, seriously embarrass countless printing establishments, and cause at least a fifty per cent. loss to labor, paper manufactures, electrotypers, cut makers, etc., our representatives in Congress have turned a deaf ear to the request for postponement until the close of the war.

It has seemed a monstrous thing to drive thru this hasty, unscientific and ill devised plan at this time when the loyal publications of the country have done so much to uphold the Government's hands, when their aid is so urgently needed, and when the consequences of their destruction will prove so disastrous. In spite of the most earnest statements of the inevitable effects by men of national standing and unimpeachable integrity; and of the request, not to drop the plan to increase second class rates, but to submit the whole proposal to an unbiased commission of experts whose report shall be final, no other attitude has been shown than that of indifference, or the intention to "stand pat" no matter what the ruin.

Never before in the history of this country has Congress failed to pay a decent regard to honest representations in opposition

to any proposed plan of action that promised injury to those most affected. It is also safe to say that never before has there been such universal condemnation of a congressional act, nor one that has called forth a larger or more earnest protest.

Why, in the face of the facts submitted by men who are too proud to lie, does Congress prove so indifferent?

An outcome not generally realized is that the post office is going to have its labors very materially increased by this zone system. When the increased cost of carrying out this plan is added to the loss of revenue resulting from the large number of publications that will be forced out of business, and the decrease of first class mail, any possible returns from the increase of postal rates will be wiped out.

Every fact in regard to the proposition has been presented. The newspaper men in the House of Representatives have confirmed every statement as to the publishing industry, and the certain effect of the zone system. And yet in spite of all this and the absolute certainty of irreparable injury to countless publications, Congress has insisted on carrying out the postal program.

The more we study the situation the more we wonder why?

Back of it all is some great underlying purpose. What is it?

Make Quick Decisions.—There are some folks in this world who never appear to be able to come to a decision on any issue, either big or little. As a consequence, says a writer in the *Boston Post,* they are constantly harassed by doubt and the fear that they will make the mistake of picking up something by the wrong handle. They spend their lives sitting astride the fence because they lack the courage to get down on either side of it. They strive to propitiate everybody and please nobody.

What more pathetic spectacle than to see a strapping big man chasing back and forth between the hat counter and the mirror on the wall in the agony of doubt and despair over the momentous question as to whether he ought to purchase a straw lid with a red or blue band on it!

Sympathy goes out to the woman who for weeks perplexes her pretty head over the problems as to whether she will have her new gown cut obliquely or on the bias. In the end she has it cut scalloped, and every time she wears it her regret is that she didn't have it made severely plain.

If your processes of decision are going to halt and buck and stall over the color of a hat band or the cut of a gown, how can you hope to decide the really serious problems of life? Blessed is he who can marshal his wits in calm judgment, then decide whether he will stay on this side or cross over and burn the bridge behind him.

Rather than dilly-dally and shilly-shally thru life, you had better, in the interests of strengthening your moral fiber, make a mistake by a quick decision now and then. Focus the best judgment of which you are capable on the question at issue, then take your stand and hold your ground.

A Splendid Achievement.—The critics may carp and complain at the mistakes that have been made in connection with our war preparations, but the fair minded man will be filled with a great wonderment that so much could have been accomplished in a year's time. By July we will have 1,000,000 fighting men in France! Add to this, the enormous amount of munitions and supplies that this body of men entail, and some part of the stupendous thing that has been achieved will be realized. America has not been loafing, and too great credit cannot be given to the men who have kept faithfully at work, despite the vicious attacks to which they have been subjected. At last the country is beginning to grasp what has been done and the character of the labor that has brought our Army and Navy to where they are today.

Honest criticism is all right if its purpose is constructive but isn't it about time that we quit fault finding and let it be seen that we appreciate what has been accomplished?

Your Country Is Calling.—Have you offered your services? If you can possibly do so, don't delay, for doctors are urgently needed. Get in touch with the nearest examining board today. Your country needs you NOW!

FOOD FOR THOUGHT CONCERNING OUR VENEREAL PROBLEM.

BY

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It is well for those of us engaged in the different specialties to haul into the garage of legitimate criticism and commentation once in awhile, and give our subject a thoro overhauling. It is with this purpose in mind that I will attempt to consider a few of the essential factors referable to our venereal problem.

When one considers that the venereal diseases, with their sequelae, consequences and complications comprise more than all the diseases in the category of medicine combined, I feel that I have opened a subject worthy of serious consideration and discussion.

These diseases cling like an octopus to nearly every specialty in medicine, and are the chief factor in the practice of genito-urinary diseases, gynecology and neurology. On account of these diseases attacking in their pathology those organs which have to do with the propagation of the race, and having such a great bearing upon society, they should be stamped as those which should constantly be given the keenest scrutiny by every existing body or agency existing for the uplift of humanity.

Well can these diseases be called the diseases of pathos, for on account of their prevalence and influence upon humanity, they have a direct bearing upon the happiness and future of every young man and woman, upon every home. The tears shed in a single year as a result of these diseases would be sufficient to produce a flood equal to that of the time of Noah.

Having outlined the subject in hand, and if you will admit the stupendousness and colossal importance of it, the question naturally arises *what have we accomplished in the way of eradicating and controlling the venereal diseases?*

Compared with our work in the control of tuberculosis, I feel the question of venereal diseases is one of far greater importance. Certainly these diseases are far more prevalent. In nearly every city, town and village there are various organizations formed for the purpose of educating the layman on the dangers of tuberculosis. All over the world there are institutions established for the purpose of caring for our tuberculous patients. The result of this great propaganda is self-evident. Can we feel satisfied that we have done our share toward conquering the venereal diseases, when we compare the situation with what has been done with the problem of tuberculosis? It can safely be stated that practically nothing has been accomplished in the way of controlling or eradicating the venereal diseases.

We are about to be awakened to the most appalling condition in our Army and Navy in the present crisis, which will not only substantiate my statement, but make each and every one of us feel guilty of neglecting some phase of this serious situation. In a general way it can be said that one great factor inhibiting the control of this great peril is the fact that we are afraid to approach it, and meet it squarely face to face. And why are we afraid to approach this delicate subject and deal it its death blow? One answer is this, that the moment some one attempts to unclothe it in all its hideousness, various organizations spring up and condemn and censure this movement for fear the laity may become cognizant of the importance of their genital tract, and its sexual relationship.

In the last ten years we have made wonderful strides in the diagnosis of syphilis; and, while figures show that there is more syphilis existing today, the reason is that many diseases whose etiology heretofore has been unknown have at last been definitely proven to be syphilis; so it has really been thru a better understanding of the diagnosis of syphilis, that many diseases of unknown etiology are now grouped under this disease.

While the diagnosis, by the aid of many of our scientific tests, has become a relatively simple matter, still the treatment is very disappointing, the reason being that altho we have effective specific remedies for the disease, as soon as most of our patients are free from general subjective symptoms and lesions, they will refuse to continue their treatment. Not until the government intervenes and keeps a record and follow-up system and demands that the afflicted be kept under the closest surveillance and the strictest anti-syphilitic regime, controlled by our complement-fixation and other tests, and discharged and pronounced cured only by those capable of making such an important decision, will we be able to make any further progress in the cure of our luetics.

There is a lot more to be said and discussed about the various phases of syphilis, but the space available for this paper will not be sufficient to discuss this important subject in detail. The problem I wish to particularly consider is that of gonorrhea and our gonorrheics. We can attack this situation from three angles:

The source of infection,

Those infected,

The doctor.

The Source of Infection.—This again brings up the subject of prostitution. It is not within the scope of this paper to discuss so broad and delicate a subject. Much has been written upon this subject, and I can only refer you to more elaborate works for this reference. However this can be said about it, and that is, that in European cities where segregation is permissible and where examination of the prostitutes is followed along systematic and scientific lines and not controlled by politics nor steeped in graft, venereal diseases are practically unheard of. Understand, I am not encouraging vice, but merely presenting an actual fact.

I think by this time we are all conscious of the fact that we will not be able to eradicate this great menace at once. It will require a long siege of preliminary education along many lines and a thoro thrashing out of the important steps to be taken before we can begin to control this form of human depravity.

Those Infected.—The patients indeed present a pitiful picture, for if known they

are scorned by friends, ostracized from society and condemned by nearly everyone. Little encouragement and sympathy do they receive. They are ashamed to go to their doctor for fear that their condition may indirectly become known to their friends, and then to their families. Easily influenced by the elaborate statements made by quacks in their advertisements, they finally fall into the trap set by these charlatans and the consequences are only too well known. They go about the streets, scoffed and abused, disgusted with themselves and everyone, haunted day and night by the thought that their condition may cause ruin to themselves, spell disaster to their marital career, and the possibility that their offspring might be branded as the results of their sin. And so down-trodden and distracted, they often end up in the under-world, victims of dope, followers of crime, or seek relief in suicide. While I have painted a rather hideous picture, no one can deny that this is often the actual state of affairs. Again I ask, who is responsible, and whom are we to look up to remedy this deplorable condition?

Not until we approach this subject in a more serious light, not until we are willing to disassociate the relationship of these diseases with sexual affairs and cease to condemn a patient's whole character because he may have innocently become a victim of one of these diseases, not until we put our patient in a proper state of mind and treat him as if he is really and truly ill, and requires the best kind of care and encouragement, can we hope to get anywhere in controlling and eradicating these diseases. It is impossible to heal a traumatic urethra in the face of a psychical trauma.

That is why there exists so many sexual neurasthenics. There has been a great neglect of the subject of venereal diseases from all sides. The subject has been clothed in too much mystery. There has not been sufficient preliminary education and clear understanding of the subject. We need a greater enlightenment of the parent, and as a prerequisite a closer relationship between the child and the parent. The doctor has allowed such organizations as those of the sex-hygienist and the eugenist to wrest the subject from him, and make it a part of their business, simply because they felt that the doctor had not taken any interest in the problem of venereal diseases. It means that such institutions as the Y. M. C. A. and all other educational alliances must set aside time to present a proper understanding of the great importance of this condition to their members. It means that large industries and other commercial institutions must set aside time to give their employees an opportunity to know what the subject is, and what a great part it plays in lowering the efficiency of those afflicted with it. It should be of unusual interest to these organizations not only from a sociologic standpoint but also from a viewpoint of commercial economy.

The layman has been kept in ignorance too long and it is up to us to get together and overcome the onsweep of this great evil, which has been gradually and sneakingly creeping upon us like a forest fire attacking the welfare and efficiency of the entire human race. We have educated the layman to the seriousness of the tuberculosis question so that its menace is familiar to all, and if but half the effort be devoted to a solution of the venereal problem we can accomplish the same thing. This, however, must be borne in mind and that is, on account of the delicacy of the subject and the influence it may have upon our young men

and women, it will require a great deal of thinking as to how we are to give an impressive and still an intelligent interpretation of it without making it obnoxious. This certainly will assign the task to those who are thoroly capable and have made a broad survey of the problem. To say that this has not been tried would not be doing justice to those who have attempted it heretofore, but the same old story repeats itself, and that is as soon as anyone has attempted to launch a propaganda of this sort, our modernists get together and raise a hysterical hurrah, crying that we must not educate and enlighten the laity to the frightfulness of this condition for fear it might poison the minds of the younger generation and stimulate the condition to a greater preponderance.

It seems that they have always been successful in gaining their point. And why? Because we have not put down our hands and raised our voices and demanded that the laity must have a clear understanding and an intelligent idea of the venereal diseases. This must be made an open book if we expect to eradicate this menace.

The Doctor.—In looking over the curriculum of some of the best schools in America I find that few have a course in genitourinary diseases that places any great stress on the teachings of venereal diseases. The preclinical education of the medical student along these lines has been too superficial. The heads of the department of genitourinary diseases take too much for granted as to the student's previous training, forgetting that as yet he has had very little training relative to the fundamental principles of anatomy, pathology and diagnosis and the armamentarium used therein of the genitourinary tract.

There has not been sufficient cooperation between the various departments to give this subject the important place in medicine it deserves. The number of hours devoted to the study of genitourinary diseases is far too insufficient to master at least an intelligent idea of how to approach and treat venereal diseases. Prophylactic teachings of venereal diseases are practically unheard of. We must create an unusual and enthusiastic atmosphere in the minds of the students and impress upon them that it is one of the most important subjects in medicine, for it is usually the first disease that a young physician is called upon to treat.

To the average practitioner the treatment of the venereal diseases is a disgusting and distasteful art, yet practically everyone dabbles in it. We must honestly confess that the diagnosis and treatment of our venereal diseases, especially gonorrhea, have been based wholly upon empiricism, and few men refer their genitourinary work to the specialist.

This is not a plea in the name of the genitourinary specialty for more referred work, but merely wish to emphasize that if we are willing to treat these cases, at least let us be equipped with an intelligent and scientific knowledge and proper armamentarium for doing such work.

One newspaper in our city collected almost a million dollars for the purpose of eradicating the quack and I maintain that if a portion of this money were applied to the establishing of small clinics in various sections of the city and given support by the city and managed by men capable of doing this work, quackery would be forever abolished, for it has been thru the venereal diseases that the quack has reaped his greatest harvest.

Conclusion.—I sincerely hope I have not dealt to drastically with this subject. If

I have, it has been thru my great enthusiasm and the marked interest I have taken in this problem, feeling that, in so doing it may more greatly impress upon you its present alarming status. The purpose of this paper is a plea for a better training of the medical student of today along the lines of venereal diseases, a better education and enlightenment of the laity to the meaning of venereal diseases, for a greater interest to be shown by commercial and educational institutions along this line, and a plea for the government to come to our aid and give us their hearty support and cooperation in helping to eradicate this great scourge—this devastating plague.

We note with interest that the Y. M. C. A. has appropriated fifty millions of dollars for the purpose of giving our soldiers proper amusement and recreation in order to divert their minds from vice and encourage clean living. Much credit must be given this organization for their brilliant work. This, however, must be borne in mind that there is nothing more greatly lowering the efficiency of the fighting man of today than the venereal diseases. While the plan outlined by the Y. M. C. A. will convert a few, still the majority of the men must be considered potential subjects for one of these diseases. Again I wish to repeat that the absence of previous education and the lack of past enlightenment of the layman are responsible for a good share of this. We can only hope to control and eradicate a very small portion of our venereal diseases by the present plan outlined. We are at present precipitated into a puddled calamity where action is required. We must meet this crisis face to face and treat it as an emergency.

Equip each soldier's kit with a 2 per cent. yellow oxide of mercury ointment, with instructions as to its use; preach, denounce and unmask the venereal diseases to him in all their hideousness. But let it be known to him, that should he be thrown into uncontrollable temptation he must take the precaution prescribed. In this way we may stamp out a disease more fatal to soldiers than bullets and, incidentally, win a war which will place before the altar of the forthcoming constructive era a type of man worthy of the name "superman."

TUBERCULOSIS VS. PHTHISIS.

BY

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Volumes have been written and volumes will be written, but as yet the final word has not been spoken concerning these two diametrically opposed conditions.

Tuberculosis is one thing, phthisis quite another. In fact these two conditions have very little in common. The former is a conservative process of physiology, the latter a destructive process of pathology.

The term "tuberculosis" is derived from two Greek words "tuberculum" meaning in anatomy a rounded prominence on a bone or other part; in dermatology a small protuberance in the corium or subcutaneous tissue; in biology the term is especially applied to the enlargements found on the roots of the leguminous plants; in pathology the term has been applied to a hard small granular body 1/10 mm. to 2 mm. in diameter, yellowish at the center and bounded by a reddish vascular zone.

The termination "osis" means disease. Tuberculosis means then a tubercle or a rounded prominence or a small sized enlargement produced by a disease process.

In "tuberculosis pulmonalis" we have such nodules scattered thruout the lung tissue. The question that confronts us is this, "Are these tubercles the result of a disease process?"

First let us see what a tubercle in the lung consists of, in other words, what it is. We may then be in a position to arrive at the proper reason for their origin, their presence and their object.

"Histologically a typical tubercle consists of three groups of cells, the epithelioid, the giant cells and the round or lymphoid cells. The first are oval in shape, have a vesicular nucleus and are the result of the proliferation of the fixed connective tissue and endothelial cells; perhaps, also, of epithelial cells. The formation of the oval cells is the first effect produced by the tubercle bacillus. The giant cell is a large multinuclear mass, usually situated in the center of the tubercle. It may be the product of repeated nuclear multiplication in a single cell, without division of the cell protoplasm, or the result of a coalescing of several adjacent cells. The round cells are leucocytes that have emigrated from the blood vessels, and they may be so numerous as to conceal the other cells. The bacilli are found in the giant cells between and in the epithelioid cells and in latter stages in the round cells. *New blood vessels are not found in the tubercle.* The tendency of a tuberculous formation is to undergo a peculiar form of coagulation, known as cheesy necrosis. This gives rise to a structureless, yellowish white mass, which microscopically shows almost total absence of nuclei in the central area, while at the periphery nuclei, both normal and in various stages of degeneration, are found. The necrotic tissue does not as a rule take any stain. For this degeneration two factors are responsible; the absence of blood vessels and the action of peculiar poisons elaborated by the bacillus. The breaking down of tuberculous areas in the interior of organs gives rise to cavities, which may be seen in muscle, bone, brain, lymphatic glands and elsewhere, but are most pronounced in the lung where they may attain a very large size." (Gould's Dictionary.)

This is certainly a lucid and true description as to what a tubercle is. Can it be said that the formation of such a complicated process is due to bacillary activity? The bacilli are found on the inside of the tubercle. How is it possible, that from their inside position they control and govern the compilation of the tubercle formation upon its outside? Is it not much more reasonable and logical to assume that the controlling force for tubercle formation does not originate from the inside or from the bacilli at all but that instead it is a reaction by the system to the presence of either the bacillus or its poison?

The entire process of tubercle formation appears as the sum total of a highly elaborated scheme on the part of the system to cope with its intruder the bacillus of Koch. The first thing that happens is a local reaction by the system, an inflammatory process, this allows the accumulation and the multiplication of giant cells to surround the bacilli. Ordinary cells such as leucocytes do not answer the immediate purpose. The fact is the tenacity and the agressiveness of this bacillus or its poison is nearly equally balanced with the phagocytic power of the leucocytes. Hence by a most elaborate provision of physiologic reparative process the bacilli are first surrounded by the giant cells. The second layer consists of epithelioid cells. Evidently, to make sure that this first line of defence will hold, it is

backed up by a second zone containing cells intended to supply fibrous material for strength and durability. If in spite of this precaution some of the toxic material should make its escape thru this double cell wall, we have a third line of defence formed of leucocytes and lymphoid corpuscles.

Certainly a more complete system of walling off the enemy could not be thought of. As a great general once remarked, "It is not enough that the enemy is put out of action, he must be completely destroyed."

What kind of a general the sympathetic system is, becomes apparent when we realize that contrary to the usual formation of new tissue, here we have no blood vessel formation. It was not intended that these tubercles should furnish any means of communication with the general system, in fact, we see that instead they gradually undergo a cheesy necrosis to be expelled from the economy and with them the bacilli they so securely harbor. Does this look like a pathologic or a physiologic process? Much depends upon the answer. If this is pathologic or the result of disease we are warranted in trying to find means that would interfere with tubercle formation, while on the other hand if this is a physiologic process then it is our plain duty to assist the economy in the more easy formation of tubercles, the discharge of the cheesy necrosis from the body and the prompt healing by fibrous or scar tissue of the cavities thus unavoidably formed.

We have seen what tuberculosis is, we have come to the conclusion that it is not a pathologic but rather a physiologic process. If this is a physiologic effort, intended to overcome a disease process, what is the disease that we are endeavoring to combat?

Phthisis.— The Greek word phthisis means "to waste." Formerly any dyscrasia producing emaciation and death; a wasting or consumption. The term has been restricted to designate all pulmonary lesions followed by disorganization of lung tissue, formation of cavities, loss of function of the lungs, loss of health and death. It is usually tuberculous in nature, due to the action of specific vegetable microorganism, the bacillus of tuberculosis. The onset of phthisis is usually very insidious, with gradual loss of strength and flesh, and with cough and expectoration and loss of appetite; it may commence with a bronchitic attack or with one or more attacks of pleurisy; very rarely it follows an acute croupous pneumonia. The most important symptoms of the fully developed disease are cough, at first hacking, later loud, hallow and paroxysmal; expectoration, frothy and viscid at first, later profuse, purulent, and nummular; fever of hectic type; emaciation often very rapid, hemoptysis, dyspnea, pain, night-sweats, anorexia and digestive disorders. The physical signs are flattening and retraction of the supraclavicular and infraclavicular regions, restricted movement of these regions, dulness on percussion over one or both apices extending to other parts of the lungs, altered rhythm of the respiratory sounds, adventitious sounds, on auscultation, such as the presence of rales of various kinds according to the progress of the disease. The duration of the disease varies from the rapidly fatal, in which death may occur in a few weeks, to the very chronic, lasting for years. The pathology usually consists in a deposit of tuberculous nodules, especially in and around the walls of the smallest bronchi; these nodules coalesce and eventually undergo caseation and softening. More rarely a fibrous change takes place, with the production of the more chronic form

of the disease, fibroid phthisis. Phthisis may occur at any age and especially attacks those in whom there is an inherited predisposition or those who have been weakened by previous disease, poor food, poor hygienic surroundings, frequent pregnancies and prolonged lactation or the inhalation of poisonous vapors or irritating particles. Those in whom there is a strong family history of phthisis generally develop the disease before the twenty-fifth year. It may occur in those of middle age however, or in old age. The usual seat for the primary lesion is in one of the apices, the right a little more frequently than the left. After one apex has been attacked, the disease usually extends, first to the apex of the lower lobe of the same side, then to the other apex. The base is rarely primarily affected. (Gould's Dict.)

Phthisis Therapy.—At the risk of being considered too didactic, too technical or what not, I shall give the therapeutic procedure in detail. Not only will I go into the particular detail, but I will try to make clear the reason and the logic for each step.

I am not acquainted with a single disease from which we have such a large percentage of complete recoveries as we have from an infection with the bacillus of Koch.

The entire civilized world is tuberculized, therefore infected. Ninety-three per cent. overcome the infecton so promptly and so thoroly that the original infection frequently escapes our detection. Such patients even establish a more or less lasting immunity. Where is there another infectious disease in which we have 93 per cent. of direct recoveries without treatment of any kind, except that furnished by the natural physiologic processes of the body?

Of the remaining seven per cent., from personal experience during the last ten years at least five per cent. can be kept alive, if not entirely cured. That leaves a possible two per cent. of unavoidable deaths from phthisis pulmonalis.

This is not the time or place to speculate as to how, where and when the bacillus of Koch gains entrance into the human tissues. The germs are admittedly there. In nature there is always a tendency to repair of injury or recovery from disease. The mechanical invasion of the system by the Koch bacillus is looked upon as a trauma (foreign body), because of its very presence. It is an irritating foreign body, small to be sure, but nevertheless true. The human economy, as far as the underlying principle is concerned, does not make very much of a distinction between the sizes of foreign bodies. Comparatively speaking, the smallest kind of a foreign body will call forth a corresponding effort at expulsion. Failing in this effort, the system at once inaugurates a complicated arrangement, the object of which is to make the foreign body as innocuous as possible under the circumstances. This attempt usually is a fibrosis encapsulation (tubercle formation).

Besides the invasion of the bacillus as a foreign body, it causes disharmony of cellular function by pouring out a certain toxic substance which causes cellular disease and cellular death. When a great majority of a patient's cells are poisoned and their function interfered with, constitutional symptoms appear, we have a rapidly or slowly wasting condition, the disease phthisis. To overcome this condition the system forms antitoxines which neutralize the poison and as long as this is adequate the patient does not die from the disease.

Why do so many recover and only the comparatively few succumb to the disease? It is because, for one of many reasons, the

system is incapable of either producing the necessary fibrosis to surround the germs or an inadequate amount of antitoxine is furnished to overcome the toxemia. If the above assertion is correct, then the physician's duty is twofold.

First, to assist in the formation of fibrosis (tuberculization), secondly to assist the economy in the production of an adequate amount of antitoxine.

Every reparative effort on the part of the system is the result of some of the phases of an inflammatory process. An inflammatory process makes possible a localized increase in the general arterial blood supply, it brings to the parts an increased number of the wandering cells, it neutralizes the poison, it allows diapedesis and leucocytosis, it destroys the germs, heals the injured cells and removes the dead ones. Until we produce a specific, all this must be accomplished by the normal blood without the addition to the system of drugs, antiseptics or germicides.

How to increase tubercle formation.

The blood and only the normal constituents of the blood can do this in a physiologic manner. Our duty lies in supplying the necessary elements and guiding the blood stream to the parts where most needed. This must further be accomplished without throwing an unnecessary burden upon the already overwhelmed system.

For this purpose we require a high-frequency apparatus such as a Diathermia or Telatherm machine as made by the Wappler Electric Co. Where the alternating current of commerce is available in the physician's office, the installation of such an apparatus is very simple. Special wiring is usually not required as the ordinary lamp socket of 110 to 220 volts answers the purpose. Such a high-frequency apparatus furnishes alternations amounting to over one million per second. When such rapidly changing alternations are passed thru the body they are changed into heat units. This heat is not applied upon the outside, it is generated by transmutation of energy from the inside to the outside.

The electrodes, which never become heated, consist of flexible tin, one of which is placed upon the back of the patient, the other over one or both lung areas anteriorly. These two electrodes are then attached to the terminals of the high-frequency apparatus. After the electrodes have been properly placed and secured in position, the current is turned on. If a Wappler hot wire meter is used, the reading should be about 1.500 milliamperes. Forty-five to sixty minutes are consumed for each treatment. After the treatment the parts are sponged off with cold water and dried. Such a treatment is applied either daily or at least on alternate days. The patient is instructed in the art of deep breathing exercises.

By this process the entire chest area is heated several degrees above the normal. The dilatation of the blood vessels in the lung allows an increase of arterial blood supply to take place. All the phases of an inflammatory process are in operation but one. The patient's system is not called upon to furnish any needed energy, the electric current supplies the energy. The effect lasts from two to six hours after its application. The patient reacts in a similar manner as tho he had received a fair dose of tuberculine injection. This reaction, however, is much milder and passes off much quicker.

Since this is a wasting disease, the patient is instructed to rest as much as possible. At night, before retiring, say at 8 P. M. a full bath at 107 F. is ordered to be taken for at least 30 minutes, then quickly

followed by a cooling bath and a rub down. In the morning this same process is repeated. After the morning bath breakfast is taken, after which the patient immediately retires for at least two to three hours. Besides the lung gymnastics no special exercises are indulged in during the early months of the treatment.

When the capillaries of the skin are dilated there is a rush of blood to the outside; when the capillaries are suddenly contracted on the outside, there is an equal rush of blood to the inside. During this exchange of the circulation, new blood is forced into the lung tissue and some of the toxic material is swept into the general circulation. Autoserum therapy is thus practiced in a perfectly physiologic manner.

Diet.—The diet regulations are very simple. Besides such foods as are known to agree best with the patient it is only insisted upon that the patient "eats" at least one quart of good milk and a half pint of cream daily. If the milk and the cream can be obtained without having been pasteurized or sterilized so much the better. Twice during each week a dish of raw oysters and oyster or clam broth should be taken. The rest of the menu is left entirely to the patient; he should neither stuff nor starve.

A patient with phthisis requires an increase in vitamines and earthy material. Milk and cream (fresh) contain the former while raw oysters and their juice contain the latter in a form most easily assimilated by the patient. The oysters are not given for their food value, because they have none. The great majority of phthisis patients suffer from acidosis, if in spite of the administration of oysters and clam broths the signs of acidosis remain, bicarbonate of soda should be administered. The principal thing that is required of the patient is that he is ready and willing to make "getting well" his first and only aim.

The above is the main outline of therapeutic procedure. I have not touched upon complications or the unusual cases; they must be met as they arrive. It is far better to undertreat than to overtreat these patients and above all they must not be hurried. Normal physiology works with a certain speed. Patients must not attempt to get well faster than their system allows.

There is no place upon the earth where civilized human beings dwell that is free from phthisis, therefore the mere sending of a patient to another climate helps but little. Change of climate, scenes, surroundings, etc., are beneficial for anybody, but they are not a specific in phthisis.

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Clinical Medicine and the Family Practitioner.—The greatest opportunities for advancing clinical medicine at the present time are within the reach of family practitioners only, because they alone can study disease during its early stages and follow its progress.—*Boston Medical & Surgical Journal.*

THE ANTISEPTIC PROPERTIES OF FLAVINE AND THE TREATMENT OF SEPTIC WOUNDS.

BY

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The possession of powerful bactericidal properties by acridine dyes was pointed out by Browning and Gilmour[1]. They observed in the case of acridine compounds that, in marked contrast to most other antiseptics, their action was enhanced in the presence of serum.

Subsequently Browning, Gulbrausen, Kennaway and Thornton[2] investigated the action of "flavine" (now called "acriflavine": diamino-methyl-acridinium chloride) and of "proflavine" (diamino-acridine sulphate) comparing them with several other antiseptics. They claimed that acriflavine acting on *B. coli* for 24 hours killed in peptone-water in a concentration of 1:1,000, in serum in a concentration of 1:100,000; acting on *Staphylococcus aureus* for 24 hours it killed in peptone-water in a concentration of 1:20,000, in serum in a concentration of 1:200,000. They found that the flavines were comparatively non-toxic and did not inhibit phagocytosis and recommended their use in the treatment of wounds in strengths of from 1:1,000 to 1:10,000. Against these excellent experimental results obtained by Browning and coworkers, Fleming's work[3] must be quoted. As regards the action upon the leucocytes, Fleming finds that flavine, if *allowed to act for some hours,* has a powerful leucocidal action. If leucocytes be treated with flavine solutions for five hours and their phagocytic power be tested at the end of that time with strengths of 1:1,000 to 1:8,000 no phagocytosis occurs; with 1:16,000 a little phagocytosis takes place and even with 1:64,000 phagocytosis is only about one-eighth that of a saline control. As regards the bactericidal power of flavine, Fleming points out that the results vary according to the strength of the microbial emulsion employed. Thus, using a strong staphylococcic emulsion 1:8,000 flavine did not kill in 23 hours, while a weak staphylococcic emulsion was killed even in two hours with this strength. With staphylococcic pus, only one out of seven specimens was sterilized by 1:1,000 flavine acting for 24 hours.

Hewlett[4] has also pointed out the slow action of flavine as a bactericide, and confirms Fleming's results with staphylococcic pus and the variable results obtained with varying numbers of microbes.

As regards the practical treatment of wounds with flavine, Drummond and McNee report on the use of this agent in one hundred and twenty cases. A strength of 1:1,000 in saline was first used, but equally good results were obtained by a first dressing with 1:1,000 followed by 1:5,000 in all subsequent applications. In some cases where the Carrel method of irrigation was being used, the strength of the solution was further reduced to 1:10,000. Their conclusions are that flavine appears to have many advantages as a *primary* treatment of *recent* war wounds, such as (*a*) absence of all toxicity, (*b*) prevention of suppuration and spreading sepsis, (*c*) the primary dressing need not be changed for two or three days, (*d*) the wounds are not inflamed or painful. But flavine cannot be classed as a success in the treatment of the *later stages* of war wounds. The wounds tend to assume a stagnant condition, during

which the processes of repair are almost in abeyance. After a few days when the dangers of gas gangrene and of spreading sepsis have to a large extent passed off, flavine should be stopped and another treatment adopted. In the majority of cases war wounds are not rendered bacteriologically sterile even by the prolonged use of flavine.

Bashford, Hartley and Morrison[6] have published a study of fifty cases of wounds treated with flavine. The wounds, taken as a whole, were not of great gravity, and were treated in from one to six days of infliction. Most of the cases had been previously treated by the Carrel-Dakin method within 24 hours of being wounded. Another series of 50 cases was treated by the Carrel-Dakin method for comparison, these being on the whole of greater severity than the flavine series. Flavine 1:1,000 solution was employed. The following is the summary of the results obtained with the two series: "The temperature reached normal distinctly earlier, as a rule, in the flavine group, but the percentage of failures to reach the normal line while under treatment with flavine was rather greater. Under the influence of flavine only 38 per cent. attained the standard required for suture. This is in marked contrast to the 68 per cent. under treatment in the Carrel-Dakin series. The superiority of the latter is still maintained when we consider the number of wounds sutured (54 per cent. as opposed to 34 per cent.) and the percentage of patients evacuated to England healed (56 per cent. as opposed to 22 per cent.). In two features, the apparent preservation of the surrounding tissues from infiltration and the tendency to inhibit suppuration, the influence of flavine is not to be denied."

These authors dissent also from the statement that powerfully bactericidal solutions of flavine do not harm the tissues. They find that flavine hinders the growth of epithelium and the formation of scar tissue and that an abundant growth of organisms can be obtained from portions of deeply-stained granulation tissue excised after many days' treatment.

On the other hand, Pilcher and Hull[7] in a series of more than 5,000 cases of war wounds treated with 1:1,000 flavine by ordinary dressings obtained good results and in a far simpler way than by the Carrel-Dakin method.

Much further experience in the treatment of wounds is needed before the value of flavine can be assessed. The writer is of opinion that the potency of flavine as a germicide has been placed unduly high by Browning and co-workers. Its slow action would also suggest that for full efficiency it should be used in the Carrel-Dakin manner of frequent irrigation.

Drummond and McNee's and Bashford, Hartley and Morrison's results suggest that the place of flavine in the treatment of wounds may be as a preliminary agent extending over a few days, other antiseptics being then substituted for it. From a consideration of the various data which have been published on the treatment of septic war wounds, the writer has been forced to the view that "good surgery" is the essential for success. By this is meant thoro cleansing and complete removal of all foreign bodies and material and free drainage. If, and when, this is attained, subsequent treatment should follow the Carrel-Dakin method, tho whether hypochlorite solutions are better than some other antiseptics may be questioned. One would like to see, for instance, some of the high-co-

efficient phenoloid disinfectants, which have a comparatively low toxicity and bacterol (a formalin containing disinfectant) applied by the Carrel-Dakin method, and the results compared with Dakin's solution.

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WHERE BRILLIANT GREEN FAILS.

BY

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In considering brilliant green, the abundance of its literature, and the fact that the information concerning it is so easily obtainable in its minutest details, perhaps it may be well to limit the scope of this brief essay to a thus far unmentioned general issue, and to omit reference to laboratory and other experimental results. It must suffice to say in this connection that some observers report that brilliant green and especially acriflavine are superior in bactericidal power to the usual hypochlorite solutions, as employed for wound disinfection in the proportion of 200 to 1. At the same time altho this great power has a wide range of germicidal action, yet this action is combined with a freedom from irritating manifestations upon damaged animal tissues. The possession of this last advantage is so definite that any tissue-fretting activity which may occur appears to be solely that of the water which holds the greens in solution. Therefore, contact with these dyes does not incommode, in the least, the delicate structures of the insect world, whether egg, larva or adult in form. At any rate, it is only these forms which might be inconvenienced by the presence of plain water. Possibly some such condition of affairs may be cited as an additional proof that bacteria do not belong to the animal kingdom.

One reason why the writer for many years has been amused at the mention of asepsis, in the open air treatment of wounds, is that whenever he tried sending home patients thus treated, they soon returned with maggots on, within or around the wounds. Under such circumstances it was considered to be scarcely worth while to bother with the making of any very delicate tests in order to discover whether asepsis plus maggots is a perfectly protected wound field. Surely such a travesty of asepsis cannot be regarded as satisfactory; whereas if some poisonous antiseptic were employed, then, at least, the growth of parasites would be prevented.

All of the foregoing facts had been forgotten when the trials with the brilliant green began. It had been long since such a thing had happened. In any event, it had occurred only among patients who had been sent home from various hospitals in a presumably aseptic condition, so far as their wounds were concerned. However, on account of warm weather they had sat on fire escapes or in stable yards and when antiseptics of the poisonous kind were supplanted by greens, then back came the maggots.

Strange to say, bad smelling wounds, at the same time seemed to be deodorized. It

was evident that their fungoid life was under control while the parasitic invaders were not affected. These parasites crawled all over the green stains, apparently they fed upon stained areas, but notwithstanding this they seemed to be lively and their bodies were in no wise discolored. This absence of stain was utterly incomprehensible, considering the nature of brilliant green in solution, and the only explanation left was that these larvae must have a means of cleansing themselves.

Among patients who were not afflicted with maggots, the good results that followed the application of the green solutions were all that had been claimed for them. Yet, there was the following disadvantage.

Nonadherent bandages had been in use so long that the ordinary kind had been forgotten as had their manner of sticking fast and bringing scab away with them when they were pulled off. As formerly, bandages were found to be sticking firmly, therefore, the old paraphernalia of bowls and solutions for soaking purposes were resurrected, and all this nuisance had to be gone thru once more. In short, the matter might be summed up in about these words: The greens when dissolved are excellent germicides but not parasiticides, and when gauze banadages are soaked with such solutions and placed upon wounds, these adhere.

Antiseptic wash had always given most satisfactory results, consequently because it was both germicidal and parasiticidal it was thought of at once. Ofrias purple will prevent gauze from adhering to burns so that also occurred to the mind. The result of all this was the determination to make the present antiseptic green solution. This solution contains one grain of brilliant green, one grain of calomel and three grains of iodine crystals rubbed up with a little alcohol and added to 2,000 grains of lime water. On account of staining this is only used by a surgeon or nurse who dresses the wound with it and applies the bandage. The patient in his home applies a good grade of liquid paraffin at the rate of a half teaspoonful every two hours except during sleep at night. The paraffin should be run thru or soaked thru the bandage as nearly as possible over or upon the wound itself, but without disturbing the dressing. In practice it is necessary to be very clear about waking hours, otherwise the patient or his family will see that the orders are carried out no matter how many vigils it takes nor how little rest the patient gets.

When a patient is under constant observation the change that is indicated in the preceding paragraph is not necessary and such a change clouds the issue. Particularly during the months from November to May is the precaution not essential but the green may be dissolved in lime water (1 to 2,000) and its analgesic effect is very grateful to a painful wound. During those months of the year when flies and larvae prevail the biniodide of mercury is indispensable. If one uses the solution in the aforesaid manner with regard to seasons it is very possible that he cannot tell one solution from the other so far as results are concerned; but a departure from this routine is fairly apt to work out in the very unsatisfactory manner that has been already recorded.

The open wound treatment with its constant vigilance on the part of some attendant is a matter quite by itself. One day with the Carrel method, another day alternating with the green solution is excellent. However, the present endeavor is to present the

usual and the ordinary in such a way that an excellent antiseptic may be safely employed under all circumstances whether the environment is favorable or adverse.

TREATMENT OF BURNS WITH PURE PARAFFIN WAX.

BY

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Towards the end of the year 1915 I received a sample of Ambrine from a friend in France. Everyone knows the remarkable results obtained by this substance in the treatment of burns. Finding by analysis that Ambrine consisted chiefly of paraffin wax, which is manufactured in this refinery in great quantities, it was thought well to compare the clinical results obtained by treatment with one of the many proprietary preparations of wax and those obtained by the application of pure wax. It may be remembered that in the original thesis by the French inventor, on "Cerotherapy" in the year 1904, no mention is made of any other ingredients than wax. It is hard to understand why such substances as betanaphthol or eucalyptol should have any special modifying effect on the pure wax. The Japanese laborers in our wax plant have long had the custom of treating minor injuries, such as cuts on the hands or feet, by dipping the affected part into melted wax.

In each of the following cases, one-half of the burned area was painted over with pure wax and the other half with a wax made up according to the Hull formula. In every case no difference whatever was noted in the clinical results, either from the standpoint of immediate effects in lessening pain and discomfort or of ultimate results in stimulating the formation of new skin.

Case I.—Steam burn of face involving epidermis only. Healing complete in eight days. Results excellent.

Case II.—As in case I.

Case III.—Sulphuric acid burn of foot. Results bad and treatment changed. Profuse suppuration noted on third day and skin sloughed off leaving subcutaneous tissue exposed. Ointment of balsam of Peru applied, but healing slow, fifteen days.

Case IV.—As in case III.

Cases V and VI.—Burns on back with hot piping; small areas three inches square involved, affecting epidermis only. Results good.

Cases VII, VIII and IX.—Burns with hot asphalt involving small areas of extremities, destroying epidermis and affecting dermis. Immediate analgesic effects of wax good, but on fourth day treatment had to be changed in each case on account of excessive suppuration under the wax dressing, which is of course non-absorbant. Bismouth ointment employed.

Case X.—Workman tried to cross lake of asphalt. The hard crust on the surface gave way and he fell into hot fluid beneath. Hands and arms half way to elbow, and feet and legs half way up thigh involved in burn, together with lesser patches on neck and abdomen. Epidermis, dermis and subcutaneous tissue destroyed. Lower extremities of both fibulas exposed as well as phalanges of feet. Burned areas thoroly irrigated with weak permanganate solution once daily and wax dressing applied. Alkaline treatment internally. Suppuration profuse on fourth day, albuminuria slight, temperature 103° F. Blood passed from bowels, melena, on sixth day. Calcium chloride administered. Wax treatment discontinued from the fifth day in favor of continuous irrigation during day and application of bandages soaked in liquid vaseline during night. Death in delirium on fourteenth day from exhaustion. It was noted that in certain small areas on each leg where the dermis had escaped, the formation of skin had commenced, while over the

whole area of subcutaneous tissue involvement no epithelial growth could be noted.

CONCLUSIONS.

From this very limited number of cases the following conclusions may perhaps be drawn, in addition to that already stated as to the comparative effects of wax preparations, with those of pure wax:

(1) Wax is an excellent application to burns of epidermis.

(2) Where the dermis is destroyed and especially where the subcutaneous tissue is involved, it is only useful in allaying pain and forming a protective dressing for the first three days. After suppuration has been established it is harmful as, being non-absorbent, it serves to retain a discharge of pus in contact with an open wound.

(3) In sulphuric acid burns results were bad.

(4) There is no spontaneous growth of epithelial cells in burns where the subcutaneous tissue has been destroyed.

THE VENEREAL DISEASES PREVENTION ACT OF ONTARIO, CANADA.

BY

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Chief Officer of Health, Ontario.

The following is a synopsis of an act recently passed by the Legislature of the Province of Ontario with the purpose of controlling venereal diseases.

The act provides that any person under arrest may, if the Medical Officer of Health believes that the person is infected with venereal disease, be required to undergo an examination in order to ascertain if he is or is not infected with this disease, which by the act includes gonorrhea, syphilis and chancroid. If the person so examined is found to be infected he may be detained and treated. Physicians in medical charge of jails and other places of detention are required to report within 24 hours any persons confined who may be found to be infected.

If a Medical Officer of Health has credible information that any person is suffering from venereal disease the officer may require such person to be examined and if the person is infected, the officer may take steps requiring satisfactory treatment.

In order to prevent unjust action against a physician who makes an examination or report in respect to such cases, it is provided that such action can only be brought with the consent of the Provincial Board of Health.

Provision is made for right of entry to a house or premises by the Medical Officer of Health or his deputy in the daytime for the purpose of inquiry or examination in respect to such cases. This provision is identical with the one in force in respect to other communicable diseases.

Hospitals designated by the Board are required to provide facilities for treatment.

No one but a legally qualified physician is allowed to attend upon or prescribe for or supply or offer to supply any drug, medicine, appliance or treatment to or for a person suffering from venereal disease or for the purpose of the alleviation or cure of such disease; the only exception to this being that a qualified chemist may fill the prescription of a physician for such purposes. The penalty for infringement of this provision is $100 to $500. A similar penalty is provided against advertising in a newspaper, pamphlet or other periodical, any remedy or cure for these diseases. This penalty is also provided for anyone knowingly infecting any person with venereal disease.

Anyone making statements to the effect that a person has one or other of these diseases, except in case of disclosure made in good faith to a Medical Officer of Health or physician in consultation, is liable to a penalty of $200.

Provision is made with the object of maintaining secrecy in respect to cases of this nature by those who have the administration of the act.

The most important feature of the bill lies, however, in the powers given the Provincial Board to make regulations in regard to the *forms* and *notices* to be used in the administration of the act, the *remedies*

to be used, the *course of conduct* of the patient, the *distribution of information* concerning these diseases, the *regulation of treatment* in hospitals, etc., *preventing* infection, *reporting of cases* by serial number, *notices and placards* in public places, imposing penalties for infringement of regulations, *procedure in appeals* which may be made as a finalty to the Board and the *method and extent of examination* of persons.

The Board is given power to manufacture and distribute remedies free or otherwise to local boards of health, physicians and hospitals.

Any expense in carrying out the provisions of the act may be incurred by the Medical Officer of Health or Local Board and such expense must be met by the municipality. The regulations under the act are now in course of preparation and the law goes into effect on the 1st of July, 1918.

While the effect of this law, which is a fairly drastic one, can scarcely be foreseen it is reasonable to regard it as a decided step in advance. The restriction of practice in these diseases to qualified physicians and the prohibition of the advertising of quack remedies, will, it is hoped, do much to eliminate the baneful effects of treatment by druggists and quacks, who not only do no good but usually do a lasting injury to the victims of these diseases, not only by leaving them uncured but in addition by giving them a false sense of security which allows of the transmission of disease to innocent parties. Reporting of the names of those infected, which does not seem to have worked well in practice elsewhere, is not sanctioned by the act but reporting by number is required.

Sodium Bicarbonate.—Few patients will object to the taste of sodium bicarbonate if the required dose is administered dissolved in a convenient quantity of cold water (*J. A. M. A.*, Feb. 9, 1918). The taste may be disguised by dissolving the sodium bicarbonate in carbonated water or else by adding a little sugar and lemon juice to ordinary water. Sodium bicarbonate may also be prescribed in the form of tablets. Tho it is better that these be allowed to dissolve in the mouth, in most cases they are swallowed without discomfort.

THE DETERMINATION OF SEX.

BY

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The factors influential in the determination of sex have again been brought into prominence by a recent article in the *British Medical Journal* in its review of the work done along this line by Dr. D. Dawson. A summary of Dr. Dawson's conclusions are published in the April, 1918, number of *Current Opinion* and the latter are therefor being discussed by the laity. To quote from the *Journal of Heredity*, which is the source of authority of *Current Opinion*: "Some 18 years ago Dr. Dawson propounded an original and simple theory of the subject which he held and, as later investigations show, he still holds, that the sex of the child depends solely upon which ovary supplies the ovum fertilized. If the ovum comes from the left ovary, the child is a girl."

That the *British Medical Journal* takes Dr. Dawson's theory seriously is evidenced by the following quotation incorporated in the *Current Opinion* review: "It is clear that Dr. Dawson's theories are ambitious, for they offer solutions of problems attacked by medical men and biologists again and again, any rate since the time of Hippocrates. But are his solutions correct? This question is merely one of fact and the answer will depend only upon the evidence afforded by the collection of observations. Thus valuable evidence for or against his view that the right ovary produces male ova and the left female, could be collected at Cæsarian operations; the sex of the child could be compared with the site of the ovarian corpus luteum. Similar evidence could be collected in the post-mortem room."

Because of the foregoing and incidently because of the treatment outlined, which I believe is saving many lives, both maternal and infant, which were formerly sacrificed under the old accouchement forcé régime, I am herewith placing the following case on record: On December 12, 1916, I operated a nulliparous woman who had been married nine months previously. There was nothing in her family history which had any especial bearing upon her case. The abdomen was enormously distended when I saw her and she was supposed by her attending physician to be pregnant. It was clearly evident, however, that the abdomen was distended by a large ovarian cyst. This was removed thru a short, two-inch incision and proved to be unilocular, the cyst and contents weighing twenty pounds. The patient had always suffered more or less from indigestion and had had for years a relative amenorrhea with obstinate constipation. The appendix was found thickened and was therefore removed. The left ovary was somewhat enlarged, as is usually the case when the opposite one is extensively involved in cystic growth, but was not disturbed. The uterine fundus which had been crowded into the hollow of the sacrum was held forward by a modified form of the internal Alexander operation. There was at least a liter of free fluid in the abdominal cavity which was quickly sponged away and a liter of the normal salt solution substituted. Abdominal incision closed in the usual way. The patient convalesced ideally from this operation, her kidneys at all times functionating normally and returned to her home in two weeks from the day of the operation well on her way toward complete convalescence.

Three months following the operation she became pregnant and I was called in consultation to see her on December 9, 1917—almost 12 months to the day following the first operation.

She had been during her pregnancy under the care of a most able physician who had examined the urine at regular intervals. On the morning of December 9, 1917, she suddenly developed, without serious promontory symptoms, uremic convulsions with the urine almost completely solid with albumen. She had three convulsions in somewhat rapid succession and was removed to Huron Road Hospital where I at once did a Cæsarian section, assisted by Dr. George J. Salisbury. I delivered her thru the abdomen of twins—a boy and a girl—which were to all appearance five or six weeks premature. The operation was easily and quickly performed but the placenta of the male child was immediately in line with the uterine incision and, consequently, resuscitation was exceedingly difficult. This child lived but 36 hours. The girl baby was in a separate sac with a separate placenta and, while resuscitation was somewhat difficult, it soon began to breathe naturally and at this date (five months later) is thriving nicely. Gas-oxygen anesthesia. No trace of the right ovary was discernible. The patient was removed from the table with a pulse of 140 and a diastolic blood pressure of 80. A liter of the normal salt solution was administered under the breasts. Under the action of hot packs, hot lithia water, proctoclysis, digitalis and apis mellifica the urinary secretion was finally fully established, there being very large quantities passed during the first five or six days. The patient remained more or less in stupor during the first ten days following the operation and on the sixth day, notwithstanding the fact that the kidneys were apparently functionating not only

normally but excessively, with a normal per cent. of all the solids and an absence of acidosis, she had two very severe convulsions. From this time on her convalescence was uninterrupted and at this writing she is in good health.

The foregoing case may, of course, be nothing more than a rare exception to the law enunciated by Dr. Dawson, which I think should hardly be taken seriously. It, however, is pretty conclusive evidence that no one theory put forth to determine the causation of sex will hold good in all instances—certainly not in the case cited. Whether or not the sex is predetermined in the ovum or spermatozoon, or that it is determined at fertilization, or during embryonic life subsequent to fertilization, are questions which are still unanswered. Indeed, so long as it is impossible to distinguish biologically between the human ovule and that of plants and lower organisms—the ovule of each consisting of a single cell of protoplasm composed alike of carbon, hydrogen, oxygen and nitrogen—the difficulties surrounding the determination of sex would seem almost insurmountable.

THE FRAILTY OF THE HUMAN BODY.

BY

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A gardener suffering with lock-jaw was brought into the senior students' ward and we all went to look at him. Stillness reigned in the vast room. The sufferer was a thick set and muscular suntanned working man of gigantic stature; bathed in sweat, with lips distorted from the hideous agony, with rolling eyes, he lay on his back—a helpless mass of humanity. At the slightest noise—when a trolley bell rang in the street below or a door slammed—the sick man began to bend out slowly, the nape of his neck was drawn down, his jaws convulsively locked together, until the teeth cracked audibly and a terrible, prolonged convulsion of the dorsal muscles lifted the body from the bed, while a large moist spot of perspiration gradually spread over his pillow away from his head. Two weeks ago, while he was at work barefooted among his vegetable beds, a splinter entered his big toe; that insignificant particle of wood had been the cause of what we now saw before us.

The mere fact of the existence of such gruesome agony, of such hideous torture, was not the most terrible phase of the problem; the ease with which they could be acquired, and the absence of warranty against them for the healthiest of men, were what appalled. A fortnight ago anyone would have envied that very same gardener his splendid health and magnificent physique. A strapping young athlete, in walking across the floor of the gymnasium, slipped and struck his back against a projecting piece of apparatus. For ten years he has been helpless; his legs hang lifeless as wisps of straw, he cannot move them and he is bereft of his voluntary powers of motion. As destitute of help as a babe in arms, he lies on his back for days, months and years, lies until he develops bed-sores, and there is no hope for his ever regaining a particle of his former vigor. . . . . Another individual suffering with an inflammation of the sciatic nerve, is goaded to madness by his torture, and at times, joyfully entertains the thought of suicide. . . . . One fine summer's evening he had rested on the dewy grass.

At every moment and at every step we

are warned of all manner of dangers; to defend ourselves were in vain because they are too varied, flight is useless because they are everywhere. Even when we are in a state of health, our organism is not in the category of quiescence; in swallowing, in breathing, millions of bacilli gain access into our bodies; the most deadly poisons are generated without intermission; unnoticed, all our vital powers wage a remorseless battle with injurious substances and influences and we dare not for a moment consider ourselves safe-guarded against the possibility of our internal forces proving inadequate in this interminable conflict. And when this occurs our cause is lost, hopeless; a small abrasion develops into erysipelas or a phlegmon, or causes septicemia; a slight bruise results in the formation of a sarcoma or carcinoma; a trifling attack of bronchitis, contracted thru exposure to a draught, terminates in tuberculosis. . . . . .

Ideal and exceptional circumstances of existence would be required to make sickness a "chance" ocurrence; as conditions stand before us at present all suffer from disease; the poor because of their want, the rich because of their superfluity, workers because their strength is oxertaxed, drones by reason of their idleness, the careless because of their indifference and negligence, the cautious because of their forethought and circumspection. . . . . .

Decay lies hidden in man from the tenderest age, and his body begins to retrogress before it has even had time to complete its development. From childhood one begins to suffer from nasal catarrh and cannot dispense with a handkerchief; for a healthy man a pocket handkerchief is superfluous, but this simple truth will astonish most people. As for women who have reached the age of puberty, they are normally and physiologically condemned to be ill for several days each month.

If only it were possible to maintain one's state of well-being—with such a reserve no trials could have any real terrors. Its loss meant the loss of one's all; without health there could be no freedom, no independence, a man becomes the slave of those who surround him, of his environment; it is the highest and most inestimable of all blessings and it is so difficult to retain it. To try and do so were to consecrate one's entire existence, all one's strength, to the attainment of one object; but how ridiculous, how insulting to one's self-esteem, were such an aim in life. And after all it would be of small avail, even if we were to live to that sole end. Supposing that we were ever on our guard; loss of adaptability would be a most certain result. And wherein ought our accomplishments lie? We are quite ignorant of the direct origin of carcinoma, sarcoma, a multitude of nervous affections, diabetes, and a number of painful diseases that attack the skin and so on. . . .

Suffering—without end—in every shape and form; it is thus that the essence of the entire life of human organism may be summed up. We have been standing on the heights overlooking the Valley of Mystery. Do not descend into the Swamps of Adversity, the Ravines of Ignorance, the Sloughs of Despond. On all sides rise the little Hills of Triumph, whose crests when viewed from above make the valley beautiful, but how pitifully small and even ugly they seem surrounded as they are by the vast stretches of murky lowlands. See the Hills of Triumph as they stand before you; the Wassermann reaction, by which syphilis may be detected in the blood; Erlich's salvarsan, a specific aid for the same disease; Flexner's serum, which has saved the lives

of hundreds of children suffering from cerebrospinal meningitis; the typhoid bacterin, which renders the individual immune from typhoid fever for a considerable time; tuberculin and the fresh air treatment of tuberculosis; radium; organotherapy; the Carrel-Dakin treatment of infection, that has saved countless of limbs and lives; and a host of others.

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ANTHRAX: ANIMAL AND HUMAN.

BY

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Anthrax is a frequent and formidable disease and its menace cannot be ignored with impunity. In all industries where imported hides or foreign wool, hair, bristles and bones are handled the processes of manufacture are dangerous to the workmen. Quite recently (December 24, 1916) the proprietor of a large New England factory died of anthrax infection with which he had become inoculated three days before by the accidental contact of his finger (which happened to be slightly scratched) with a bunch of bristles. From the published report of this case it does not appear that the least endeavor was made to trace the bristle infection to its source. The antecedent probability is that the bristles were imported, tho, of course, swine are raised in America. But it would be useful to have some assurance on this point.

Assurance is requisite here in order that appropriate measures of sanitation may be instituted. Whether of indigenous or of exotic origin, anthrax is always infectious among cattle and potentially communicable to man. If it springs from a domestic source, immediate search is obligatory to discover and destroy the focus of infection in our own land; but if a foreign country proves to be the nidus of the disease, stringent regulations should be forthwith enforced to prevent, or at least to check, its incursions into the territory of the United States.

Whether infected foreign hides can be sterilized without causing depreciation of their commercial value is an open question; but it has been proved that hides kept wet in transit do not infect the men that handle them. (Ponder.) It may be objected that freight charges for transporting a cargo of wet hides are higher than the rates for shipping an equal number of dried skins. But what if they are? To be safe and sanitary we must pay the price.

In the meantime there should be no suspension of activities in the endeavor to devise better methods of disinfection and of sanitation than any now in use. But measures more radical than the mere disinfection of hides and the safeguarding of the workman are necessary if anthrax is ever to be exterminated or brought under control. There ought not to *be* any infected hides or any need of protecting the workmen. An animal dying of anthrax should be buried deep in the ground as soon as life is extinct —the entire carcass, unkenelled, unsold, and unskinned—and covered with quick lime. Without these precautions, bacilli from the dead animal are certain to infect the soil for years, and spores, borne by prowling dogs or on buzzards' beaks, may spread the contagion far and wide.

This hazard is not a subjective hallucination or the nightmare of a dyspeptic dreamer. Dr. Charles F. Dawson, State Veterinarian of Florida, believes that the

infection is often carried in this way. Reporting the incidence of the disease among cattle in the state during 1916, he says:

"Anthrax appeared again during the year in west Florida. Its proximity to centers of infection in adjoining States where anthrax occurs every summer leads to the conclusion that the infection was brought into the State by buzzards that had feasted on the carcasses of animals dead from anthrax. Over 600 head of cattle were vaccinated with the double Pasteur vaccine; and a certain amount of antianthrax serum, obtained from the Federal Bureau of Animal Industry, was administered simultaneously, with the result that the outbreak was promptly checked."[1]

This record illustrates the facility with which anthrax may be controlled by intelligent, energetic action. Another example of the efficacy of immunizing vaccine in arresting the extension of the disease in a herd of cattle is reported by Dr. William T. Shanahan, Medical Superintendent of the Craig Colony at Sonyea, N. Y. Under date of May 21, 1917, he writes:

"On June 16, 1916, eight young cattle were found dead in one of the Colony fields. A local veterinarian diagnosed anthrax, which was confirmed by a veterinarian from the State Department of Agriculture. . . . Two doses of anthrax vaccine were administered to all cattle on the premises, which treatment was readministered this year (1917) previous to turning the cattle out in the pasture. There was no further development among the cattle." No human cases occurred at the Colony.

One other instance will suffice for cumulative proof that it is possible to stamp out an extensive incidence of armentine anthrax by judiciously employing all the resources of sanitary science. The biennial report of the New Hampshire State Comsioner of Agriculture for the two years ending August 31, 1916, contains a succinct account of an anthrax *inundation* which in June, 1915, overspread the John's river meadows in the town of Dalton, killing several animals in the pastures and infecting the grass crop grown on nineteen farms to such an extent that, in the following winter, animals fed on the hay cut from these fields died of anthrax. The Commissioner of Agriculture, Mr. Andrew L. Felker, took immediate and decisive action, making sure that "all the farm animals owned and kept within the infected area were inoculated with virus or serum or both, as the cases demanded." (*Report,* p. 94.)

Hundreds of tons of hay were removed from barns and burned, and infected manure was also burned or buried. Subsequently grass lands were burned over, under the supervision of Mr. W. B. Aldrich, the Fire Warden of Dalton. Quarantine orders were placed on the grass lands in 1916, and an appraisal of the hay standing thereon August 12, 1916, was made by three official appraisers. The total valuation of this hay was fixed at the sum of $2,445 (p. 96).

The anthrax infection in this instance was traceable to a tannery located on the John's river. From this plant, in which imported hides are tanned, the waste, escaping into the stream, "had been carried by the overflow, during the season of torrential rain storms, back over the meadows. In this way a sweeping infection of anthrax was made possible" (p. 93).

Evidently Commissioner Felker is not unduly elated by his success; for, in closing his report, he uses these deprecatory words: "We have been fortunate in our attempts to suppress the recent outbreak; the next one may be more obstinate" (p. 98).

In a personal communication, under date

[1] Twenty-eighth Annual Report of the State Board of Health of Florida, 1916, p. 234.

of May 24, 1917, Dr. Irving A. Watson, Secretary of the New Hampshire State Board of Health, writes that during the anthrax epizootic at Dalton two tannery workers of that town suffered from the disease. Both recovered.

In sharp contrast with the favorable results obtained in the foregoing instances thru prophylactic vaccination of cattle exposed to the infection, stand revealed the disastrous consequences of failure to control the disease by decisive measures as soon as its presence is discovered. The following data are cited merely for the purpose of indicating the danger of withholding from health boards full power to act in emergencies; and no dereliction in duty on the part of the sanitary authorities is implied in this recital. In fact, the Texas State Board of Health here referred to is known to be highly efficient, and it has probably exhausted all the powers at its command in the endeavor to suppress anthrax.

In February, 1915, Dr. W. A. Davis was appointed by the State Board of Health as Commissioner of Anthrax. The creation of such an office shows the gravity of the situation. Dr. Davis reports that, prior to January 1 of that year, thirty-two counties in Texas had been designated anthrax counties. "During 1915 anthrax was found in nine additional counties," and in 1916 the infection was discovered in eight of the remaining counties, making forty-nine infected counties in the state. In nine of these counties, during the year 1916, twelve human anthrax cases were reported, and Dr. Davis says, "It is possible that many cases were not recognized." In conclusion he observes: "On account of the reckless manner of skinning and shipping hides out of anthrax counties, the Live Stock Commission, with the approval of this Department, placed a quarantine, restricting the shipment of hides out of certain counties. A similar quarantine should be placed on all counties where anthrax exists."[1]

One reads this expert opinion with full assent and satisfaction; for, to the unsophisticated intelligence, it would seem that the infected hide of a Texan steer is no less dangerous than an infected hide from China or South America.

Texas has an anthrax law requiring that infected carcasses shall be burned; but it is disregarded, and Dr. Davis declares, "There is little probability of limiting the spread of this disease until all stock owners are forced by law to burn all dead animals not slaughtered for human consumption."[2]

In practice, cremation has been found less effectual than deep burial, since a burning carcass bursts open, scattering bacillary virus in every direction and allowing the infective fluids of the dead animal to soak into the surface soil, making a spot unfit for pasturage.

For years the Bureau of Animal Industry, U. S. Department of Agriculture, has conducted a series of experiments with the ultimate aim of discovering an anti-anthrax serum or immunizing vaccine. A recent publication (*Farmers' Bulletin* 784, Feb., 1917) by Henry J. Washburn, senior bacteriologist, pathologic division of that bureau, contains a concise summary of the latest scientific researches concerning the morbid anatomy, symptoms and course of bovine anthrax, together with an account of the treatment of the animals by Sobernheim's method, etc.

The Bureau itself has perfected a spore

[1] Biennial Report of the Texas State Board of Health, Sept. 1, 1914 to Aug. 31, 1916, p. 22.

[2] Biennial Report of the Texas State Board of Health, Sept. 1, 1914 to Aug. 31, 1916, pp. 22, 23.

vaccine which is superior in every way to that of Pasteur or Sobernheim, since one vaccination suffices to render the animal immune almost immediately and the vaccine retains its potency longer than any other. The author offers this recommendation: "Animals that are to be pastured in fields known to be infected with anthrax should be vaccinated about a month before being turned out" (p. 15). He adds that infected areas should be drained and kept under cultivation for some time before permitting cattle to graze in them. It is explained that exposure to sunlight retards or prevents the development of anthrax bacilli, and that frequent stirring of the soil facilitates the action of the sun's rays. This is a suggestion of peculiar value in regions where the land has become infected.

Now as to human anthrax, limiting the survey to a single New England State! There were reported to the Massachusetts State Department of Health, within a period of four months in 1916, twenty-five cases of this disease among workers in leather factories, tanneries, etc. Investigations conducted by Dr. Walter H. Brown of Bridgeport, Conn. and Dr. Charles E. Simpson of Lowell, Mass., led to the discovery that twenty of the patients had been infected from a common source. These workmen were distributed among several tanneries located in adjoining towns. Every one of the men had handled dried hides which bore a special trade-mark that served to identify them as a part of a cargo received at New York from Hankau, China, a region where anthrax is prevalent. A shipment from this lot was delivered to each of the tanneries in question and the dates on the shipping receipts showed that the hides had arrived before the first anthrax case occurred. It was found, also, that, without exception, the men infected with anthrax had been at work on hides taken from this particular lot, bearing the distinguishing trade-mark. Since there were no anthrax cases in the tanneries where none of this lot of hides had been received, the inference seemed inevitable that the China hides must have been the only possible source of the infection.

The investigators, however, were unable to deal adequately with the situation, for health officers are not vested with plenary power; they cannot regulate interstate commerce, prohibit the importation of foreign hides, or prescribe methods of disinfection. The Federal Government alone has jurisdiction here and its authority must be invoked to secure protection from the anthrax danger. But existing regulations for the disinfection of hides imported from regions where anthrax is a common epizootic disease need revision and amendment, for they are ineffectual; and attempts of employers to safeguard stevedores, freight handlers, tannery workers, wool-sorters, leather and glove factory workers, etc., against anthrax infection are only partly successful.

The formula adopted by the U. S. Treasury Department as a standard process for the disinfection of imported hides is inefficient for the destruction of anthrax bacilli. On this point the opinion of F. W. Tilley, Bacteriologist, of the U. S. Dept. of Agriculture, is worthy of attention. An article published by him in the *Journal of the American Leather Chemists' Association* for March, 1916, summarizes the results of experimental tests made to determine the absolute and relative values of the Seymour-Jones and the Shattenfroh methods of sterilization. Without citing these experiments in detail, it is sufficient to quote Tilley's conclusions. He writes:

"The strength of the disinfectant originally recommended by Seymour-Jones (mercuric chloride 1 to 5000, plus 1 per cent. of formic acid) was not found to be efficient even without neutralization of the disinfectant. A lower dilution, 1 to 2500, plus 1 per cent. of formic acid, was found to be efficient where no neutralization was attempted" (p. 157).

On the other hand, "The Shattenfroh method (hydrochloric acid and sodium chloride in the proportions of 2 per cent. of the acid and 10 per cent. of the salt and with 48 hours' exposure) has proved efficient in every instance" (p. 158).

Hence Tilley deems the Shattenfroh method "well worth a trial as a standard method for the disinfection of hides." He also expresses the conviction that neither the Seymour-Jones nor the Shattenfroh method "exerts any injurious effect upon hides or leather" (p. 159).

As to other disinfectants, the author's tests show that 2½ per cent. of formalin is efficient bacteriologically both against anthrax spores and other organisms. But the pieces of hide disinfected by formalin in a 2½ per cent. solution "were so seriously affected by the disinfectant that it was almost impossible to tan them."

It is pertinent to note the fact that artificially infected bits of hide were made use of in these experiments. But whether pieces infected, as these were, by a suspension made from a 7-day agar culture are as virulent as the bacilli found in the blood and tissues of an animal that suffers from anthracic sepsis is a matter concerning which it is permissible to doubt. Anthrax bacilli permeating the body and ultimately causing the death of an animal are presumably more malignant than those incubated in a laboratory and developed by soaking 2½ gram shreds of hide in an agar culture solution for a few minutes, as described on p. 145.

To be of any utility or significance tests should be conducted under conditions identical with, or closely approximating, those to which workmen are subject and on a scale commensurate with the industrial and hygienic importance of the interests involved. But by artificial means to infect with anthrax a piece of hide no bigger than a postage stamp and then subject the tenuous tissue to a process of sterilization is not a convincing experiment.

In this connection it is well to recall the fact that Dr. R. Fischer of Potsdam recommends *compulsory disinfection, by a standardized process, of all hair and hides, whether of foreign or domestic origin.* (*"Die Bekaempfung der Milzbrandgefahr in gewerblichen Betrieben."*)

Paradoxically speaking, a slight digression here will lead directly to our objective point. In the year 1876 Dr. Robert Koch, then engaged in medical practice at Wollstein, Posen, put that rural village on the map of the world by the publication of an epochal monograph on "The Causation of Anthrax" (*"Aetiologie der Milzbrand-Krankheit"*). It was this work that gave initial impulse to the modern movement for industrial sanitation which has since gained accelerated momentum—*crescit eundo*[1]—with each successive year.

In narrating the story of his successful experimentation Koch writes:

"As the conditions necessary for the development of anthrax bacilli were known to me, I sought to reproduce in my experiments the requisite environment, in order that it might be possible directly to observe the transformation of the bacilli under the microscope."

In this instance, as in all of his scientific investigations, Koch aimed at the achieve-

[1] **Following distinguished precedents, the Lucretian phase is interpolated here as a proof of erudition, and to make ignoramuses stare like victims of exophthalmic goiter!**

ment of beneficent, practical results; and his logic moves straight as a line of light to illuminate the subject under discussion. For lucid precision and simplicity of statement the following quotation from this essay would be hard to parallel:

"Since, as we have seen, the bacilli require for sporulation access to air and moisture and a temperature somewhat above 15°, it is only necessary to deprive them of any one of these conditions to inhibit their development. In order to destroy the bacilli and render a carcass innocuous, therefore, it is sufficient to prepare a trench of the proper depth and bury the anthrax-infected carcass in it."

All essentials of prophylaxis are specified in that short sentence, and subsequent researches tend only to verify and corroborate the conclusion reached by Koch. It is characteristic of this great man that he approached the problem which he had set out to solve not by indirection—not by temporizing with the question of personal hygiene on the part of the workman by suggesting methods to be adopted for the disinfection of hides, nor by recommending the use of immunizing vaccines and serums. He struck at the root of the evil, and the general employment of the measure prescribed by him would at one radical blow put an end to animal anthrax, and, as a consequence, effectually safeguard all workmen against the infection.

Koch's direct attack upon the entrenchments of anthrax contrasts sharply with the Fabian policy of present-day strategists who would employ defensive tactics only, such as the vaccination of cattle and the sterilization of infected pelts and hides. But wild cattle cannot be corralled and immunized with serums and vaccines; and wool, hair, bristles, hides, bones and offal are disinfected at the risk of destroying or depreciating their commercial value.

These restrictive measures, therefore, are not always effective or practical. At most, they are like the corresponding half-way measures for the prevention of typhoid fever. Antityphoid vaccination is temporarily protective for the person upon whom it is practiced; but it is a makeshift at best, available and useful within narrow limits. but no more successful in stamping out typhoid than fly-swatting is. For, tho typhoid is a preventable disease, it is only in the army and navy that vaccination against it can be enforced. Civilians cannot be rounded up and compelled to submit to the operation. Yet typhoid could be eliminated as a morbidity factor by simple observance of sanitary precautions. In like manner it is possible to eradicate anthrax and render its sporadic occurrence as rare as scurvy or smallpox in all places where hygienic prophylaxis is understood and practiced.

But in the second decade of the 20th century to have recourse to such weak expedients as the vaccination of local herds at the option and with the consent of the owners, or to adopt some process of pseudo-disinfection for hides with the expectation of controlling anthrax by these means is a sign, not of progress, but of a retrograde movement. The primitive practice of inoculation for smallpox was once the best available agency in reducing the malignancy of that disease. It was not a preventive, however, and since Jenner's day the crude procedure has been discarded. So any attempt to eradicate anthrax by devising methods of *neutralizing its effects* is an evasive and impotent policy.

The infection must be destroyed and the old principle holds good here:

"You take my life when you do take the means by which I live." Koch proved that air, moisture and a suitable temperature are,

all three, essential to the life of the anthrax bacillus, and that the deprivation of any one of these prerequisites arrests sporulation and kills the pestilent germ. To dilly-dally with palliatives is wasteful folly when there exists an easy and certain method of aborting the biologic development of the bacillus in the embryo stage of its evolution. Koch's brochure was published forty-two years ago; but its teachings are not obsolete and no evidence has since been adduced that in the slightest degree tends to supersede his discovery or invalidate his conclusions.

It is certain that many cases of anthrax in animals run their course without diagnostic recognition and probably some human infections escape observation. A vivid image of the first malignant pustule seen in childhood by the present writer is still a haunting memory. Years ago, near a wool-sorter's table which was always covered with outspread fleeces a curious boy used to sit on Saturday afternoons watching with undisguised admiration the deft manipulations of the craftsman at his work. One day he noticed that the man at intervals rubbed a red spot on his cheek. This spot looked like the slight turgescence caused by a mosquito bite. But the next day a physician made a diagnosis of erysipelas. A consultant, subsequently summoned, detected the signs of anthrax infection; but it was then too late and the wool-sorter died on the following Wednesday.

Meanwhile, in this country new outbreaks of anthrax, animal and human, continue to occur. On a certain farm within twenty miles of Washington, D. C., four head of cattle perished in April, 1917. No necropsy was performed except in the case of the fourth defunct bovine; but a bacteriologic examination of this carcass revealed the presence of anthrax bacilli and spores. On this farm one case of malignant pustule was observed in a boy; he recovered.

During the month of March, 1917, four cases of human anthrax were reported to the Massachusetts State Department of Health. All of those attacked were engaged in occupations which involve the handling of dried or salted imported hides. One was a longshoreman who had been at work unloading hides from a ship; the three others were employed in leather factories.[1]

The rate of mortality from human anthrax in the United States is high. Two employees of the Barber leather factory at North Adams, Mass., were admitted to the hospital in that town in January, 1917, suffering from anthrax. One recovered, the other died. Dr. Ocabo of Madrid scores the highest ratio of successes in dealing with this malady, having treated 500 cases without a death. But the pathology and treatment of anthrax are foreign to the purpose of this article.

The compiler gratefully acknowledges obligations to many farmers, manufacturers, health officers, commissioners of agriculture, veterinarians and physicians, whose courtesy has placed at his disposal a vast mass of clinical and statistical information on the subject, of which certain phases are herein discussed with the severely practical end in view of soliciting attention to conditions that need correction. The discussion may be resumed at some future day, when a detailed and comprehensive presentation of the questions to which allusion has been made in this paper will be possible.

Note.—Only a portion of the available

[1] *Massachusetts Public Health Bulletin*, April, 1917.

material has been used in the preparation of this paper. Data are at hand disclosing the presence of animal anthrax, with many fatalities among cattle, in near-by states and in far-off Hawaii. The abstractor has also forborne to pad his subject, after the manner of the space-writer, with citations of irrelevant lore or classical allusions of doubtful import which might be construed so as to identify, for example, the "murrain" mentioned in the book of Exodus, or the Grecian *herpes,* or the *circinus* and *zoster* of Pliny, or the *sacer ignis* of Lucretius and of Virgil, with anthrax. Such wool-gathering is futile and fatuous, tho it may lend an air of intensive research to one's vagaries. It is doubtful, however, if any author who poses in this fashion as a classical scholar has ever taken the pains to consult the original writings so servilely cited at secondhand. If he had, he would have found that the conjectures of annotators as to what distemper among cattle was called *sacer ignis* range all the way from erysipelas to foot-and-mouth disease. One commentator (Servius) interprets *sacer ignis* of the Virgilian text as "the sacred malady" (that is, epilepsy!). From the context it is plain that *sacer* is used here as a soft euphemism, just as a Frenchman employs the cognate word, *sacré,* or as an American might say, Do it, and be *blest!* In this case *sacer ignis* means "accursed fire," indicating the intense burning sensation caused by the ailment. But symptoms and morbid anatomy are too vaguely described to afford a positive clue to the nature of the disease.

Let the reader judge for himself. In the 6th book of Lucretius, "*De Rerum Natura,*" he describes the "cursed fire" in these terms:

"Existit sacer ignis et urit corpore serpens
"Quamcumque arripuit partem, repitque per artus." (L. 660, 661.)

Whatever the pest is, this old author says it makes the feet swell, causes toothache and affects the eyes! Virgil's account of the affection in the third Georgic is more amplified but no less vague. So much for classic coprolites and "learned dust."

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WHAT CAN BE DONE IN CHILDHOOD TO PROMOTE SOUND MENTAL HEALTH.

BY

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The Fathers of Medicine were firm believers in constitutional tendencies and diatheses. Nowhere is the foundation for this belief better exemplified than in the field of nervous and mental disorder, where it is so apparent that, popularly, insanity and neurosis have come to be considered hereditary conditions. Even many physicians concur in this belief, ignoring the fact that these disorders belong to a large group of degenerative tendencies, which may manifest themselves in this form or in rheumatic, tubercular, spasmophilic or other diathetic conditions. Particularly do the followers of Freud ignore the psychopathic constitution which, in most cases, makes possible the tangled sexual complexities which they so laboriously and painstakingly unearth and unravel.

Some hypoplastic individuals may lead a fairly efficient life as the result of the proper application of mental and physical hygiene, but to be most effective such measures should be employed early enough to be preventative rather than remedial. The foundations of nervous and mental instability may be laid by remote or immediate ancestors and over these hereditary influences we can exert no control. The results of these influences, however, may be largely counteracted. Very often, causes have their beginnings early in the period of existence, at a time when some degree of control is possible. For this reason the importance of prenatal and infant hygiene cannot be overestimated, for the development and functioning of the nervous system is to a large extent conditioned by the influence exerted during these periods and during the period of early childhood.

Every child is entitled to that care which will promote the proper unfolding of his various physical and mental powers and functions, and were such care generally provided, mental aberration in adult life would be much less common. But for the child who presents early signs of deviation unusual solicitude must be shown. The signs are evident and easily recognized by the experienced observer; it is unfortunate that they are often ignored or considered of slight consequence by the child's family or by the physician, for it is the physician who is often at fault, who, if he is to assume the place he should hold as the family councilor in matters relating to its health and physical well being, must desist from his course of unconcern regarding conditions which are not actual disease entities. Parental fears are easily allayed when the trusted family physician states, "He is just a little nervous"; "Oh, she'll outgrow it in a year or two"; "Many children don't walk till they are three or four years of age"; "Spasms in a teething baby are not serious." To his attitude of *laissez faire,* allied with the family's false sense of security or indifference more wrecked lives are due than to the actual dishonesty of the charlatan. Of this I speak strongly because many instances have come to my attention of children doomed to lives of inefficiency, dependency and worse, because of the indifference of medical advisers. Equally dangerous is the hopelessness of many, who, unaware of the benefits to be derived thru a proper combination of hygiene, treatment and education, believe and advise that remedial efforts are useless.

The danger signals are many and are easily recognized, tho all are not of equal significance. Birth trauma may result in intracranial hemorrhage and injury to delicate brain tissue. An examination of the *fundi occulorum* and an estimation of the cerebro spinal fluid pressure should be considered in every case of instrumental delivery, and in other cases where labor is unduly prolonged, especially when asphyxia neonatorum occurs. When convulsions ensue in the first few days the need is imperative. Convulsions at any time during infancy and, of course, in early childhood, should be a matter of grave concern. Malnutrition from improper feeding and from imperfect assimilation may be an etiologic factor in deviate development. The common diseases of childhood, as whooping cough, scarlet fever, measles, etc., sometimes leave dangerous sequelae. Chorea seldom affects a stable nervous system in a state of functional integrity. Extreme timidity or, its opposite, undue aggressiveness are tendencies which should be given consideration, night terrors, excessive im-

agination, pathologic lying, tics, phobias, compulsive ideas, etc., are all indicative of instability. Premature erotism, resulting in infantile masturbation and childhood perversions of the sex instinct, is a frequent concomitant of the psychopathic constitution. Urinary incontinence, nocturnal or diurnal, is practically always a symptom of hypoplasia and of correlated instability. Acidosis with cyclic vomiting is symptomatic of a condition requiring more than a few doses of baking soda. Underweight with disproportionately long bones and the *visceroptopic habitus,* or the opposite condition of overweight with pudgy extremities and phlegmatic temperament possesses a significance beyond the indication of mere bodily deviation. The common stigmata of degeneracy, while not necessarily pathognomonic, furnish important data to be studied in connection with other symptoms. One such is the deformed sella turcica frequently found in constitutionally psychopathic individuals (very commonly in epileptics as has been shown by McKennan, Henninger and Johnston).

A physician need not be clairvoyant to foresee the future of an individual from his dispositional and temperamental tendencies. Adolph Meyer has shown the importance of the "shut in" personality as a factor in psychic maladjustment. Equally important and significant to my mind is the diffuseness of some who scatter and spread their energies and emotionally deplete themselves all to no useful end. Likewise, some degree of negativism is normal to childhood but the perversity which some exhibit is neither a natural attribute nor a result of faulty home training.

Recognition of the youthful potential psychopath should be immediately followed by intensive and continued application of measures directed toward the removal or suppression of untoward influences. These measures may be divided into those which aid the development of the individual's nervous system and increase his physical resistance and those which adjust the environmental influences to his capacities, both for the purpose of rendering habitual those reactions which will allow him to voluntarily adjust himself to any environment to which he may later be subjected. Under the first come all those measures—hygienic, medical and surgical—which would bring about the highest state of physical efficiency. The second includes education in its widest sense, "the systematic development and cultivation of the normal powers of intellect, feeling and conduct, so as to render them efficient in some particular form of living, or for life in general." No line of demarcation divides the two.

Fresh air, proper hours of sleep, avoidance of physical and mental strain, exercise, nutritious and well balanced diet all occupy an important place among hygienic measures. Drugs, while of great value in certain cases are of secondary importance; vagatonic symptoms will improve under atropine, asthenia may be benefited by nux vomica, hyperirritability by bromides, but such recourse is useless unless hygienic measures are properly carried out. Antiluetic treatment is, of course, necessary in congenital syphilis. Organotherapy, from a therapeutic standpoint, offers the most possibilities. There are few cases in which dysfunction of some of the glands of internal secretion cannot be found if the symptoms are properly interpreted. Those who condemn glandular treatment have failed in their interpretation or have erred in their methods of administration. An in-

stance has come to my attention, recently, of untoward results following the administration of thyroid extract. I found that the family physician had prescribed 20 grains, this upon the advice of a lay psychologist who had made the diagnosis of hypothyroidism. This haphazard administration of ductless gland preparations tends to discredit the whole procedure. Orthodontia, extraction of impacted teeth, removal of enlarged tonsils and adenoids, freeing of preputial adhesions in male or female, the correction of refractive errors and of muscular insufficiencies favor normal development, thru removing reflex sources of irritation. Cranial decompression as performed by Dr. William Sharpe in selected cases, in which increased intracranial tension can be demonstrated, offers a measure of relief which bids fair to prove of exceptional value.

The proper regulation of environmental influences often necessitates removal from the accustomed environment to one under the absolute control of the physician. Without this, remedial measures may be useless, for it is not only education which is sought but reeducation as well. Lack of time forbids a discussion of the educational management of children of the type which are the subject of this paper. By educational management is meant not the formal educational measures of the class room but the education which embraces in the larger sense all forms of human experience, taking recognition of "the fact that every stimulus with its corresponding reaction has a definite effect on character." Such control of environmental factors is often the influence which determines whether a life shall be one of usefulness and content or one of inefficiency and stress.

FIRST AID TO THE "UNINJURED."

BY

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The sanctity of human life is absolute and every rightminded physician condemns any agency which hazards that life. Yet we obstetricians have been criminally culpable in our neglect of the new-born baby.

Asepsis has, long since, ceased to be a theory, and every doctor, no matter how far removed from modern hospitals his field may be, is doing his best to render sterile that which touches the nipple or genital canal of the parturient.

Medical men have been taught when pelvic or mammary sepsis develops in the mother to hold themselves responsible; consequently, in self-defense most physicians have been practicing asepsis and antiseptics in her care, but have they been as diligent in preventing infection in the baby?

How many times has the practitioner stood with his hand on the contracting uterus and faithfully watched for signs of hemorrhage or eclampsia, and deemed that he was doing his whole duty!

The baby in the meantime has been left to the tender ministrations of the domestic nurse, or to the obliging neighbor woman, who handles the funis again and yet again with unwashed hands, in her zeal to make the new arrival presentable. She is then allowed to dress the stump, or if the doctor attends to it, too often he only puts a sterile dreshing on an "unsterile" cord.

It is high time that we awoke from our pre-aseptic apathy, regarding the newly-born infant and did nothing to his open wound that we would not allow done to an open wound on our own bodies.

On the contrary, his cord should be cut with scissors that have been boiled, tied with a sterile ligature, and the whole covered with a sterile dressing. Again we should remember that the umbilical vein is not closely connected with the upper margin of the ring, and until the contraction scar becomes firm there is a potential hernial opening, which if left unsupported may predispose to an infantile umbilical hernia. Thus in many instances we should, to use a Celticism, treat the hernia before it occurs, by means of a pad and a well-fitting binder which should be applied to the infant not only with safety-pins, but with gray matter, as well.

If there is the slightest suspicion of Neisserian infection in the mother, or if she is of the leucorrheal type, the baby should be given the benefit of the doubt and a drop of a 1% of nitrate of silver instilled into each eye. In any case the outside of the eyelids should be washed with a boric solution, lest the colon or some other bacillus be lurking there.

The ideal obstetric package should con-

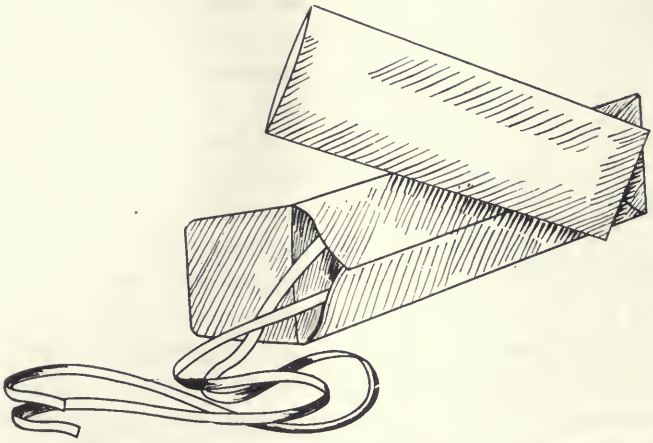


FIG. 1.—TWO CORD LIGATURES AND PACKAGE OF BORIC ACID.

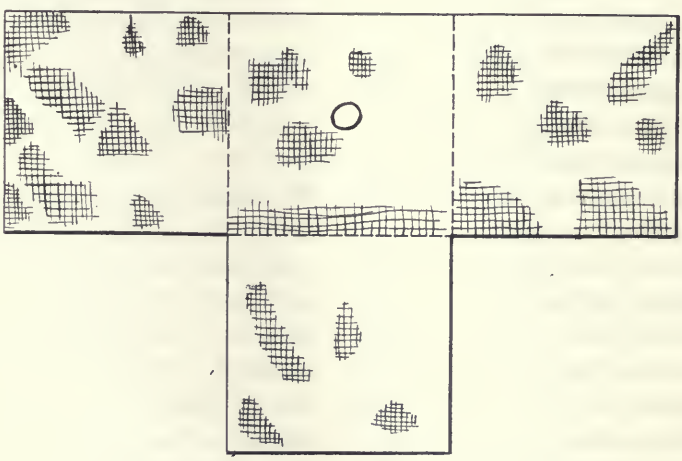


FIG. 2.—GAUZE FOR DRESSING FUNIS.

tain the following four articles sterilized individually and collectively and then put up in a sealed package for the obstetrical bag:

1. Two cord ligatures at least 10 inches long. These should not be tapes but cord (cotton, silk or linen).
2. "T" shaped piece of gauze, a circular hole in the center of the horizontal portion to receive the funis, the leaves being folded over the cord make an ideal pad.
3. A Domette binder made of white outing flannel which is slightly elastic.
4. Package of boric acid for child's eyes and mouth.

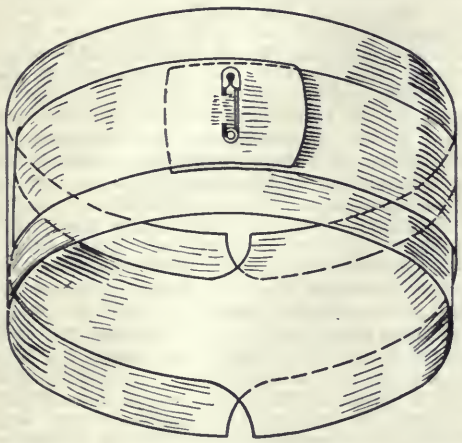


FIG. 3.—DOMETTE BINDER.

I enclose drawings of package which costs but a few cents each when purchased by the dozen.

Doctor, the next obstetrical case you attend in the country, boil your scissors, lay out your First Aid Packet to the "Uninjured" then wash up and go thru your bichloride once again. Then when the baby comes, show your domestic nurse or your helpers how to open the packet without touching the contents with "unsterile" hands and, while you are attending to the infant, explain to the mother and to the "spectators" just why you have taken such care of the baby. When you have preached and practiced the art of preventive medicine as it pertains to the helpless infant, but not until then, may you rebuke the doctor who "callously went away from the lying-in room and left a deformed baby to die, without lifting a hand to save its life."

Do not start the little soldier out with a handicap. Remember he is going into life's battle without the protection of the antibodies which guard the adult, and consequently has little power to resist microbic invasion.

When the profession taught the laity that tuberculosis was a contagious and not a hereditary disease, they made the present campaign against it a reality.

When we showed the laity that future citizens were dying by thousands every summer for want of fresh air and clean milk, the Infant Welfare movement sprang

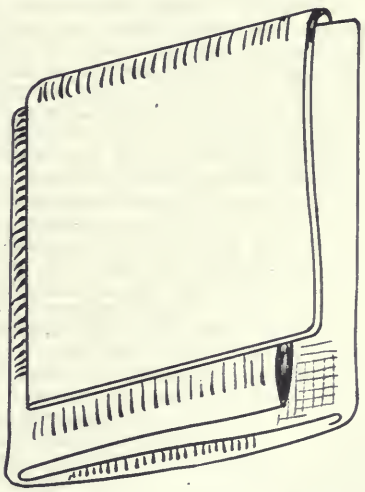


FIG. 4.—COMPLETE PACKAGE.

into being and an international campaign of education and hygiene was begun.

Let us, therefore, not be content with simply starting our baby with clean eyes, a sterile dressing on his funis and a good supporting pad and bandage but let us watch over him as he grows up lest some careless dealer sell him dirty or tubercular

milk. Let us see to it that laws are placed on our statute books and enforced that give his father a living wage—whereby he may house, feed and clothe his family properly, thus decreasing their mortality and their morbidity.

LONDON LETTER

(From our own correspondent.)

London, March 26, 1918.

In my communication last month I pointed out that the insistent claims of the Air Board for the creation of a separate medical department to deal from intimate knowledge with the medical needs of an aviation force, despite a good deal of resistance, were about to take effect. The result has been the formation of a medical administrative committee to assume control of all the medical affairs of the air force, and its constitution should, if only on names, be a guarantee of efficiency for the work. The committee will be presided over by Surgeon-General Norman, Director-General of the Naval Medical Service, and will consist of Surgeon-General Goodwin, Director-General of the Army Medical Department, who, when attached to the British Recruiting Mission in America, under Mr. Balfour, became favorably known to American medical leaders; Surgeon-General R. C. Munday, R. N., the previous president of the medical board of the aviation department of the Navy; Colonel C. B. Heald, a practical aviator and in civilian life attached to the Board of Education; Surgeon-General H. D. Rolleston, R. N., now consulting physician to the navy, joint editor with Professor Allbutt of the well-known *System of Medicine;* Major Henry Head, a famous neurologist and physician to the London Hospital; Captain Raymond Johnson, surgeon to University College Hospital, London; Professor Leonard Hill, instructor of physics at the London Hospital Medical College, and a well-known researcher in the mechanics and chemistry of respiration and blood-pressure; and Sir Walter Fletcher, secretary of the Medical Research Committee, a board of scientific study set up under the National Insurance Act, whose energies are temporarily transferred to war duties. Surgeon-General Munday will act as medical administrator of the new committee, having Colonel Heald as his assistant, and commissions in the air force are already being allotted to suitable candidates. There was considerable opposition at first on the part of the medical department of the navy and army to the creation of a new medical service for the air force, and the presence on the committee of the presidents of these departments indicates that we have here a friendly compromise.

THE TREATMENT OF WAR NEUROSES.

Two different conditions, which may be described as neurasthenic and hysteroid, either of which conditions sometimes receives the name of "shell-shock" are at the present moment the subject of the anxious attention of physicians and psychologists at the front, in the base hospitals, and in the various home institutions, general or special, for the treatment of chronic cases. On the etiology of many of these cases, and therefore of their treatment, much difference of opinion has been expressed, as is shown by the fact that quite recently one famous London neurologist said that in his experience many patients suffering from so-called "shell-shock" were "shell shy," while another gave it as his experience that deliberate malingering was very rare. The view of the writer of pensions, Mr. J. Hodge, has been publicly expressed that the admixture of shell-shock cases with "cheery chaps" in general hospitals would give good results, and Professor Elliot Smith of Manchester has demolished it with delightful scorn. Such differences of opinion indicate that different advisers find different courses advisable for the patients, for while it is obviously wrong to congregate malingerers in any large institution where their form of weakness may spread to other patients, it is equally obvious that subjects requiring real careful neurologic persons qualified to give them that attention can be in attendance. Those British authorities who agree so far as to acquiesce in the necessity of having neurologic centers differ between themselves on one point, as to the locality of those centers, some seeing no harm in keeping the patients in towns, and others desiring to send them into the quietest possible country districts. It is clear that it is easier to obtain first-class scientific staff for an institution in a large urban center than it ever could be for homes scattered up and down the countryside, a practical reason which has to a great extent dictated the geography of the various institutions.

The question of receiving shell-shock patients into London institutions has been complicated by the fact that London is subjected to aerial bombardment, the effect of which upon the shell-shocked patient may well be regarded with apprehension. It is undoubted that in some of the hospitals in the London area the raids have an ill effect upon those patients, altho the amount of damage done to them seems to have been considerably exaggerated, while the stories of panic spreading from patient to patient lack all authority and are backed by no evidence. On the other hand, categorical statements have been made by certain medical officers that no ill effect of any marked sort can be observed among the shell-shocked patients on the nights of German air raids, and that where individual patients have shown signs of breakdown, it has been easy to restore their equanimity, and noticeably that on later occasions in similar circumstances that equanimity was preserved. The arrangements for the

treatment of discharged soldiers and sailors are now made by the Ministry of Pensions and the matter of reception and treatment of cases of war neurosis form a subject to which that department is now giving considerable attention. But the medical profession does not feel wholly satisfied with the arrangement made by the ministry to keep in touch with first-class scientific opinion, and the view has been expressed in no uncertain terms that the ministry ought to provide itself with an advisory committee of general physicians and surgeons, experts in various special directions, so that errors which have certainly been committed in the treatment of soldiers and sailors discharged under the heading of neurosis should for the future be avoided.

THE DEMANDS OF THE WAR ON CIVIL PRACTITIONERS.

The massed attack on the Somme front, with a principal focus at the known point of juncture of the French and English lines was expected in London, and in medical centers it was fully anticipated that the numerical strength of the Germans would tell at one or other of the selected areas of attack, and that this would imply inevitably a loss of medical men and medical material. Any large attack that meets with some success, however temporary, inflicts a disproportionate loss on the medical department of the unsuccessful side, for hospitals cannot make rapid retreats, while individual doctors remain with their sick charges when the latter cannot make good their escape. The gaps in the ranks of medical service incident on the military events on the Somme during the last days of March will be filled by the voluntary efforts of civil medical practitioners with the least possible delay, tho there is no longer any surplus of such practitioners for the needs of the community. The available men include three classes, namely, those of military age who have already served for a contracted period, but who will now be asked to retire; those above military age but absolutely fit for duty who have had military experience; and those above military age who have not as yet served in a military capacity. The limit of age in these latter classes will probably be put officially at 55, but the three departments concerned, *viz.*, the war office, the ministry of National Service and the National Insurance Commission, have not yet made regulations for the employment of these volunteers. The difficulty is to fix a time limit at the termination of which (or reasonably near to such a date) the voluntary medical officer can return to civil life. With definite information of this sort the volunteers would rapidly fill the vacancies, despite the fact that the feeling has never been quite dispelled from the minds of many that the number of medical men now with the army and navy is in excess of the real need. In the House of Commons recently a criticism of the War Office on this very ground gave Mr. MacPherson, the Under Secretary of State for War, an opportunity of explaining the position. A member of Parliament, placing the number of medical men who had been swept into the army at the high figure of 14,000, declared that the best use was not made of the admirable material, administrative posts being kept in the hands of the regular military medical officers to the exclusion of civilians of the first rank in their profession scientifically, and with immense experience of hospital administration. Mr. MacPherson asserted that all distinctions between the regular and the temporary medical officers in the army had now disappeared, tho honors for active performance of duty at the front had necessarily fallen mainly to the regular men who were the first to take the field. He made no admission as to any uneconomical use of the medical men in the mass now holding commissions, but laid stress on the fact that to employ able surgeons, because of their hospital experience, as administrators would be a real waste of material. On the whole the War Office official had the best of the argument and the probability is that the civilian medical men to whom an appeal to join up is being made will not be reluctant to come forward because they think their services unnecessary, but because no term as yet has been fixed for the period of service.

THE PRIVILEGED POSITION OF THE MEDICAL WITNESS.

An interesting trial took place in London recently, in the High Court of Justice, the main question at issue being whether a deceased person, in concealing from a life insurance company the fact that he was faking veronal was withholding material information. The extent of addiction, the therapeutics of veronal and other matters were the subject of conflicting medical opinion and no judgment has been delivered as yet; but the really important thing in this case from its medical aspects was the attitude taken by the judge towards certain medical evidence, and this can be commented on as it does not in the least concern the future verdict. The judge insisted upon a medical witness answering questions despite the fact that the information brought was in the witness' possession as the outcome of professional confidence. The medical witness, asked to communicate in a court of law things which he has learned while in pursuit of his profession, has generally been protected by the judge from the questioning of counsel—so generally that in this case the taking of the opposite course by the judge was regarded by many as wrong. As a matter of fact this judge was perfectly right by English law. By English law the lawyer is the only person who can claim the privilege of silence concerning professional communication made to him, tho many great lawyers have expressed themselves as willing to extend the privilege to medical men. There is no doubt that the privilege, which is enjoyed by medical men in some countries, would often release a medical man from a heavy responsibility, but in high legal circles at the present moment the advice given to medical men is not to press for any modification of the law. There is a big difference between the information given by the client to his lawyer, and the client to his doctor—namely, that the medical confidence

may bear upon future legal issues but has not been made with an eye to those issues, while the lawyer as a rule obtains the information which might damage his client hopelessly in the future while he is in the act of legally protecting him.

THE ANTI-VENEREAL CAMPAIGN IN GREAT BRITAIN.

The anti-venereal compaign in Great Britain, as conducted by the National Council for Combating Venereal Diseases, has not progressed as satisfactorily as it would have done had the Council been really united. Religious feeling, and the determination that in all sex matters men and women, tho sex is their difference, should be treated as if no difference existed—these are the two things which have prevented a common policy of prevention and prophylaxis. The expediency of one section is regarded as cynicism by the other. Nonetheless much good work is being done by the establishment of clinics where treatment of thoro modern sort is given in circumstances made as private as possible for the patients, and where medical practitioners can learn from specialists the technic that is now followed by all who wish to deal in the light of the knowledge of today, with the dangerous and obstinate conditions of gonorrhea, and the extensive manifestations of syphilis. The Council has schemes on hand also for providing in certain hospitals beds for infected pregnant women and for increasing the legal protection of the feeble-minded girls, who are the first victims of the seducer and the most reckless disseminators of poison. It is becoming sadly evident that when the continental armies disband there will be an enormous amount of venereal disease among the civilian population unless the most strenuous and complete efforts are set in motion beforehand to minimize this spread.

CONSERVATION OF SUGAR, ALCOHOL AND GLYCERINE.

To the Editor,
AMERICAN MEDICINE, New York City.

As you are aware, there is urgent need for the country to use with the utmost care, our stocks of sugar, alcohol and glycerine. It has come to our attention thru the work of Professor Wimmer, of New York, and Mr. F. A. Upsher Smith, of St. Paul, Minn., that it is possible to reduce largely the amount of these materials used in medicines by the adoption of infusions, decoctions and solid forms of medication, such as capsules, in place of elixirs, syrups, fluid extracts and tinctures.

As the choice of medicine rests with the physicians, we feel that the extent to which this conservation program is successful rests largely with the physician and we urge upon physicians thruout the country the desirability of prescribing extemporaneously wherever possible.

It is really desirable that the editors of pharmaceutical and medical journals, deans and professors of colleges, and secretaries of state, county and city associations should see that the matter is fully discussed at meetings of physicians and druggists and should do all within their power to assist this conservation movement, which cannot fail to be of material assistance to the country since "Food Will Win the War."

May we depend upon you for your active cooperation in this matter?

Yours very truly,
UNITED STATES FOOD ADMINISTRATION.
Per Charles W. Merrill.

RAISE THE AGE LIMIT FOR MEDICAL SERVICE.

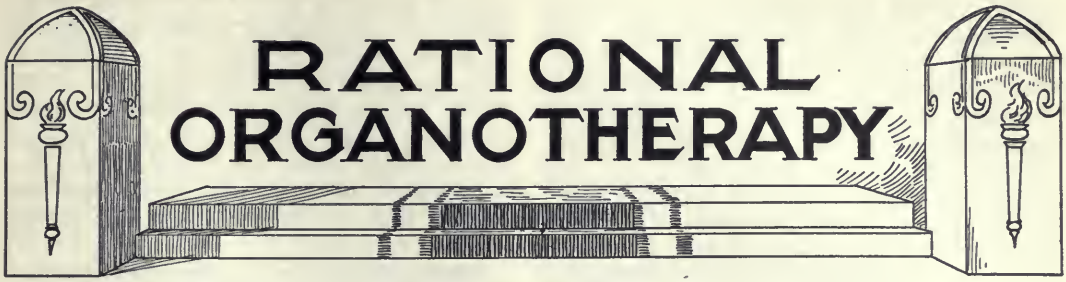
St. Francisville, La., May 17, 1918.
To the Editor,
AMERICAN MEDICINE, New York City.

In view of the urgent need of medical men to meet the requirements of the army will you allow me to suggest that it would be well to extend the age limit for physicians to sixty-five instead of fifty-five years. This would bring into service a large number of men of experience and many of great capacity. Of course, as a rule, men who have passed the age of fifty-five would be unfit for field service but why could they not be used at the cantonments or in any other place where special physical strength is not required? Besides, I believe that men who weathered the storms of life as physicians up to sixty years show by that fact that they are fit. I know many of these men who are doing hard work in their field of labor. As you say elsewhere in the AMERICAN MEDICINE if men are fit to service in civil life why are they not fit for the same grade of work in military life.

There are lots of these men, I believe, who would gladly do their bit for their country. Why can't the government use them?

Respectfully,
JAMES KILBOURNE, M. D.

Endometritis.—In treating endometritis *Texas State Jour. of Medicine* (April, 1918) sometimes found, at the menopause or after, the tissues should not be dehydrated but rather fed; the use of a 10 per cent. solution of thymol iodide in cod liver oil acting well here, as in other sluggish wounds of old people.



Organotherapy in Gynecology and Obstetrics.—According to Bandler (*International Journal of Surgery,* Jan., 1918) hyposecretion of the thyroid is a condition readily overcome by the administration of the proper gland extract. For avoiding or diminishing flashes ovarian extract and corpus luteum are of great value. There are some cases, probably pluri-glandular in origin, which are not benefited by this method of treatment. If the ovary is underactive and the primary condition rests there we get an excellent result by the administration of corpus luteum or ovarian extract. Relative amenorrhea or late development of menstruation in young girls is benefited by the administration of thyroid extract and pituitrin combined with ovarian or corpus luteum. Cases of diminished menstruation and sterility are best treated by the administration of ovarian extract, thyroid extract and pituitrin, five minims three times weekly, by hypopituitary gland extract. They should also receive corpus luteum extract and pituitrin, five minims three times weekly, by hypodermic. In conditions marked by asthenia, adrenalin hypodermically, and especially the suprarenal extract by mouth, administered with the whole gland of the pituitary, for weeks and months, will often bring good results. For uterine bleeding not due to the presence of a new growth in the uterus nor to overgrowth of the endometrium, mammary gland extract and thymus extract are excellent. Little can be expected of mammary gland extract given in large doses for fibroids of the uterus.

Internal Secretions.—Engelbach and Tierney in *Medicine and Surgery* (Jan., 1918) point out that inasmuch as the internal secretions are recognized as being the most important regulators of metabolism, their study will throw more light upon the question of obesity and its treatment than any heretofore undertaken. Localized depositions of fat are important diagnostic points. The supraclavicular fat pads indicate decreased function of the thyroid; classical girdle obesity points to hypopituitary secretion; fat pads about the eyeballs, mons, and mammary glands are usually found with gonad dystrophies.

The relation of even partially unbalanced internal secretion to ordinary well-known diseases, as an explanation of so-called resistence or susceptibility to infection, is beginning to have an application.

Draper is attempting to solve some of the problems concerning immunity of the individual on the basis of internal secretions. For instance, the obese, usually hypothyropaths, are subject to recurring attacks of rheumatism (acute polyarthritis), which very seldom affect the long, slender eunuchoid type of individual. He believes the reason why some individuals, infected with lues, run a very rapid, short course to cerebro-spinal or general paresis, while other individuals have a rather slow, latent, benign course of specific disease, is ductless gland secretions. Complement treatment of this ductless gland dyscrasia is well worth considering as an aid to the prevention of the virulence of the course of the infections in these definite types of individuals.

The Nervous Mechanism in Thyroid Secretion.—Several years ago, states an editorial writer in *Jour. of Laboratory & Clinical Med.* (March, 1918), Professor Asher, of the University of Bern, demonstrated an experiment which was interpret-

ed as proving the existence of a nervous mechanism to the thyroid glands. The thyroidal nerves were stimulated with induced electric shocks of low intensity, and the response of the heart to subminimal vagus stimulation was determined at stated intervals during the experiment. If the stimulus became effective in slowing or inhibiting the heartbeat, it was taken as proof that the thyroid had produced an extra amount of thyroidal hormone which rendered the nerve endings of the vagus hypersensitive. Here, then, was experimental proof that the secretion of the thyroid gland exalts the excitability of nerves, and that the thyroid secretion is determined by a nervous mechanism. The surgeon found in these results a reason for the removal of the glands in Graves' disease, where there is marked nervous excitability.

Unfortunately the results of many physiologic experiments are not sufficiently well defined to satisfy the critic, and Asher's work was not widely accepted by physiologists.

Some years later Cannon and his pupils at Harvard produced apparently direct evidence for the existence of secretory nerves to the thyroid. One method they employed for showing a nervous mechanism in thyroid excretion in cats consisted in fusing the anterior root of the phrenic nerve with the cervical sympathetic, and noting its effect on the thyroid function. These workers state that symptoms resembling those of Graves' disease in man developed. There were marked tachycardia, loose movements of the bowels and falling of the hair. The animals were unusually excitable. The basal metabolism was very markedly increased. The pupil was larger on the operated side, and in one of the animals exophthalmus and respiratory hippus developed on the operated side. They found that in one animal the removal of one of the glands stopped the progress of the disease, and the cat lived for seven months, when it was purposely killed. The other animals lived less than three months after the onset of the symptoms.

Troell and Burget have repeated the experiments of Cannon with negative results, and Marine, Rogoff and Stewart have just published the results of experiments on ten cats in which the operation made by Cannon was repeated. These observers failed to obtain the results reported by Cannon and his pupils in any of their series of experiments. In animals where there can be no doubt that the anastomosis was successful, they failed to find any evidence of impulses coming from the respiratory center as shown by a rhythmic change of the iris synchronous with the respiration. Exophthalmus and loss of weight were not present, nor was there any evidence of thyroid enlargement.

Such contrary results coming from men of recognized research ability are hard to understand. A significant and important clinical observation, bearing on the relationship of nerve strain and the incidence of Graves' disease was reported to the editor by Hoover, late Major in the United States Medical Reserve Corps. He states that, so far as he observed and could ascertain, while on duty in France, no cases of Graves' disease were found among the soldiers which could be attributable to the strain of life incident to active warfare. Certainly if Graves' disease is the result of nerve strain, as some claim, it should be present in a large number of cases at the fighting front.

Splenic Extract After Splenectomy.—Shirlaw, in the *Practitioner* (March, 1918), reports a case of splenectomy in a woman aged 45, who tho she left the operating room in a desperate condition, was apparently convalescent in ten days. Then she began to go downhill, and by the 18th day, her condition was again critical, with weakness, emaciation, thirst, drowsiness, etc.

The administration of extract of sheep's spleen and raw bone-marrow daily restored her gradually to convalescence, and ultimately to complete recovery.

He reports another case of carcinoma of the duodenum in an old lady of 70, which has been solely treated with 5-grain capsules of splenic extract with a successful result. The writer cannot prove absolutely that it was carcinoma, but it was easily palpable, and he was confident enough about the diagnosis. She steadily improved under the splenic extract, has put on flesh, and last summer walked a distance of five miles to a daughter's home and back. The only drug she took was morphin in the form of pills, at the beginning of the trouble. All other medicine made her sick.

The Relation of Glands of Internal Secretion to Surgery.— Haeberlin, in *Illinois Medical Journal* (May, 1918), declares that the harmonious relationship of the workings of different organs and systems is essential to perfect health.

We have glands and structures thruout the body which are not classified as ductless glands but they have internal secretion and also hormonal relationship as, for example, the pancreas and placenta.

We have a number of products of the glands of internal secretion which are used surgically and are of established importance as, for example, the principle of the suprarenal glands epinephrin, and pituitrin. These have not only their medical value but also surgically we use them in our infiltration and local anesthesia as adrenalin. We also have products of the pituitary glands. By understanding its effects physiologically we have formulated an obstetrical and surgical pituitary extract. Rowland and Herzberg have brought to light that the pituitary extract of the posterior lobe influences the genitals, especially the uterine muscular. It has also been learned that the other nonstriate muscle is influenced. And we have learned the value of this drug in surgical cases such as intestinal paresis, loss of tone of the bladder, and even the stimulation of the heart and vital centers. The author has repeatedly seen individuals in post-operative extremis respond to the hypodermic administration of pituitary extract.

In the treatment of tetany, which is thought to be a hypo-parathyroidism, we have two surgical methods.

First, the intravenous administration of calcium lactate 5 per cent. solution.

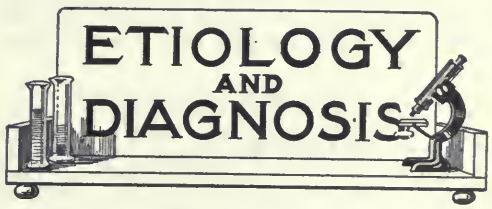
In hypo-parathyroidism we have developed, in cases with tetany symptoms, a condition of "calcium diabetes." Therefore it is logical to administer calcium quickly and in heroic doses, to get desired results.

Second, the transplantation of the parathyroid gland.

Poole recommends calcium lactate given by mouth in doses of 30 grains every four hours. However he states that intravenous administration appears to be much more efficient. Autotransplantation has been shown by Halsted to be feasible and successful and there are a number of successfully reported cases. We have also the administration of the parathyroid extract by mouth. It may be of interest to know that Vassale considers eclampsia a condition of hypo-thyroidism. There is no doubt that pregnancy puts an extra strain on the parathyroid glands and in some cases this is sufficient to produce symptoms. We have surgical or post-operative tetany developing after many of our gynecological operations. According to Poole we are indebted to Kehrer of Germany and Stein of this country for bringing out this fact. It has been observed following curettage for uterine hemorrhage, incomplete abortion, ventral fixation of the uterus, plastic perineal and vaginal work, major gynecologic operations such as extirpation of the uterus, ovaries, etc.

Taking the glands of internal secretion collectively we have conditions in which great results can be accomplished.

When correct judgment is supplemented by good surgery the results are very gratifying not only to the patient but to the profession. The surgery on the thyroids, parathyroids and gonads, including the entire male and female organs and spleen, should be a source of continuous inspiration.



Analysis of the Blood in Eclampsia and Allied Intoxications.—Slemons, in *American Journal of Obstetrics*, May, 1918, arrived at the following conclusions regarding the familiar cases of autointoxication during the latter months of pregnancy:

1. Analysis of the blood in cases of eclampsia and allied intoxications reveals a normal quantity of amino acids and a slight retention of nitrogenous waste-products, as urea and uric acid.
2. After convulsions there is an increase in the blood-sugar.
3. The total fat is approximately the same in cases of toxemia and of normal pregnancy. Usually the cholesterol is increased and the lecithin diminished in eclampsia.
4. The carbon dioxide combining power of the plasma is reduced during normal pregnancy, indicating a mild acidosis, and the variations met with in the presence of autointoxications are insignificant.
5. The results of blood analysis do not support the acidosis hypothesis nor the derange-

ment of protein metabolism hypothesis of eclampsia but indicate that the cause of the disease must be sought elsewhere.

Dementia Praecox.—Dementia praecox (*Dementia Praecox Studies*, April, 1918) is known in several forms, classified as catatonic, semi-catatonic, hebephrenic and paranoiac. Diagnosis is always difficult; for example, the differentiation between neurasthenia and dementia praecox of the hebephrenic type rests chiefly upon the presence or absence of illusions and hallucinations in the patient. Differentiation between hysteria and dementia praecox is based upon the vacillating and fluctuating mental characteristics of the hysterical patient. Epileptic insanity closely resembles the catatonic type of dementia praecox, with this difference, however, in epilepsy the patient acts blindly, while the catatonic possesses a small measure of reason. In amentia, which is generally preceded by an infectious disease of some sort, the mental disturbances are more pronounced than in catatonic patients, especially so of the sensory disturbances. Great care must be exercised in the differentiation of the catatonic dementia praecox from manic depressive insanity; in the former, pleading and weeping are steady and prolonged in spite of the emotions, while the latter is characterized by passion, excitement, abruptness and impulsiveness, all influenced by the surroundings. Paralytic cases may be diagnosed by the fixed pupils. Paranoid dementia praecox develops the most rapidly and culminates the earliest of any of the forms classified.

Urine in Diabetes Mellitus.—Discussing the study of the urine in diabetes Richards, in *New York State Journal of Medicine*, May, 1918, reports his conclusions as follows:

1. In many cases of this series the ammonia is not an index of the urinary acetone bodies;
2. There may be an increased excretion of ammonia in the absence of urinary acetone bodies;
3. There may be a normal excretion of ammonia with urinary acetone bodies;
4. The quantity of sugar excretion has no relation to the ratio of the nitrogen content of urine;
5. In many cases of diabetes there is a disturbance of the ratio of the nitrogen content of the urine which may be corrected by regulating the nitrogen intake, but no correction of the urinary sugar or of the urinary acetone bodies will correct this nitrogen disturbance.

Poliomyelitis.—After having carried out some bacteriologic and serologic work during the epidemics of poliomyelitis in New York City in 1916, Greeley arrives at the following conclusions:

It is demonstrated that the organism isolated from the nerve centers of cases of poliomyelitis (including the "streptococcus" described by various observers) is a pleomorphic bacillus of the distemper group, which varies in characteristics much as the various, supposedly different, members of the group do from one another. . . .

It seems very probable that, while contact cases of poliomyelitis may occur, either by direct transmission of the germ from animal to man, or from man to man, the great mass of cases which comprise epidemics are caused by milk borne contagion.

Doctor Rosenow now states that he finds that his "streptococcus" will produce the bacillus form, and Doctor Bristol working with one of Flexner's cultures, obtained from the Rockefeller Institute, developed from the "globoid bodies" bacilli such as the writer described. Bristol concludes: From these studies he ventures to suggest the possibility that the organism of poliomyelitis is a pleomorphic bacillus (often indistinguishable however, from a true coccus), and that it may be closely related to the large group or so-called bipolar bacilli, or pasteurella. . . .

Based on this assumption, the mode of spread may be considered analogous to that demonstrated for all forms of pasteurellosis in animals, namely: directly, by contact with the secretions or excretions of an infected individual (either disease or a healthy "carrier"); indirectly, by the carriage of the specific organisms by insects, or possibly in dust, uncooked food, or drink.

Arteriosclerosis.—Curtis, in *Amer. Jour. Clinical Medicine*, Mar., 1918, states that false arteriosclerosis is nothing more nor less than abnormal fulness of the blood-vessels, which become so distended that they resemble the fire- or garden-hose with a small nozzle when under pressure. This condition, popularly speaking, is known as high blood pressure. It is almost invariably due to a greater or less degree of congestion somewhere along the blood-circulatory system. And, obviously, the nearer the seat of congestion is to the central pumping station, the greater the pressure. So, "arteriosclerosis" is stated to be cured by eliminating the congestion—an achievement that can, usually, be accomplished.

When this arterial congestion is of long standing, the nerves closely associated with the vessels involved may become paralyzed and thus inhibit the flow of blood. This condition is met with most frequently when the spinal accessory

nerves leading to a congested area are inflamed and the vertebrae between which they pass are displaced sufficiently to press on and inflame them. The most effective means for relieving this congestion is, by means of skilfully applied chiropractics, with the aim of adjusting misplaced or subluxated vertebrae that impinge upon the nerves supplying magnetic or nerve force to the vessels leading to these parts; whereupon, normal nerve supply and blood circulation being restored, the congestion disappears.

When one realizes that thru the nerves that connect and vivify them the various organs of the body are as sympathetically interrelated as are the centers or units of an electric system, we can understand how the normal action of one part intimately depends upon the normal action of another part, or that, when one part is out of order, a portion or even the entire system may be deranged.

Therefore, all possible means to restore circulatory equilibrium should be employed, and while the spine is being jacked into normal relations other troubles should also receive attention.

This derangement not infrequently is owing to inflammation in the brain or in the spinal cord, the exact location of which can be determined by passing a finger of one hand firmly over the head or spine, or other parts of the body where disease is suspected, while the other hand holds an electrode attached to an ozone-generator capable of developing from one to five million volts of current.

This current, which passes directly thru the body, ignores resistance under normal conditions. If there is no abnormal condition, the patient is insensible to its application, providing, however, that there is no space between the finger and the skin; in the other event a disagreeable prickling under the fingers will be felt.

Should pain be elicited, it will be found to be owing to inflammatory products, which afford resistance to the passage of the current; and, in proportion to the extent of the pain, the area and the density of the inflammation can be determined.

When the inflamed area involves nerve centers, the organs or parts of the body to which these nerves are distributed will be found, in proportion to the amount of pain experienced, partly or completely out of commission. For example, in hemiplegia.

Eyestrain should be corrected; tooth, rectal, gall-bladder, uterine, sexual and other complications should receive attention; and, for an hour once or twice daily, the patient should be exposed to the light, heat, and general ozonation of the ozone-cabinet.

The diet should be light, nourishing, and easily digested, and may consist of cracked wheat, rye, corn, whole wheat and graham bread (no white bread as it lacks cell-salts), gluten, meat, poultry, fish, vegetables, and nuts. Large quantities of water should be drunk to flush the system thoroly. Coffee, tea, chocolate, also tobacco, because of their toxic, fattening, and false stimulating influence should be avoided.

Flat-Foot.—The principles of treatment, according to Brooke in *The Medical Council*, (May, 1918) which lead to a permanent cure of flat-foot are definite and rather simple, but the application varies according to the severity and duration of the deformity. The foot, weak because of inefficient ligaments and muscles to hold it in proper position, must be supported until regenerative changes have taken place. First of all the selection of a proper shoe is necessary. This must be broad enough to contain sufficient space for the independent movements of the toes. It must be sufficiently long; it should be rather snug at the heel and grip slightly at the counter and instep and have a straight inner border. The shape of the sole should correspond to the shape of the foot and the heel should be broad.

In mild cases of weak foot, it is sufficient to raise the inner border of the shoe to throw the weight a little to the outside. Those who toe out should be instructed to hold their feet parallel in walking and by crossing their feet when sitting. In standing they should avoid the long continuance of one position.

Exercises are of much value in strengthening the weak muscles of the feet, the adductors and plantar flexors. Tip-toe exercises are particularly useful. The patient standing with heels six or eight inches apart, toes turned slightly in, the weight is raised on the toes, the legs being fully extended at the knees, then dropping down slowly, the weight is thrown on the outside of the foot. In the majority of cases, however, the foot will need some support in addition to the simple measures outlined.

The Non-Surgical Treatment of Endometritis.—O'Brien, in *Texas State Journal of Medicine*. April, 1918, writes that the microscopic diagnosis of an inflamed endometrium cannot be made by the condition of blood vessels or stroma, on account of normal cyclic changes in these structures, but rather by the presence of round or plasma cells.

Except in cases of uterine polypi, submucous tumors, carcinomata, etc., no inflammation of the endometrium itself is directly responsible for excessive, scanty, or irregular uterine hemorrhage; in other words, menorrhagia and metrorrhagia are not caused from diseased conditions of the ovaries.

That the nutrition of the uterus is absolutely dependent on the secretion of the ovaries is a proven fact.

The secretions of the thyroid pituitary body and mammary glands also affect to a certain degree the nutrition of the uterus. Excessive secretion of the thyroid has an inhibitory effect on the function of the uterus.

The writer has found that long, thin, wool tampons placed in the cul-de-sac with a dressing forceps thru the speculum, the medicated part being placed at the external os and the greater part of the tampon packed firmly enough to tilt forward and support the fundus, gives these patients great relief. The proper placing of tampons does as much or more than the medication, by supporting the fundus, helping the

circulation and favoring drainage, especially in the recumbent position. In retropositions of the uterus, constitutional treatment is always indicated, as there is some cause for the relaxed condition of uterine ligaments.

The use of continuous hot douches will work wonders with a boggy, swollen uterus, the mucous membrane shriveling like a washer-woman's hands. These douches should not be given for a period longer than 30 minutes.

Intestinal Obstruction.—Writing in *Northwest Medicine*, May, 1918, Monro says that when faced with possible intestinal obstruction, the most important thing is to come to a decision without delay.

(1) First try large enemata. If only a few scybala come away, intestinal obstruction may be safely diagnosed.

(2) Examine the vomitus. As soon as it becomes offensive or brown, intestinal obstruction is present.

A weak and slow pulse and subnormal temperature are strongly suggestive; increase in pulse means patient is getting worse.

The successful treatment of acute intestinal obstruction depends largely on (1) the question of operation, and (2) the question of the extent of interference that is indicated in any given case.

(1) If we accept the authority of Sir F. Treves, who says "there is no avoiding the fact that acute intestinal obstruction if unrelieved ends in death," then it clearly becomes the duty of the surgeon to operate on every case. Moreover, the operation should be performed at the earliest possible moment after the diagnosis has been made. Serious as the operation is, delay increases the danger tenfold and even an uncertainty of diagnosis should not deter the surgeon from opening the abdomen and ascertaining the cause of the trouble. Better even in these cases that operation should be a first rather than a last resource. In many it is the only resource.

(2) Extent of interference is a given case. The operation must be according to the state of the patient. If the condition is dealt with early and when patient is in good shape, more prolonged search may be made. If he is in collapse and toxic, enterostomy only.

Treatment of Infected Wounds with Dichloramin-T.—Clark, in *Medicine and Surgery*, Feb. 1918, says that the use of Carrel-Dakin solution and later dichloramin-T was routine, but the necessity for surgical removal of devitalized tissue, blood-clots, diseased bone, etc., before the antiseptic treatment of the wound was instituted, was very apparent.

There were certain faults with the Dakin-Carrel solution, however, which made one feel that a still better technic could be evolved. First, the neutral hypochlorite (Carrel-Dakin) solution is very unstable, necessitating its preparation almost daily. Secondly, the dilute 0.48 per cent. solution contained such a small amount of the chlorine that, if the concentration was lowered even a few points, its germicidal efficiency was decidedly impaired. Thirdly, the active chlorin was used up so rapidly when the solution came in contact with the wound exudate that it was necessary to renew the solution at least every two hours, night and day. Then, too, in spite of the weaker solution, there was still irritation of the skin surrounding the wound in many cases.

In all fairness to the Carrel-Dakin solution, if the careful elaborate technic, as perfected by Carrel, Dehelly and Depage, is carried out, splendid results in the treatment of infected wounds can be obtained.

Dakin, realizing the faults of the neutral hypochlorite solution, endeavored to make a new non-toxic and non-irritating germicide which was capable of being used with less complicated technic. He found that the various hypochlorite preparations used in the treatment of infected wounds react with the proteins of any kind. The chlorine reacts with the amido-groups to form products called chloramins. These chloramins have a definite germicidal value and are not irritating to the tissues. Next, these chloramins were produced synthetically. By dissolving one of these chloramins (toluene-para-sulphon-dichloramin) in chlorinated oil of eucalyptol, he found he had a germicide that fulfilled the qualifications he was seeking. And, too, it could be used in strengths varying from 5 to 20 per cent., so that he had a much stronger germicide than the older neutral hypochlorite or Carrel-Dakin solution as it is more commonly known. Dakin, after evolving this new antiseptic or germicidal oil, named it dichloramin-T.

Digitalis in Pneumonia.—Digitalis is the most useful drug in cases of pneumonia with organic heart disease. Fussell in a recent issue of the *Penn. Med. Jour.* says it should be given from the beginning of the attack in moderate doses, ten drops of a good tincture three times in twenty-four hours. This dose can be increased if the heart shows signs of dilation; 10 drops used by the mouth or hypodermically can be given every three hours, care being taken that the quantity given is not large enough to cause poisoning. The digitalis must be obtained from a source which will insure a potent article.

Carbuncle.—Spangenthal (*Buffalo Med. Jour.*, Feb.) says the knowledge that carbuncle and diabetes are so often associated in the same individual, should make one alert to examine the urine for glucose in every case presenting a carbuncle.

Goat's milk is nearly twice as rich in butter fat as the cow's. Goat's milk is an ideal food for babies, convalescents, invalids, especially all with weakened digestive powers. It is good for the well in warding off disease.—*Pac. Druggist.*

American Medicine

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American Foods.—The slavishness of individuals to their palates is emphasized when dietetic readjustments are required. The diabetic rebels against a starch and sugar free diet, the nephritic objects to a reduced protein diet, the mature epileptic resents a salt free diet, the obese deprecate the necessity for the curtailment of rations, the thin interpose objections to forced feedings. The representatives of various nationalities suggest obstacles to alterations in their accustomed dietary. When a time of food scarcity arises the consumers in general magnify the difficulties forced upon them thru readjustments that are imperative in order to conserve the food supply. The idea of a system of rationing strikes terror to the hearts of those who have been accustomed to prodigality in eating with the utmost freedom in the selection of their ordinary foodstuffs.

The American dietary is most cosmopolitan. Altho unrealized by most persons, Americans have been privileged to enjoy an international dietary. The artichoke of southern Europe, the chard of the Canary Islands, the cauliflower of western Asia, the celery of Africa, the cucumber of India, the onion of Persia, the pea of England, the radish of Japan have vied with the products originating in the Americas. While the origins of many of the vegetables have been in foreign lands, their adoption and cultivation have made the United States practically independent of foreign assistance in the development of its huge agricultural resources. A high development of intensive cultivation has not been achieved in America, owing to the vast acreages available for agriculture and the lack of necessity for intensive farming as demanded and required to satisfy the large populations in smaller foreign countries. Cold storage, canning, dehydration, preserving, and numerous other commercial forms of food preservation have increased the food reserves and increased the range of healthful foods available during all periods of the year. The attention which has been given to package foods, sanitation, honest labeling, and protection against adulteration have gone far toward guarding the nation against exploitation, infection, and enervating food products.

The incidence of an artificial food shortage, due to self-denial in the interests of world betterment, has created a more intelligent conception of the nature of foods, their uses, relative advantages and disadvantages, and caloric values, not to mention the numerous problems involved in estimating their economic costs and potential nutritive values. It is doubtful whether, with all the campaign of education that has ensued, the public is aware of the fact that the vegetables contributing most largely to its general health had their origin in the

wild fields and woods of the American continents. According to the *Bulletin of the Brooklyn Botanical Garden,* (Series VI, No. 3) "There would have been no string beans, no lima beans, no potatoes, sweet or Irish, no corn, no pumpkins, vegetable marrows or squashes, no peppers, and no tomatoes, for these are all native of America." To these may be added the Jerusalem artichoke and the common gherkin, as native American vegetables helpful in satisfying the nutritive needs of the American people, even if there were no cultivated emigrant vegetables available to satisfy our demands for dietetic variety. As long as the corn or maize, found in America by the Norsemen and Columbus, continues to be the backbone of our agricultural resources, and the potatoes yield their countless bushels, the grim spectre of famine cannot stalk thru American lands. With beans, tomatoes, pumpkins and squash upholding their American traditions, the dangers from malnutrition need not exist, particularly in a dietary that contains a reasonable amount of milk, eggs, fish, meat, sugar and native fruits.

Meat and wheat, with the various products derived from them, have become to many food fetishes, deprivation of which would appear to bring disease and discontent, malnutrition and misery. The present food conditions involve a re-education of the palate in terms of bodily needs, financial means and essential nutritive values. If the American people will make an effort to consume larger quantities of indigenous American foods, a considerable part of the food question will have been answered. The reduction in the use of wheat and wheat products until after the next harvest, and as long thereafter as may be required, will not result in hardship to the physical well being of the American people. The conserving of some of our most plentiful crops in the interests of the foreign countries, from which our population has descended, does not involve a sacrifice of the body, but merely a restriction of our palatal habits. There is a certain element of patriotism in reverting to the American foodstuffs as a means of promoting the success of our government policies. It is more than a matter of catch words to say that an American war can be won on American foods.

Wheat is admittedly a most valuable cereal crop, but no more serviceable to health than corn, rye, or barley. While its original home is unknown, from the data available it would appear to have had its origin in western Asia, and was not grown in America prior to its discovery by Columbus. The shipping of wheat to the East from America possesses, therefore, an interesting historical altho botanical background.

The problems of transportation have not isolated America from valuable crops hitherto deemed essential for the satisfaction of appetite and the maintenance of health. A reduction in the use of wheat and wheat products is far different from total deprivation. The substitution of corn and other cereal products for wheat enables palatable cookery to hold its own without the sacrifice of any nutritive advantages. In the light of the richness of America's resources there should be no difficulty in weathering the food crisis, which apparently has bred pessimism in the minds of many persons unfamiliar with the nutritive qualities of other cereal products. Food substitution, as at present demanded, is merely a partial replacement of one article

by another of equal value. Again, let it be urged that the value of American foods be appreciated by Americans and accepted by Americans as the real nucleus of a healthful American dietary.

Earnings and Eating.—The food problem is not to be regarded as merely a question of dietetics and nutrition. The problems of economy as related to food conservation involve inquiries into production, transportation, storage, distribution and home utilization. The large questions of national nutrition and resultant effects upon national health are obvious to those who regard food as basic to the physical, mental and moral welfare of communities.

The experiences of the past year have brought home, as never before, the importance of an adequate food supply. The drains upon American production due to the legitimate demands for exportation to aid in saving the half starved nations across the seas have caused the American people with their cosmopolitan palates to awaken to a realization that there is a food problem, the nature of which must be viewed with the utmost optimism. It is impossible, however, to consider home dietaries without equal consideration to home revenues. The price of foodstuffs may rise without serious effect upon the general health providing that the means to purchase have an equal relative increase.

According to the United States Bureau of Labor Statistics, (*Monthly Review*, April, 1918,) food as a whole showed an increase of 66 per cent. in price from February, 1913, to February, 1918, and practically every article had an increase of 40 per cent. or more. A study of the average expenditures of 608 families in the New York shipbuilding district in 1917 indicated that 45 per cent. of the income ($607.02) was paid out for food. This represented an increase of 55.28 per cent. over the prices existent for the same commodities in 1914. A comparative statement of the earning power of labor for eight hours, as expressed in the demands of the Brotherhood of Locomotive Firemen and Engineers for increased wages, evidences that few types of workers in the country had received a wage increase over 66 per cent. in December, 1917, over the wages received in December, 1914. A large proportion in fact of the wage increases were under 45 per cent. It is patent that it is impossible to maintain the former standards of living with a constantly increasing amount of the income absorbed by the primary demands of a rapidly rising food cost.

Studies of family budgets with a view to establishing minimum annual budgetary requirements for wage earners would indicate a food expenditure of $673.00 on a minimum budget of $1,682.00 (*Department of Health, New York City*); $590.00 out of $1,200.00 (*Bureau of Municipal Research, Philadelphia*), or $607.00 out of $1,518.00 (*Canadian Department of Labor*). Such facts suggest that a minimum budget to cover the essentials of subsistence requires an annual wage of at least $1,200.00, while provision for a reasonable minimum standard of comfort requires a wage yielding annual earnings of at least $1,500.00. The Wage Arbitration Board in the street railway dispute in Seattle fixed the minimum for motormen and conductors in Seattle and Tacoma at $1,515.60 assuring a standard of living compatible with health and comfort. The United States Bureau of Labor Statistics in its 18th *An-*

nual Report published the average expenditures of 2,567 working men's families in 1900. The food cost averaged $327.00 out of a total expenditure of $769.00. Approximating these expenditures by using the percentage of increase in 1917 as compared with 1900, the estimated expenditures for food would be $716.00 for the same items, out of an estimated expenditure on all items for $1,401.00. The total family expenditure was increased by 43 per cent. from 1914 to 1917, largely as a result of conditions growing out of war.

The importance of the incomes of families in relation to our national food situation is accentuated by reference to a statement issued by the Bankers' Trust Company indicating the distribution of incomes in the United States, based on the income tax returns for 1916. It was estimated that there were in all 27,304,199 family groups and individuals in the United States. Of this number 24,428,000 had annual incomes of $2,000 or less and there were only 121,679 families with an annual income above $10,000. The stress of the food situation, therefore, applies particularly to almost 90 per cent. of the families of this country whose incomes are below $2,000 a year, approximately 4,000,000 of whom enjoyed an income in 1916 between $1,500.00 and $2,000.00 a year. The high cost of living, insofar as foods are concerned, cannot be regarded independently of the total income and expenditures requisite for maintaining conditions of health.

The tremendous campaigns which have been waged to educate the general public with reference to food needs, methods of purchase, caloric requirements, conservation in eating, avoidance of food waste, the substitution of foods that are plentiful for those that are required for exportation, the stimulation of home gardens, the increase in dehydration and canning have had a profound influence in securing reasonable readjustments in family dietaries without great sacrifice in nutritive standards. The tendencies toward inadequate nutrition of children are evidenced by the findings of the Children's Bureau with reference to Baltimore children, only 29 per cent. of whom between the ages of two and seven years were receiving fresh milk to drink as against 60 per cent. a year ago, and less than three per cent. of whom were getting as much as three cups a day.

In many of the essential war industries, wage increases have been rapid, but a large proportion of the workers of the country have not secured the wage advancement necessary to enable them to keep up family nutrition as well as it might be desired. It is true that the general thrift movement has inured to the advantage of all types of workers in the community, thus enabling them to subscribe liberally to War Saving Stamps, Liberty Loans, Red Cross and the countless other excellent patriotic and philanthropic enterprises made necessary by existent conditions. If, however, food prices continue to soar and the high cost of living becomes still more disproportionate to earning capacity, some new steps will be required to safeguard the welfare of the American people. The broad principle of sacrifice has been gladly accepted and every effort is being made to practice self-denial in the interest of suffering humanity. In the process of salvaging the hungry millions across the seas every effort should be made to protect the growing generation at home against the consequences of underfeeding, malnutrition and the handicaps incidentally arising from such conditions.

War bonuses have been utilized in Austria and France in order to meet and offset the high cost of living, varying only according to the annual wage received and the size of the family dependent upon the wage earner. The bonus system represents an inadequate attempt to ease up the penalties of war upon the developing civil population. The charges upon the government for the duration of the war will be large, but the allowances are deemed expedient at least for the period of the war. It is doubtful whether a plan of this character would be possible in the United States owing to state organization. The government has unhesitatingly advanced wages in many industries over which it has assumed control.

The most promising method of meeting the high cost of living is suggested by a plan which has been adopted by employer and workers in certain sections of the British textile industry affecting 50,000 to 60,000 workers in Lancashire, Cheshire and Derbyshire. An agreement regulating war wages has been agreed to, providing that war wages are to be regulated in accordance with the increased cost of living. The index figure of food and other prices is to be compared with that of July 1, 1914. When this plan went into operation the cost of living was estimated at 75 per cent. above the index figure of July 1, 1914, and the wage increases were made in accordance with this increase. Every three months the joint committee is to meet and on the last published figures of the Board of Trade will alter the rate of war grant in proportion to the rise or fall. This significant step is the first attempt recorded to adopt on a large scale a method of regulating earnings according to the cost of living, and presents a wealth of suggestion for America at the present time.

The regulation of our food supply, the determination of a rational safe dietary, the utilization of special foods in treatment of specific diseases, the nutritional problems of infancy and childhood are exceedingly practical from the standpoint of public health. Medical men are thoroly alive to the importance of the subject and this Special Food Number may serve to focus attention upon many phases of this topic. The numerous articles appearing in this issue will yield a wealth of practical information, constituting a distinct contribution to the literature of the subject. In the discussion of the theoretic and practical phases of foods and nutrition it cannot be forgotten that there is a marked fundamental economic problem that concerns itself with the ability of the public to live in health with adequate vital resistance, and relative freedom from the hazards, handicaps and defects incidental to underfeeding or malnutrition. Food is an essential of life, but no more so than the ability to purchase it.

Milk—The Paramount Problem.— Whether considering the needs of infants and children, the treatment of the sick, the restoration of the wounded, or the fostering of the convalescent, one is immediately confronted with the necessity and importance of an adequate and healthful milk supply. No single article in the dietary of peoples has been productive of more good and evil than milk. The faults of milk have been responsible in part for the spread of diseases such as typhoid fever, tuberculosis, diphtheria, scarlet fever,

measles; they have been causative of innumerable deaths from gastrointestinal diseases and toxemias; insufficient quantities and improperly guarded milks have played their part in the production of scurvy, rickets, pellagra and malnutrition.

Under war conditions, the difficulties attendant upon maintaining and increasing the milk supply are accentuated. Childhood must suffer from an unsafe dietary unless milk, the most indispensable food for children, is conserved. There is no real substitute for milk. Cereals, tubers and roots fail to yield to the growing organism the life and health-giving qualities which are derived from the lacteal fluid. During pregnancy and lactation there is an increased need for the consumption of milk by the mother in order that there may be supplied to the infant the essential mineral constituents necessary for the development of bone and teeth, as well as for the maintenance of the coagulability of the blood and the maintenance of bodily nutrition.

Mr. Hoover has already pointed out the critical importance of safeguarding our domestic animals in the interests of the growing generation. Public health demands the protection of our herds of dairy cattle in order that sufficient milk may be available for the infants and children in the United States as well as for those overseas, without a decrease of the amount needed for consumption by the military and naval forces, the sick, injured or convalescent. The fixing of milk prices, the enactment of legislation that will protect herds from needless slaughter, the control of milk production and its modification into forms admitting of storage without deterioration, are important measures meriting consideration in the interests of national health.

Milk is more than a chemical mixture of proteins, fats, carbohydrates, mineral salts, and water. The fat soluble vitamine which occupies a particularly useful position in the control of growth and health characterizes milk as a biologic product that transcends in value its chemical constitution or its caloric value.

Assuming that breast feeding is of paramount importance, of little lower value is the cow's milk, so generally utilized in the dietary of infants and children after the first few months of life. Theoretically, fresh, clean cow's milk secured under the most hygienic conditions from tuberculin tested herds, would appear to be the ideal food for infants after modifications have been made to adapt it to their digestive powers. Unfortunately, milk of this character is unobtainable at a price within the means of families of average income. Pasteurization and sterilization, canning and condensation have been utilized as methods to protect infant health. Despite numerous differences of opinion regarding the effect of heat upon the digestibility of milk and upon the alteration of the mineral constituents, experience would seem to indicate that the growth-inducing factors are not materially influenced by milk alterations effected at comparatively low temperatures. Even dried milk does not appear to have its vitamines destroyed nor appreciably diminished if the degree of heat employed is not excessive.

Dried Milk.—Animal experimentation has satisfactorily demonstrated the nutritive value of dried milk, termed by the French, "the cow in the cupboard." The production of milk powders from skimmed milk or whole milk, that to begin with was fresh and clean, represents an op-

portunity to stabilize the milk industry, so that there may be available a potable milk, cheap, palatable, bacterially pure, easily transported, and without decreased digestibility. Recognition of the inherent advantages of milk in the dietary carries with it the obligation of safeguarding it in every way so that milk and milk products, butter and cheese, may not suffer a marked decrease lest the nutrition of the growing generation be handicapped. The growing need for exportation emphasizes the necessity of stimulating the dairy business.

For the purpose of increasing the vitality and resistance of children, thru raising the nutrition of their bodies, the most significant food factor is found in the milk contained vitamines. Butter, cheese, whey, skim milk, buttermilk, milk powders, evaporated milk, condensed milks, probably present the most serious food problem this nation faces from the standpoint of public health. It is difficult to realize the conditions in Russia, where there is practically no milk available for children over three years of age. Americans cannot grasp the fatal results that have attended the slaughter of milch cows in Belgium, France and other warring countries for the sake of securing meat for military purposes. If, however, the United States is to avoid recognized dangers to juvenile health, and the race is to be safeguarded from physical deterioration, the milk problem must receive far more consideration than has been given to it up to the present time.

Every community is in a sense responsible for the welfare of its own youth. Some measures are required in almost every section of the country to enable families with children to secure at least a quart of milk per day per child under two years of age, and a pint of milk per day for each child between the ages of two and six years. The daily per capita consumption of milk, according to United States Food Administration, is only 0.65 pint, and this proportion is steadily decreasing as the price of milk rises. A program that will check this developing evil is imperative. The use of milk in a community is an index of its knowledge of nutritive values. The general health and welfare of a nation may be roughly judged by its daily per capita consumption of milk.

The influence of the medical profession has been thrown on the side of safe milk as represented by certified milk. The entire certified milk movement, originating thru the enthusiastic efforts of Dr. H. L. Coit has been responsible for fostering milk sanitation. Certified milk, however, is not produced in large quantities, nor is its price adjusted to the financial ability of those whose children need it most. The National Committee on Milk Standards, composed mainly of physicians, health officers and sanitarians, has devoted its energies to the establishing of reasonable chemical and bacteriologic standards, without stressing the positive health values of milk consumption. The time has arrived when the profession must give the weight of its authority to the nutritive qualities of milk, while at the same time insisting upon the maintenance of its sanitary condition. Physicians should be the leaders in the movement to conserve the milk supply of the nation, as they are best able to attest its health giving qualities, and the dangers which must accrue to the general public if children are to be deprived of their one complete and indispensable food—milk.

The Illegitimacy Problem.—The fact that the Children's Bureau issued a press notice concerning the illegitimate baby's rights directs attention to the interest of this Bureau in the welfare of children born out of wedlock. The attitude of this important federal bureau urges the "state's responsibility for seeing that every child, no matter what his parentage, has the nurture, protection, and education essential to his usefulness as a citizen." This attitude is implied in the publication and distribution of the Norwegian laws concerning illegitimate children (*Bureau Publication No. 31*).

The principal provisions of the Norwegian Acts and Amendments of 1915 consist of putting the burden of establishing the paternity and fixing the obligation of maintenance upon the state instead of upon the mother. Paternity, established as a biologic fact, or on the basis of a fair presumption, carries with it the obligation of the father to be responsible for the maintenance and economic support of the mother and the child, until the child has completed 16 years of age. In addition, the mother is to receive benefits for three months previous to confinement, during confinement, and payment of special nursing expenses for nine months after birth if the child remains with the mother. The forced collection of contributions becomes part of the state's initiative, instead of being dependent upon the activity of the mother.

These laws are particularly notable as the first indication of "national recognition of the inherent right of the child to nurture, protection and education, irrespective of his parentage, and of the state's responsibility for ascertaining parentage and for holding both parents equally and continuously responsible for the illegitimate child." The significance of studying the problems of illegitimacy as part of a program designed to save children's lives during the second year of the war, and certainly thereafter, is not shrouded with mystery. Despite all endeavors to safeguard the general population there will be some increase in the birthrate due to the developments from extra-legal associations. Allegations have already been made that the birthrate of the country has increased. While this phenomenon cannot properly be interpreted owing to the short period of time that America has been in the war and the underlying reasons therefore cannot be established, it is not unpatriotic to suggest that at least one element in the increased population is traceable to disorganized social and economic conditions, which, undoubtedly are reflected in some increase of children born out of wedlock.

There are more males than females in the continental United States with a relative excess greater than exists for most countries. The probable influence of the present war cannot be judged from the reduction by 300,000 of the excess of males that occurred between 1860 and 1870, altho diminished immigration undoubtedly played an important part in this alteration of the relative figures for the sexes. The ratio of the sexes is a factor in promoting the safety of legal contracts. Data are unavailable in the United States regarding the prevalence of illegitimacy, so that comparative figures are unsecurable. From a knowledge of the prevalence of venereal diseases, from vague data regarding criminal abortions and from the figures presented by institutions caring for unmarried mothers and their offsprings, it is patent that children born out of wedlock present a problem in

the community which has received inadequate attention.

It is to the discredit of society that it has placed an almost irremovable stigma upon unfortunate children whose paternity has been without legal sanction. The cruelties practiced upon unmarried mothers in the past condemn social organization as lacking in justice, sympathy and understanding. Regardless of the causes of illegitimacy, whether due to ignorance, low moral standards, lack of recreation, overwork and underpay, impulsive acquiescence, abused confidence, or mental defect, the fact remains that the solution of the problem is not to be found in social castigation, vilification, or degrading injustice. The victims are entitled to assistance and protection, particularly as they are symptomatic of the social shortcomings of communities whose organization has resulted in a condition of affairs which may properly be termed pathologic. Illegitimacy is a problem that cannot be met by charity and has not achieved justice.

In these days of sacrifice and trial, in the effort to preserve the morale and welfare of the nation, in the attempt to live up to higher ideas and ideals, it is fitting that the miserable traditions of the past should be subjected to the closest scrutiny and investigation. Among the horrors of social injustice none stands out more prominently and accusingly than the wonted attitude toward the treatment of unmarried mothers and the unfortunate children born out of wedlock. Illegitimacy comprehends more than the question of child welfare as considered by the Children's Bureau, involving as it does, numerous points of interest growing out of the medical, legal, social, ethical, and economic phases of its origin, manifestations, complications and methods of control or elimination. While illegitimacy may not have increased very greatly since America's participation in the war, the mental attitude of communities towards women and children during war times makes it particularly appropriate that the entire subject receive adequate consideration as part of a war program that aims to give women and children a square deal.

Diagnostic Centers.—The report of the Special Commission on Social Insurance of Massachusetts calls attention to the importance of an adequate diagnostic equipment for clinics and dispensaries.

The majority report indicates the belief that the solution of the health question lies not in indemnification for wage laws during illness, but in active measures to secure the prevention of illness. Stress is placed upon the importance of making possible "the extension and greater efficacy of our present preventive work." The majority of the Commission deemed it wiser under present circumstances, "to follow the constructive policy of preventive medicine than to initiate any scheme of health insurance." In accordance with its views, two recommendations were made to the legislature; the first, an act to extend voluntary group insurance; the second, an act providing diagnostic equipment for clinics and dispensaries and to encourage their extension.

The State Department of Health would be authorized under the proposed law to assist "in supplying laboratory equipment or X-Ray equipment for the diagnosis of disease, to be used in connection with dispensaries or with the out-patient department of hospitals." The equipment is to be furnished to municipally controlled hos-

pitals or dispensaries or to such dispensaries or out-patient departments of hospitals with which cities or towns may contract for the care of sick patients.

Provision is made for the furnishing of the equipment itself or of money for its purchase, with the limit of expenditure placed at $1,500. The state contribution is conditioned upon the raising of at least an equal sum or an equipment of equal value by the city or town receiving state money.

It is further provided that the use of the equipment shall be under regulations to be established by the city or town or its Board of Health in conjunction with the State Department of Health.

A marked advance in dispensary service is suggested in the provision that such equipment shall be available "for regular licensed physicians for the benefits of patients, or for the members of associations or organizations, of employers, employees or other persons in the cities or towns where the equipment is located, or in contiguous cities or towns not similarly equipped." This extension of dispensary equipment facilities practically constitutes the development of a diagnostic center, advantage of which may be taken by any practitioner feeling the need of such special diagnostic agencies.

A further step is taken in the state regulation of dispensary practice in that section four of the proposed act provides that the State Department of Health is empowered to prescribe necessary rules and regulations under which the diagnostic equipment shall be used. The proposed law carries with it an allowance for the expenditure of $10,000, by no means a large sum considering the character of the work it is designed to extend and improve.

One of the shortcomings of our present plan of dispensary organization has been a relative inadequacy in organization and equipment of a large percentage of clinics and out-patient departments of hospitals. Owing to the free and easy way in which the dispensary system has developed and the rapidity of its growth, there has been insufficient attention paid to the development of standards in organization or equipment, and as a result there has been frequent cause for criticism of the character of the clinical work attempted. While states have issued charters to dispensaries, they have not participated in the development of dispensary policies, nor in formulating rules and regulations destined to safeguard the welfare of the patients visiting them. Under the urge of legislatures many clinics have been hastily organized in the interests of various public health movements, but after their initiatory impulse, attention to their progress, methods and results has been sadly lacking.

The proposed enactment referred to deviates from ordinary procedures in three ways: first, state dispensary aid; second, provision of public money for a community medical project; third, state regulation. Each of these steps is in the right direction, tending towards the development of a higher type of dispensary service and recognizing the interests of the state in the welfare and health of the various communities comprising the state. Possibly the most important and significant advance is the endeavor to regulate under central organization the manner and methods of extending, expanding and directing diagnostic clinics of the type proposed.

It is patent that health insurance legislation *per se* will not suffice to stay the ravages of disease. The indirect results of

pecuniary benefits to the sick or injured will redound to the vital advantage of citizens and communities. Another indirect result, because of the costs involved in paying benefits for lost time, will be the stirring of communities and industries into investigating and correcting the conditions responsible for the incidence of disease and accidents. The Massachusetts Commission has seized upon this weakness of proposed health legislation as a basis for suggesting a constructive measure designed to enhance the value of dispensaries along one line of service. Obviously, early and accurate diagnosis is a fundamental requirement not merely of dispensary treatment, but of public health control. The prompt recognition of the symptoms accompanying the diseases inimicable to public welfare is most assuredly a safe starting point in the promotion of public health.

The creation of diagnostic centers, in a sense, approved by the state, merits the endorsement of the profession. Those entrusted with the responsibility of advancing dispensary work cannot fail to appreciate the possibilities of well organized and adequately established diagnostic laboratories and equipment in connection with the routine work of dispensaries and particularly in relation to the necessity of accuracy in clinical diagnosis. While there may be various questions regarding the inauguration of legislation and productive of a rational plan of social insurance, there can be no doubt as to the wisdom in instituting improved diagnostic clinics, according to the suggestion of the majority report of the Massachusetts Commission on Social Insurance.

Vitality During the Pre-School Age.—Vital statistics on the mortality of childhood are exceedingly limited. In order to cope with health problems, basic statistical information is requisite. The campaign for the reduction of childhood mortality aims to direct maximum attention to children of the pre-school age. While there are vague general impressions as to the health conditions obtaining during these years, scientific and accurate data are comparatively scarce, scattered and ill-defined.

Dublin, in the *Quarterly Publication of the American Statistical Association*, March, 1918, analyzes various phases of the mortality of childhood. Considering the tables which he offers, one notes the principal causes of mortality during the third year of life to be the acute epidemic group; measles, scarlet fever, typhoid fever, whooping-cough, diphtheria (26.4%). Then follow the respiratory group, 22%, tuberculosis 13.4% and accidents and injuries, particularly burns, which are responsible for 4.3% of the deaths.

During the fourth year, the epidemic diseases cause practically one-third of the total mortality. Accidents take a larger toll, 7.7%, with those due to vehicles assuming prominence.

During the fifth year, typhoid fever becomes a more marked factor in the mortality, 2.2%, while appendicitis makes its appearance as a condition deserving comment. Organic heart disease, 1.6%, merits notice tho possibly it is largely due to the more severe results of epidemic diseases. Vehicular accidents increase in number and are responsible for 2.5% of the mortality.

It is patent from the distribution of causes of pre-school age mortality, as suggested by Dublin's analysis, that therapeutic science can play only a small part in the lessening of the mortality of this period. Among the measures essential for the re-

duction of the morbidity and mortality of this period, one recognizes the importance of the control of epidemic diseases, thru extensive and intensive public health education and rational segregation and quarantine. The control of respiratory diseases is a very serious problem depending upon the improvement of housing environment, the control of coughers, spitters and sneezers and adequate protection against respiratory complications among those afflicted with epidemic diseases, particularly measles and whooping-cough.

The control of nutritional disturbances, in all probability, depends more upon education in the homes and training in dietetics than upon any organized scheme of municipal or state food regulation.

The prevention of accidents is complicated by the movement of mothers out of the home into employment. The young run-abouts require close supervision in order to decrease the possibility of accidental injuries. The regulation of vehicular traffic, particularly of motor driven conveyances, is of paramount importance. Constructively one recognizes the need for the development of playground facilities in parks, play streets and back-yards as an antidote for the overcrowded streets with their attendant dangers.

Baby welfare stations have demonstrated their usefulness as an agency for combating infant mortality. The principle upon which they are founded is capable of expansion. There appears to be no reason why mothers accustomed to resorting to these stations during the infancy of their children should not be urged to continue to make use of them during the pre-school age of their children or until they come under the supervision and care of those charged with the medical inspection of school children. The health center idea must be carried up into the second period of childhood—the pre-school age.

In the attack upon mortality of childhood the public schools are strategic points, reaching thru them the large mass of children who are so frequently charged with partial or complete responsibility for the welfare of their younger brothers and sisters. Lectures, demonstrations, moving-pictures, charts, exhibits, dramatics, pageants, compositions, arithmetical devices, the study of hygiene, represent some of the measures which should be employed in connection with the offensive against child mortality by the use of educational forces. Women's clubs, churches and Sunday schools, certainly, have a prominent opportunity for service to the community if they will utilize their vast machinery to combat the enemies of children during the pre-school age. The medical profession thru lectures, popular writings, and so on can give a tremendous impetus to this movement.

Thru education and possibly legislation, municipal and state, thru more effective organization of medical, educational and social agencies there can be accomplished a noteworthy reduction of morbidity and mortality. The single most effective measure, probably, will be the development of interest in frequent recurrent examinations of children, with a view to facilitating the early detection of symptoms of disease and more particularly the recognition of defects together with attempts to secure their correction. With the results that have been accomplished during the past decade for infants under two years as an inspiration, it is possible to go on with renewed efforts for children during the pre-school age period of life with confidence in the ultimate success of this new campaign.

War Service.—The response of the American people to the call of the nation has sent a thrill thru every loyal heart. A country so united can never fail in its undertakings, and strength untold has come from knowing that the cause to which the nation is pledged is a righteous one. Never given to war-like activities, and attracted far more by industrial than by martial pursuits, the people nevertheless have shown a spirit of cooperation in support of the war aims of the Government that has been little short of marvelous. It is not necessary to mention in detail the tangible ways in which the American people have shown their patriotism. It is no exaggeration, however, to state that the wonderful showing the United States has made since April 1917—a showing in military organization and accomplishment that some day when we can view things in proper perspective, will be justly looked on as one of the greatest achievements of history—would have been impossible but for the whole souled aid and support of the loyal men, women and children of the country.

Every community, society, and line of industry has come forward and faithfully done its part, and too much credit cannot be given to those who have thus proven their devotion to their country. Naturally, we are particularly proud of the medical profession, for the followers of no other vocation or calling have contributed more to the common cause than have the doctors of the land. Close to 20,000 physicians have voluntarily given up their practices and joined the military forces of the country. In many instances this has entailed leaving practices of fifteen to twenty-five thousand dollars that have taken years to build up. After two or three years absence, these practices can never be restored, they are irretrievably gone. It would be a real tragedy to many a medical man if he was not sustained by the satisfaction of knowing that he is serving his country in the greatest crisis in its history. When he enlisted, he, like any other soldier, tendered his life, his all—what is income, or anything except the work in hand? None the less, we know what all this has meant to many doctors, the uprooting of homes, the enforced economies for dear ones with complete readjustment of ways of living, and finally the certainty—if they do come back—of knowing the "pinch of poverty," and the discouraging, perhaps futile struggle to win even a modicum of their former income. We believe, therefore, that few will deny that war service has imposed greater sacrifice on practicing physicians than on any other one class.

To our colleagues in war service, we can only say, we are proud of you. You have proven true to the best principles of our calling, and have set an example that has strengthened and uplifted every one of us. May your work be productive of the utmost benefits to those who need you. May you be able to bring relief, comfort and hope to the stricken, control their suffering, and win many a combat with the Grim Reaper. May you always be where you are needed most. And if, perchance, it is not given to you to come back to those who love you and who watch for your return, be sure your dear ones, your colleagues and your country will not forget you, nor those you leave behind. A great nation will honor itself in remembering those who sacrificed their all that it might live.

Those Who Must Stay at Home.—Much as we appreciate the service rendered by those who are able to take up military work, we cannot help but feel that those who are forced to stay at home by legitimate causes can in divers ways serve their country just as acceptably and faithfully. Obviously this is a statement concerning which much might be said, but it is our intention to refer to only one phase. For instance, recognizing the great importance of the food question, this special issue of AMERICAN MEDICINE has been arranged with the object of presenting practical information on the subject which will aid American physicians to do their full part in helping to solve our food problems.

Under the most favorable conditions the United States for some time is going to find it necessary—if we expect to prosecute the war with maximum power and do our full duty by our Allies, both on humane grounds and for the purpose of keeping them at highest efficiency—to curtail our food supply very considerably. This does not mean famine or anything like it. But it does mean dietetic readjustment. We have been a very wasteful people. We have eaten, at a conservative estimate, thirty per cent. too much, and as a result of various causes we have wasted at least twenty per cent of our food supply. Others offer different figures, but the foregoing represent a very careful survey taken of a considerable number of families in the middle and upper classes, and fairly give the average amount that is eaten in excess and the average amount wasted the year round. Of course no reference is made to the very poor or the foreign classes, altho here too there is much that might be said relative to the waste due to faulty habits and ignorance.

The problem that confronts the American people is the necessity of readjusting food consumption; in other words, of placing the use of foods on the practical basis of actual dietetic needs rather than to leave it on the old basis of desire or habit. The labors of our National Food Administration cover a wide range of detail, but in the last analysis the great purpose is to administer the food resources of the country so that an adequate supply (on the basis of reasonable needs) will be available to our own people and as large an amount as possible will be developed for our Allies. It is recognized that the need of the situation is education of the people, to get them to realize that there is no intention to deprive them of necessary food, but only to show them how greater care and wisdom in selecting food combinations and in their preparation will enable people to subsist not only without impairment of nutrition, but with notable improvement in the digestion and general bodily health. Here is where the medical men who are forced to stay at home may perform a great patriotic duty. Every physician can preach the gospel of rational feeding, and thus give the greatest possible aid to the Food Administration.

In concluding, we would be very remiss if we failed to pay a word of tribute to the National Food Administration. Charged with the most difficult and thankless job in the country, under the leadership of Mr. Hoover, a splendid work has been carried out with marked efficiency. Many complaints and much adverse criticism have been voiced, but these have been expressed by those who had no appreciation of the work being done, or no comprehension of the results achieved. It is impossible to give a fair estimate of the Food Administration's work at this time, but we know that the American people owe much to what has been done. A few months from now the benefits will be much more pronounced and we venture to express the opinion that as the actual work of the Food Administration is better understood it will receive the credit it so richly deserves.

Let every earnest physician do his part by teaching his patients and the people of his community how to eat "wisely but not too well"—to select their foods with regard to bodily needs, and not according to custom and appetites. There will be some who will rebel, but conscious as every intelligent medical man is of the indirect but none the less important part food will play in winning the war, opposition will only spur him the harder to convert our food rebels and "bolsheviki" into good food patriots. Work of this kind, and especially, consistent efforts to uphold the hands of the Food Administration, may contribute more to the common purpose than any one knows. If this Special Food Number helps to drive home a little more forcefully to the physicians of America that the food question is the paramount issue of the hour, and incidentally gives them facts that will enable them to deliver the message of food conservation—intelligent use instead of ignorant abuse—we shall feel that our humble efforts have not been in vain.

Nerves Will Win.—Hindenburg was once reported to say that victory in this war will go to the nation with the strongest nerves. In considering the object of the U-boat offensive on this side, it is well to keep in mind this pronouncement. The meaning of the submarine attack on our Atlantic seaboard has been variously inter-

preted, but Hindenburg himself supplies the only logical answer: it is an attack on our nerves. Like the long-distance guns that are bombarding Paris, the submarines operating in our waters can have no effect on the ultimate issue and are designed merely to increase the nervous strain on the civil population. That this is the German design is manifest from the fact that the main route of heavy overseas traffic has not even been menaced. If the raid was meant to have a definite military purpose, this route would have been selected as the vital object of attack. In attacking small schooners at a point where it is easiest to obtain a high score, which will make an impression on ignorant persons because of the number of sinkings involved, the Germans have betrayed their design. The sinking of a single transport would have been worth more to the German purpose than the result of a whole week's raiding among small craft, but the enemy calculated that the announcement of the sinking of sixteen vessels would sound more alarming to the undiscerning public. That this was their purpose is obvious from reports that the sinkings were hailed in the German press with the largest type that has ever been used in German newspapers. In other words, while attempting to assail our nerves on this side, the enemy intended to bolster the shattered nerves of their own population at the same time. So many sinkings would give them the opportunity to claim that the American coast was effectively blockaded, and the often misguided German populace would once more be hoodwinked by their crafty leaders.

But however well the German militarists may know their own public, they have betrayed the most pitiful degree of ignorance in regard to the quality of American nerves. They have absurdly attacked us at our very strongest point. As a nation we are not affected with nerves. We are too young and too sturdy a race to have degenerated to that point. The energetic life we pursue has hardened us and fortified our nervous systems. The exceptions are hardly worth considering, so small a minority do they constitute. Besides, we are a nation universally devoted to athletics and we have developed a sound sporting sense, with the result that we have only contempt for the unsportsmanlike methods of the enemy. It's too much like quarreling with the eagle and taking it out on the helpless little sparrow. The eagle is ready and waiting; why don't they attack there? The American public knows the answer, and it only smiles contemptuously at a grandstand play which has turned out to be a fizzle.

Health Thrift.—The manifold benefits accruing to a nation placed upon a war basis are not sufficiently appreciated. In the battle for supremacy, manpower possesses an ultimate value second to no other factor. The conservation of human life, therefore, assumes paramount importance. Substituting for the word conservation one which carries with it a more popular significance, we find in thrift a latent motive which stimulates every section of the United States to its utmost as a constructive and reconstructive force. The nation that saves the most is not merely the richest, but relatively the strongest.

The tremendous potentialities of the United States are available for the world, if national thrift wins over the wonted tendencies towards extravagance, indifference, carelessness and wastefulness. There is financial thrift, dietetic thrift, hygienic thrift—all parts in the large program for promoting the health and welfare of the United States. The most difficult part of the entire program is in getting over to the general public the methods by which thrift may be accomplished without any sacrifice of the health or welfare of individuals or institutions. There need be no hazard attached to a health thrift compaign, provided that the industrial aspects of war do not claim an obsessive attention that is without due consideration of the rational relations between health and industry. Recognizing that the character of wars has altered so that strife is now between nations instead of between the armed forces representative of political groups, every individual is in a sense a soldier. As the health of the armed forces is of the utmost consequence to the commanding generals, so the health of the noncombatant soldiers must receive equally thoughtful attention.

Public health education must play a larger part in popularizing health thrift. It is interesting to note that the May *Bulletin* of the California State Board of Health dwells upon Wartime Sanitation, while Vir-

ginia, across the continent, in its February-March *Health Bulletin,* presents a War Manual of Public Health. The basic idea underlying these and the numerous other state and municipal bulletins, leaflets, posters, handbills, exhibitions, lectures, pageants and special campaigns for hygiene and sanitation, is that health thrift is a patriotic duty. The prevention of illness by every possible means is an obligation resting upon states, cities, villages, counties, neighborhoods, school districts, or any other unit of organization.

The shortage of physicians, arising from the splendid response of the profession to the national call for medical assistance, emphasizes the necessity of awakening every individual to the obligation of continuing his health at the highest possible level. The most practical measure for antidoting the unusual lack of physicians is to lessen their need. Reasonable precautions, based upon an understanding of the new obligation to practice health thrift, should cause a marked decrease in national morbidity, and secure for the nation a higher standard of competence, welfare and accomplishment.

Health thrift is individualized service to the nation thru the application of hygienic methods to every day life. Vitality must not be wasted by preventable diseases. Syphilis and gonorrhea, typhoid fever and tuberculosis, scurvy and pellagra, malaria and uncinariasis and the host of greater and lesser plagues are within the possibilities of control by intelligent public opinion crystallized into intelligent deliberate self-protective action. The suffering of a nation from preventable diseases exceeds that dependent upon actual warfare.

For the purpose of educating the general public, particular attention must be given to well considered educational campaigns which will reach the large mass of our native and foreign population in such a way as to be understood by them. Publicity is one thing, but education is another. Probably no wiser expenditure of public funds can be made along lines tending to help win the war than the funds devoted to the education of the public in health thrift. Saving the nation by saving for the nation is the purpose of the food conservation movement and the war saving stamp program; and to these should now be added, the health thrift campaign.

The Leavings of Pigs.—A story told about Moses Mendelssohn, the philosopher, is worth reviving at this time when the cultivation of food wisdom has become an essential of victory. The aged philosopher, who, on more than one occasion, had been the butt of ridicule and persecution on the part of arrogant army officials, was seated at an obscure table in a café, deep in thought, when a troup of boisterous, quarrelsome Prussian officers entered. They sat down at a table close to the philosopher, feasted and drank to their heart's content, and then looked about for the usual post-prandial sport of insult and abuse. The broken figure of the old man, occupied with his own reflections, impressed them as a worthy victim of their uninvited attentions. They began hurling epithets at him, mocking and laughing at him, but the philospher paid no heed to them. Finally one of the officers, struck with an inspiration, gathered the remains of the feast, heaped them on a large plate, and, assuming a most elegant air, strutted to the old man's table and placed the plate before him with a deep bow.

The return of the brilliant officer to his companions was greeted with cheers and merry laughter, but, looking toward the philosopher, they observed that there were tears in his eyes. Delighted with the success of their prank and anxious to pursue it to its limit, one of the officers approached the old man and solicitously asked him why he was weeping. "An old incident of my childhood has just come to my memory," said Mendelssohn sadly. "Indeed! And what may that incident be?" "When I was a little boy," replied the philosopher gravely, "I was very fond of sweets, and I would rush thru my meals hurriedly in order to get to the dessert, leaving much good food untasted and spoiled. Each time my dear mother would rebuke me. 'If you spoil good food in this way,' she would say, 'the time will come when you will have to be satisfied with leavings of pigs.' And Alas!" the philosopher sighed, dropping a tear, "her prophecy has come true!"

It would be well if many of us who are accustomed to table extravagance kept this anecdote in mind. Uncle Sam has warned us, and, if we continue to be wasteful of food, we may some day have to content ourselves with the leavings of pigs.

SOME PHASES OF THE WAR FOOD PROBLEM.

BY

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The Food Administration is purely a war institution. Its first and primary concern is the feeding of our own people and those of the Allies and thereby the maintenance of the strength of all the men, women and children both there and here, and thus the strong arm of our soldiers.

The necessity for the creation of Food Administrations in all the countries at war with Germany arises solely from the situation in overseas shipping. Over one-third of the world's carrying capacity has been diverted directly and indirectly to military purposes, and of the remainder there has been an unceasing loss during the war. There is an abundance of food accessible to the seas but there are not the ships to carry it from every point and to still conduct the war.

The first adjustment of this situation has been to isolate the more remote markets. There are today abundant stores of food in Australia, the East and in South America. Ours and Canada's are the nearest supplies to the Allies and better protection from submarines can be given to ships on the Atlantic lane than on other sea routes.

Roughly, every 5,000 tons of food to the Allies require 15,000 tons of shipping from Australia, 10,000 tons from the Argentine and 5,000 tons from North America. Every steamer we can save from these long journeys means the possibility of an additional shipload of soldiers and munitions to France. If the Allies were compelled to go to these more remote markets for their whole food supply today it would require over 2,500,000 tons more shipping than at present in use for this purpose. If North America could next year provide the whole of Allied necessities we could save 1,500,000 tons of shipping. Every ship we save is a ship built. The weight of our blow against the Germans will be limited not alone by the ships we build, but by the ships that we save. The measure of ships saved by food supplied directly from North America is, until our shipping expands, the measure of ships for our own soldiers.

If the Allies were forced to rely wholly upon the remote markets for their food, we would have no soldiers in France today. Nor will the burden grow less in the near future, for every ship we build will be needed to replace losses and to increase our army at the front. This is conservation of ships as well as of food.

Therefore the whole war food problem is simply and solely a determination of the amount of food that can be spared from North America; the marginal amount

must be drawn from the more remote markets.

From this spring the broad administrative issues:

First: The amount of food we can send without injury to our people, and the method of securing it.

Second: The economic measures we must adopt to protect our people from the disturbance to nutrition and commerce by this drain of supplies.

In the daily toil of all these Food Administrations there have grown up new and practical issues in matters hitherto regarded as pure science. This administrative world today views production and the feeding of human beings and domestic animals in a new light.

Terms strange to the lips of all but scientists three years ago are now our daily vocabulary. One must now reduce food to its physiologic value. In considering the most concentrated and durable forms for overseas and for the maintenance of health and strength of populations, we find ourselves constantly reducing all food material to the three main essences, that is, protein, fat and carbohydrates. These strange terms are daily being more vividly silhouetted against this background of world tragedy. The European food controllers anxiously take their stocks, not on the basis of furnishing the variegated menus for dinners but, in terms of these essences.

Europe today is eating to live, and to live it matters little, for instance, whether fats are drawn from creamery butter, from margarine, from lard or from vegetable oil or cheese. What *does* matter to Food Administrators is how much fats can be secured and can be delivered to the needy points with the least use of ships. To carry this instance further, as showing the far-reaching character of such calculations, I may point out to you that at one time Europe produced most of her own fats. To do this it was necessary to import a large tonnage of forage for their animals. It requires three times the tonnage to transport fodder that it does the fats made from feeding the animals. Therefore, the various Allied administrations have stopped the overseas shipment of feed for food animals, and it becomes our duty to find increased exports of fats and to direct our production to this end.

Any broad consideration of these problems requires a constant reassessment not only of our own food resources, but of the food resources of the Allies and of other markets from which food may be brought to the Allied world.

North America is the greatest factor in the Allied food pool and in the final analysis it might become necessary for the Allies to live practically on North American supplies. It is, therefore, of importance to review our possibilities in this direction.

Our ability to supply the Allied world with food lies in four directions:

First, the United States usually produces a small surplus of food for export over and above our normal consumption. This surplus we can export without economic disturbance.

Second, we have for years exported to other countries than the Allies. By partial or complete embargo of these shipments we can slightly increase the supplies available to the Allies.

Third, we can expand the area planted and if our harvests are normal we can thereby enlarge the surplus for export thru increased production.

Fourth, our normal consumption and waste of food are anywhere from fifteen

to twenty per cent. more than is necessary to maintain our own public health and strength, and we can in an emergency restrict the national consumption to our need, and thereby increase our exports.

We have thus, so far as the Allies are concerned, four marginal resources. Our small normal surplus, the embargo, an abnormal surplus to be created by stimulated production, and a further surplus to be created by a reduction in our consumption. Our resiliency of resources in these four directions, principally the latter, is such that we can, if we have the will to do so, maintain the strength of the Allies and our own people, and all talk of famine is mere hysteria. Our world food situation is not to be interpreted as famine; at worst it is to be interpreted in terms of soldiers to France, or, alternatively, it can be interpreted in terms of larger shipbuilding programs.

As to what our marginal possibilities of exports to the Allies may amount to, we can gain some idea if we review the situation since our last harvest—a period coincident with the period of the Food Administration.

Because of the enormous demand upon us during the previous year, we entered the last harvest with our national stocks of cereals practically exhausted. We carried over less foodstuff to the new harvest than at any time during many years. Our herds of hogs, which are our most ready and prolific fat supply, were apparently below normal as the result of previous years' heavy exports to the Allies—and we were faced with increased demands.

Due to the fine activities of our Department of Agriculture and to the patriotic action of our farmers, a largely increased area in foodstuffs was planted for the 1917 crop, but because of weather conditions the harvest was greatly damaged. Our wheat yield, in proportion to the area planted, was the lowest in many years, and in actual quantity we had no practical export surplus over our normal consumption of this grain. A large portion of our enormous acreage of corn failed to reach maturity, and thus its food value fell far below normal.

If we reduce our annual production to its actual nutritive value we find that our production of 1917 is about seven per cent. below the average of the three previous years, and in the same terms we exported an average of about 10 per cent. of our production. Yet we expect that our exports to the Allies, measured in nutritive values, will this year again reach approximately the average of the three previous years. In other words, we have had to reduce our consumption by about seven per cent. this year in order to do our duty by the Allies.

With the increased prosperity in wide sections of the community engaged in agricultural and industrial pursuits the standards of living in these sections of the country have been raised and the food consumption of the American people materially increased. How acute this is may be indicated to you by the fact that our consumption of beef products apparently increased by 10 per cent. during 1917. We, therefore, had to stem the tide of increasing consumption.

The necessity of this reduction in consumption falls unequally on various commodities, depending upon the durability of these commodities, their convenience in shipping, the food habits of the people we feed, etc. Nor are we able to anticipate in advance exactly what may be required from us in these disturbed times. As il-

lustrating both points—we originally calculated that we must ship 100,000,000 bushels of wheat this year. Owing to the deficiencies in the importations to the Allies from more remote markets, we have had to raise this total to 160,000,000 bushels and to do this out of a home surplus of only 20,000,000 bushels over our normal consumption. Therefore, to feed the Allies we must take from our normal consumption of wheat—not 16 per cent. as we originally estimated, but as has since turned out, we must take 30 per cent. Thus we have been compelled to increase the intensity of our conservation during the last half of the year. Wheat products are vital as a basis of war bread to Europe because of their durability in transport and on account of the milling and baking equipment of the European people.

Another instance of the disturbances in original plans arose from the two and one-half months of stormy weather which paralyzed our railways. Our hogs were blockaded on our farms and the situation not only rendered difficult the supply of meats in this period, but the flood of animals released with improved transport overcharged our storage and shipping capacity. We, therefore, were compelled to relax our conservation efforts for a short period until the flood passed. You can thus readily see that there can be little fixity of policy in an administration that is dependent on the exigencies of war and shipping. We must alter our tactics from day to day to meet the changing world situation.

The reduction of consumption during this year has been vital. To secure it we had three alternatives of action:

First: Rationing.

Second: By bidding up prices in the purchase of Allies' supplies until the consumption falls.

Third: By obtaining a voluntary reduction of the individual consumption, simpler living, economy in waste, and substitution of commodities we have in greater abundance for those we need export.

Any system of positive rationing of the United States bristles with difficulties. Fifty per cent. of the population are either producers or live in intimate contact with the producer and therefore cannot be restrained in their consumption by any rationing. The consumption of the very poor is not beyond the necessities of their health and strength. Our industrial population varies greatly in its habit of consumption of any given commodity in different parts of the country. Furthermore, this class of the community varies greatly in its habit in different sections of the United States as to the commodities they consume. For instance, the southern worker consumes perhaps not more than two pounds of wheat products per week *per capita,* whereas some northern workers consume eight pounds. Rationing of wheat on any broad national line would increase the consumption beyond necessity in the South and decrease it in the North below necessity. Furthermore, to adopt rationing as a positive system would cost the government $10,000,000 or $15,000,000 annually for bureaucratic expense, as we should have to place tickets and coupons with every householder and behind these tickets would have to be erected a vast administrative organization.

It has been believed by many that the best adjustment in consumption would be obtained by increasing price levels in that commodity in which it is desired to reduce consumption by simply bidding up the price for Allied supplies. I feel strongly, however, that reduction of consumption to the extent that we require by an increasing

price is simply and purely to place certain commodities out of the reach of those classes of the community who have not the purchasing power, and that this whole conception is simply conservation for the rich and against the poor. The adoption of this principle of raising prices would simply mean that the poorer sections of our community would have paid in suffering and the better-to-do classes would have paid in price many times over the cost of any other system of reduction.

Furthermore, if we are to increase the price of our foodstuffs merely to decrease their consumption, we must enter a vicious circle of constant readjustment of wages, for our working people must live.

Beyond this, again, we could no doubt reduce the consumption, for instance, of sugar by 20 per cent., if we doubled the price, but to double the price of sugar alone means an annual drain on our population of $600,000,000 and this $600,000,000 would go into the hands of a vast number of middlemen and would give rise at once to profiteering, discontent and would lay the foundations for social revolution.

In considering the whole problem, we determined upon a line not hitherto applied and the success of which we believe will be one of the remembered glories of the American people in this titantic struggle. That is, that we should place the reduction of consumption on a voluntary basis. We felt that we could secure voluntary reduction by savings which would be made—not from the necessities of the poorer classes of the community, but in the saving out of plenty by the better-to-do classes.

Voluntary conservation has as well a moral side, to my mind, of some importance. By it we are appealing directly for the self-sacrifice of the people of the United States to the carrying on of the war. I do not believe that there is another nation in the world in which the proportion of individuals of a willing sense of self-sacrifice is so high as in this people of ours, and in which a sufficient voluntary reduction could be obtained. Our program therefore has been a hazard upon the number of people of this kind in the United States. This basis of reduction gave some trepidation to the Allies, for fear of its failure, but I am happy to say that we shall have performed our national duty, the Allies will have been fed during this harvest year, so far as the obligation falls upon us, almost wholly upon a voluntary footing. Far beyond this, it is justifying us in our belief in the high idealism and willingness to sacrifice in the American people.

Fats in the Dietary.—Barney in the *Journal of Laboratory and Clinical Medicine* (May, 1918) states that one of the most striking features of modern research on growth is the increasing emphasis which is being placed upon the importance of fats in the dietary, not merely from the standpoint of their calorific value, but also as constituting or being associated with substances essential to growth.

That cholesterol is of much importance in the body's economy is shown by the fact that cholesterol is a constant constituent of all the cells and, when these cells are broken down in life processes, the cholesterol is not excreted but is utilized again in the formation of new cells. According to Kusumoto, one function of the liver is to break down dead cells, the cholesterol of which passes with the bile into the intestine. The cholesterol is reabsorbed and carried with the chyle via the thoracic duct to the blood and so to the various tissues for recombination into the constitution of new cells; thus cholesterol is seemingly accumulated by lack of elimination. With age, the cholesterol content of the body increases. This fact is strongly suggestive when considered with the increased tendency to carcinoma as age advances.

THE FETICH OF WHITE FLOUR.

BY

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One of the most important problems in connection with the war is the world need of food. The United States is called upon to feed as many people overseas as she feeds at home. Fortunately we have plenty of food for both tasks. To succeed properly we have had to readjust our scheme of home diet. This has been particularly marked in connection with our wheat supply. It has seemed desirable to send a large amount of our wheat overseas. The crop of 1917 was short. It became necessary to limit in some way the amount of wheat eaten at home. The plan pursued by the Food Administration was based upon the substitution of other cereals for white wheat flour. In France and England wheat conservation was more efficiently enforced by forbidding the manufacture of white flour and incorporating a larger percentage of the wheat berry in the flour produced. Both England and France required a milling process which included first 80 and afterwards 85 per cent. of the wheat berry in the finished product. On the 18th of last January, the English Food Administrator, Lord Rhondda, issued an edict raising the percentage of the wheat berry to 90. It is at once evident that a flour containing 90 per cent. of the wheat berry cannot possibly be white nor produce a white loaf. White wheat bread has therefore disappeared in England. Long before the war broke out I was an advocate of whole wheat flour. Since the war I have pointed out the dangers in the rations of our Army and Navy in many public addresses and in an article published in *Good Housekeeping* on "War Time Diet" in June, 1917, and in another article on the "Army and Navy Rations" in November, 1917. I have also pointed out the proper substitutes for wheat in the January number for 1918. The results of very extensive experiments on the relative wholesomeness of whole wheat and white wheat flours have appeared in numerous scientific publications. In order not to make this article of excessive length, I will refer here to only one of them, namely, Reprint No. 333, *Public Health Service,* edition of 1916. In the latter publication, the distinctly injurious effects of a white flour diet are pointedly illustrated. Overwhelming consensus of scientific opinion based on accurate scientific demonstration shows that a diet consisting largely of white flour products tends to produce beri-beri, pellagra and polyneuritis. (Reprints No. 228, No. 311, No. 325, *U. S. Public Health Service:* Etiology, Prophylaxis and Treatment of Pellagra, M. S. Richardson, M. D., Page 1;

Food and Efficiency, H. W. Wiley, M. D., *Second Pan-American Scientific Congress Proceedings.*)

It is evident that the best way of conserving our wheat supply is to forbid the manufacture of white flour. The most effective method of doing this is to require the manufacture of whole wheat flour only. Inasmuch as to pass at once from white wheat flour to whole wheat flour would be somewhat of a shock to the American people, it is advisable to begin by adopting the English standard of 90 per cent. We should not be deterred from this wise and necessary step by reason of the hostility of the millers and the Food Administration thereto. Everything should be done in war to strengthen the cause. No single step would do so much toward conserving our wheat supply as the one just outlined. The present regulations of the Food Administration provide that at most 264 pounds of wheat should furnish a barrel of flour. To this the millers are allowed to add enough water to make four pounds additional weight. In point of fact, there are only 192 pounds of flour that come from the wheat. Seventy-two pounds of the wheat containing the most nourishing, wholesome and necessary constituents are eliminated. This shows a loss of 27 per cent. of the wheat. Assuming that 500,000,000 bushels of wheat were available for bread purposes in our country for the present crop this shows a loss of 135,000,000 bushels. No one acquainted with the facts will question the statement that 90 per cent. flour and 100 per cent. flour furnish a far more wholesome diet than white flour. The conclusion, therefore, is an evident one; to promote economy, efficiency and health, the milling of white flour should be forbidden.

FOOD ECONOMICS.

BY

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With our experience up to the present time in Hooverizing, it is now perfectly clear that in eating, man is a creature of habit and that it is possible for him to develop habits in eating which would be more to his advantage, not only physically but also economically. Perhaps one of the saddest tendencies of modern times is the effort on the part of the peoples of the world to eliminate the kitchen. The preservation of a kitchen in a home means an interest on the part of the occupants of that home in matters of food. At the present time, to a large extent, in our urban population, interest is centered in going about from place to place to get meals which are suitable to the taste and at an inexpensive price. Other people, again, live in hotels not caring what the cost of food is, but caring more for freedom from the worries pertaining to the maintenance of a home. Large bakeries now bake our bread and deliver it at the door; delicatessen stores have multiplied innumerably so that in our city one does not have to walk more than a block or two to find most any of the ordinary foods, purchasable at a moderate price and ready prepared. Upon the shelves of the department stores, instead of the large boxes with glass covers in which quantities of raw foods were kept in former days, now we see glittering and attractive labels of can after can of most every sort of food ready to be taken home. Everybody is interested in minimizing the

time and trouble factors of food so that more time can be devoted to the making of money or attending to social duties. Manufacturing houses aware of these tendencies have encouraged this degenerative trend on the part of the urban population by supplying foods in small-sized packages ready prepared. This began a number of years ago with the ready-made breakfast foods—those of the "ten-minute" variety, and which have finally culminated in foods which now need no cooking at all but can be eaten simply with cream and sugar. Then the war came on; the prices of foods rose, and the Hoover campaign made it important for people not to eat certain foods which they had been indulging in before, and suggested the eating of others—not so much the latter as the first. An interest then became broadcast as to what foods might be used as substitutes for those which had been employed, and it is now known to many that a number of foods which had heretofore been neglected are not only most useful articles of food, but are better than those which had been employed. My opinion on this food question is that there is a better status of health today with the more modest eating—namely, the three-course dinners and the rougher varieties of food which require cooking, than was present before the country went into the conflict. Economy in the kind of food and the amounts used have helped in this, because America to a great extent was an over-eating population, and was gradually becoming Teutonic in that sense.

It is not my purpose in this article to draw attention to the efforts on the part of the Food Administration under Mr. Hoover, or to discuss the necessity of conserving certain foods which are nonperishable enough to send to our Allies. It is also out of order to enter into a discussion of the prices of foods and the quantity of their consumption in America. These have been discussed by me before,[1] but my object is rather to emphasize some facts pertaining to foods which heretofore have not been used as extensively as they were entitled to be, and to mention their nutritive value. The United States of America is a large corn raising country and while considerable corn is eaten, nowhere near the quantity is partaken of nor does corn take the position that it is entitled to hold in the dietary of the nation. As a rule we are not averse to eating corn, even in the place of wheat, as is the case with the Frenchman or even the Englishman. For corn, which is possible of being cooked in many ways, deserves a prominent place in the dietary of each person. Another important item of food is potatoes. Potatoes have been used for a long time until finally they became a very incidental part of the meal, just as a dressing or garnish around meat or fish. We had broken away from the days of boiled or mashed potatoes, and only seemed to want potatoes in fancy shapes such as hashed brown, lyonnaise, French fried, etc. Now the American public has largely reverted to the days of its childhood when boiled potatoes, or potatoes in simple cooked forms comprised one of the main staples of dietary. Other vegetables have been greatly neglected. Unfortunately in the winter time the number of vegetables are few, but it is nevertheless true that such vegetables as turnips, beets, cauliflower, spinach, cabbage, squash, celery, etc., are not eaten as much as they should be. If the Americans had not become such extensive meat-eaters there would

[1] Bassler: "Food Conservation." *N. Y. Med. Jour.*, Dec. 15, 1917.

not be so much intestinal toxemia and constipation. If they had kept to the old custom of eating largely of vegetables and fruits there would be less enterocolonic conditions in our city homes than has been the rule. One is well aware of the fact that the number of people who are fond of fish are relatively few. This seems difficult to understand when one considers that fish is almost as nutritious as meat and very much more digestible. As a rule it is easily cooked, and while its taste is comparatively simple—all fish tasting more or less alike—there nevertheless is enough difference in the taste to give one a variation. With the exception of chicken, poultry has been much neglected in America. Few were the people who would eat duck in preference to chicken, even considering that duck was not any more expensive. So far as turkey is concerned, it is eaten only a few times a year. When it comes to rabbits, one meets with many people who have never tasted them. Yet these, which are most nutritious articles of diet, should have occupied a prominent place in the dietary of man. It will be observed that the foods which I have mentioned are perishable and therefore not suitable for exportation to the Allies.

There is no doubt about it that we have been eating too largely of cane sugar. Especially is this interesting when you consider the fact that cane sugar is constipating as a rule. Many other sugars, such as glucose, lactose and various other types, while not quite as sweet as cane sugar, are nevertheless quite as nutritious and beneficial inasmuch as they are more easily digested, and are even somewhat laxative.

The laws in America on the subject of fats have been built up by the manufacturers of butter, the large dairy industries putting various restrictions on all butter substitutes until the people were led astray on the subject of oleomargarine and other substitutes for butter. While butter contains a vitamine which is not found in the other fats, as simple hydrocarbons and articles of diet, the other fats are quite as nutritious as butter itself. Taking the caloric value of the various fats into consideration it can readily be seen that oleomargarine, nut butter, cottonseed oil and various other fats which are possible of being made into suitable butter substitutes, are quite as nutritious as butter and very much less expensive. It really is important that the various states under the Federal Government take the restrictions off of butter substitutes so as to allow people to use these necessary ingredients of diet and get them at a reasonable price. When one also takes into consideration the fact that it requires many quarts of milk to make a pound of butter, and that each pound of butter raises the price of milk, a demand on the part of the people should be made to take the restriction from butter substitutes and allow them to employ fats in this way, at a very much less cost than is the price of butter today—in fact has been for several years. More graham and rye bread should be eaten. Beans of all varieties which have become conspicuous of late, are very nutritious, having almost the same food value as meat.

Careful conservation should be engaged in the kitchen so as to see that no articles of food in the raw state are destroyed. Butter should not be used for cooking purposes. Butter substitutes or even chicken fat is much preferable. When the American public knows more about the economics of food and goes back to the former-day methods of living which were more healthful

than those we have had, and watches the garbage pail to see, as in former days, that at least one-third of the food of the home is not thrown away, then there will be hope that we are beginning to understand the need for economy in food. Working with the Food Administration in the matter of conservation, we will not only help our Allies in the present conflict, but we will help ourselves in important ways for our own health, happiness and good. By continuing this propaganda after the war the American people will be doing the thing most certain to reduce the price of food, and place this whole question on a sound economic basis. The average individual cannot be happy by spending half his money for rent and the other half for food. These two items of expense should be minimized, and they can only be minimized by each individual of the nation recognizing that he has a duty to perform in an economic direction. Remember that the cost of war is paid for out of the stockings of the common people—that was the way Germany's large indemnity was paid for by France after the war of 1870.

DEHYDRATION AS A MEANS OF ECONOMIC FOOD PRESERVATION.

BY

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The economy of foodstuffs is an important consideration in times of peace and especially so when practically all the world is at war and when this country is expected to serve as the provider for all the European allied nations.

Up to the present time, there has been no country in the world the inhabitants of which have been so lavish and wasteful as those of the United States, and the remark applies with as much force to food as to other commodities. The economy of food is unknown here, and furthermore it will be very difficult to teach the population how to best economize. The high cost of even the necessaries of life is beginning to drive home the need of sparing as much as possible the food supply by such means as eating less meat and by relying more on the cheaper food products, many of which are quite as nutritious and sustaining as the more expensive kinds. In the first place, a campaign should be undertaken from one end of the country to the other to educate the community as to which are the most nutritious of the cheaper articles of diet. In the second place, it might be both in the interests of economy and public health to impart information as to the best modes of cooking such food—for the art of cooking in the homes does not, generally speaking, greatly flourish in America. The proper cooking of food plays an important part in assuring succulence, nutritiveness and palatability.

Graham Lusk has said that the cure for bad food is to have our daughters taught how to cook a decent meal. However, while the choice of food and its careful preparation are essential phases of a successful campaign for economy, there are, of course, other phases of the question which bulk as prominently. In all countries and perhaps in this country in particular, an enormous amount of food material is wasted long before it ever reaches the consumer. A great deal of it is grown in districts in which the means of transport are either inadequate or too expensive to be made use of. An immense quantity of vegetables and fruit are every year permitted to rot because of lack of transport and for other rea-

sons, into which it will be unnecessary to enter here. It will suffice to say that it is rumored that much food is held back by speculators in order to keep up prices. In such times as these no speculation in food should be allowed on any plea whatever.

Food of the vegetable kingdom is wasted on a large scale, simply on account of the fact that facilities for effectively preserving such food is lacking or wholly inadequate. In many parts of the country where means of transport are not available or sufficient for the purpose food might, at least, be preserved and it is to describe an effective and fairly inexpensive way of accomplishing this end that this paper has been written.

The method to which reference is made is that of drying or dehydration. Drying of food is almost as ancient a mode of preservation as the immemorial hills. Our prehistoric ancestors of the early hunting period, when they were fortunate enough to procure animal food, were also careful enough to preserve some of the meat or fish thus obtained, by drying it in the sun and then storing for the proverbial rainy day. At the present time, in the exceptionally dry climates of South America or South Africa, and on our own western plains meat is cut into thin strips and hung exposed to the direct action of the sun's rays. The heat of the sun soon extracts the moisture and the hard dry pieces of meat will be preserved as long as they are kept dry. In the West this meat is termed "jerked beef" and in South Africa goes by the name of "biltong." Pemmican, the food so largely used by explorers, especially by Arctic explorers, is a mixture of dried lean meat with fat and fruits.

However, drying is not so well adapted to meats as to vegetables and fruits, as meats when dried lose, to a considerable extent, their natural flavor. It may be mentioned in passing that meat has been dried with some success *in vacuo,* and when it has thus been treated may lose most of its water and still retain its natural properties. Moreover, it is further stated that its culinary qualities are not prejudicially affected nor its nutritive value impaired because no essential alteration of the tissue or of the juices have occurred. The drying of fruits is also of extremely ancient origin. In very early days, and even by people at the present time, fruits were and are preserved by extracting a large proportion of the water content, by exposing them to the action of the sun. Dried apples and berries were food factors of much importance in the bills of fare of the earlier colonial settlers, who in turn probably borrowed the custom from the Indians. The methods then in vogue were crude and, therefore, the dried product was of poor quality and not uniform. The sun-drying of fruits, and of certain berries, when done carefully and under favorable conditions is followed by successful results. Raisins and figs, indeed, are dried better in the sun than by any artificial methods.

The desiccation or drying of milk is a very excellent method of preserving this most valuable article of diet and in existing circumstances may be recommended to the attention of our food authorities. There is no space to enter into description of the various methods employed and it only remains to be said that desiccation of milk has been practiced on a large scale in Great Britain with success, and is preferred in this form by the soldiers to condensed milk. Eggs also can be dried with some success, and Pennington (*U. S. Dept. of Agriculture, Bureau of Chemistry, Circular 98*)

and Stiles and Bates (*U. S. Dept. of Agriculture, Bureau of Chemistry, Circular 104*) as a result of investigations made by them conclude that the drying of eggs is an economically desirable procedure provided that the eggs are fresh and wholesome and that they are handled with care.

As it is intended in this paper to give a necessarily somewhat brief account of the advantages of the most recent methods of dehydration of vegetables and fruits as a mode of preserving the same and consequently of economizing food material, it will be best at once to plunge in *medias res*.

It is claimed by the advocates of dehydration of vegetables and fruits that it is the most satisfactory and certain means of preserving these for an indefinite length of time, while at the same time it does not injure such food products. The cellular membranes of vegetable matter are in no respect injured by the process of evaporation when properly carried out; and, furthermore, and this is a very essential point, the vitamine element, now acknowledged to be necessary to the conservation of good health, is not impaired in vegetables which have undergone dehydration by the latest American methods. In addition, the flavor and palatability of vegetables thus treated are not detracted from. In fact, it is definitely stated by those in a position to speak with authority, that vegetables and fruits, vegetables, in particular, evaporated in this way retain to a truly remarkable degree their usual normal flavor and fresh taste. Their cellular tissue being uninjured, they resume their normal appearance shortly after they have been soaked in water.

It is with the dehydration of vegetables that this paper will mainly deal as it is vegetables that best lend themselves to the process and which, as said before, are but little injured by modern methods of dehydration.

Emphasis may be laid again on the fact that according to the most recent views of authorities on food preservation, the vitamine element is of supreme importance. The preservation of foodstuffs by such a degree of heat that these accessory bodies are destroyed or injured is not to be commended. It is not definitely known at what temperature vitamines are destroyed but it is generally held that the boiling point destroys vitamines if long continued. Some of them are believed to be easily impaired by heat, or in the language of the chemist they may be thermolabile.

Mendel in his work on the food supply says that "probably no single preservation device excels that of desiccating the material. In the absence of moisture, decay is arrested. Where the water content of a natural food is not unduly large it can often be dried readily with success. In the case of products comparatively rich in water, particularly liquid or semi-liquid foods, successful methods of desiccation have awaited the perfection which is beginning to manifest itself at the present day. Aside from the element of cost the use of heat to expel moisture has the objection that it alters the product in some cases so that it is no longer dietetically acceptable. Heat may also remove desirable volatile ingredients. Flavors which play a very important role in rendering a food acceptable to a customer are not always thermostabile. Modern industry is likely to overcome many of the difficulties by the device of desiccation at lower temperature either in a vacuum or current of air."

This is more or less exactly what has been accomplished. The most recent methods of dehydration act in this fashion.

The latest American process of dehydration does not depend upon intense heat for its results. In fact, the heat employed is only moderate, while the period during which the food material is subjected to the heating process is so brief that it is confidently believed that the vitamine contents receive no impairment of their properties. The outstanding features of the system are the comparatively low temperature used—in consequence of which the least possible amount of harm is done to the structure of the vegetable and the health-giving properties of the vitamines are retained—and the thoro circulation of the air currents whereby the vegetables are dehydrated in the most effective way. The dehydration is brought about perhaps more by the action of the air currents than by the heat.

The potato, which, on the whole, is one of the most valuable vegetables, can be dehydrated in such a manner that while its nutritive properties and palatability are diminished to a great extent, its keeping qualities are immensely enhanced. The potato, like all the vegetables which contain large proportions of water, is especially liable to decay. The process of decay is chiefly caused by the action of bacteria which can only be generated and flourish where warmth and moisture exist. Consequently, if moisture is abolished, the growth of bacteria is inhibited and potatoes will keep for an indefinite length of time.

It must not be forgotten that potato meal is a valuable article of food and an extremely useful addition to wheat flour, when wheat is scarce. The addition of potato flour for use in bread making is an economical war measure of the highest value. The Bureau of Chemistry of the U. S. Dept. of Agriculture found from experimental investigation that the most economical loaves of bread were made with 30 per cent. potato meal or less.

It is claimed by the modern advocates of dehydration that if its principles were applied to the beet produce of this country that the output of beet sugar would be vastly augmented and the saving would be phenomenal.

In feeding or assisting to feed our Allies the question of transport is the greatest obstacle in the way of effecting this object. Properly balanced rations are essential to the physical well-being of the soldiers at the front. A certain amount of vegetables is needed, but it is impossible for many obvious reasons to ship fresh vegetables in cold storage. For a long time the demand was met by canned vegetables and is still to a large extent thus met. The French, some time ago, recognized the potentialities of dehydrated vegetables, and, at the present time, import considerable quantities of dehydrated vegetables from Canada and this country. The vegetables imported are celery, cabbage, carrots, onions, potatoes and turnips.

Of all the vegetables which, from their inherent nutritive properties, are suitable as food for man, none is superior to the dried legumes. They are the richest in protein and in energy giving constituents. However, the beans and other legumes possess certain drawbacks. By cooking, legumes become more concentrated. Moreover, dried beans are liable to cause indigestion. They are slowly digested on account of the thickness and toughness of their outer covering, and their sulphur content may also predispose to indigestion. But, taken all in all, dried beans and lentils are wholesome and nutritious foods and peculiarly well adapted for soldiers whose open air life renders their digestive organs capable

of easily coping with the integuments of the beans. Indeed, these afford healthy exercise for their gastric juices. Beans are lacking in fat, but the addition of salt pork to baked beans and bacon to cowpeas places them on a level from the standpoint of protein content with uncooked meat of average composition.

The high nutritive value of dried beans, cowpeas, soya beans and other legumes and especially their food value from the protein content point of view renders this class of food very useful as substitutes for meat.

Stress should be laid on the point that dried legumes require very thoro cooking. This prolonged subjection to heat is necessary because the nutrients are enclosed within the walls of the plant cells, making them inaccessible to the digestive juices until the walls have been broken down by cooking and mastication. As said before dried beans and peas are not to be recommended as part of the dietary of people of sedentary occupation, but are excellently suited from the nutritive and economical aspect to men engaged in active out-of-door work or exercise.

Corn can be successfully dehydrated. There is a large number of public drying plants in Italy constructed for the purpose of desiccating corn, so as to save it from spoiling and becoming a possible means of spreading pellagra. It seems that practically all vegetables and fruits can be successfully dehydrated by the modern process of employing treated air at a comparatively low temperature, for short periods of time, in conjunction with thoro air currents. Meat and fish can be dried but not so successfully as vegetables and fruit. Milk, however, lends itself well to desiccating methods and it may be predicted that as an effective mode for preserving milk the process has a great future. As Mendel has said, "If the best dried milk of the future shall be shown to retain even the more subtle physiologic properties, such as its antiscorbutic potency, it will represent good achievement." The dehydration of vegetables bids fair to largely revolutionize the food situation. The main difficulty now is the transport of vegetables. This statement applies as forcibly to railroad as to ship transport. Vegetable food is wasted and held up in this country, because of the congestion of the railroads. The farmer's produce, properly dehydrated at a neighboring plant, on account of its small bulk and keeping properties can be carried by land and sea at small cost.

The war in Europe has already driven home the fact that not only does the modern individual eat more than is good for his or her health, but that health can be better maintained on a diet consisting of scientifically selected vegetable food. Vegetable food is, then, economically and from the nutritive outlook well adapted to maintain the bodily powers at a high standard, and Americans must learn to overcome many of their ingrained prejudices, and like the people of Europe make some sacrifices in the direction of economizing the food supply. There appears to be little doubt that dehydration as described above will solve to a considerable extent the food problem and a close consideration of the matter may be recommended to Mr. Hoover and the other members of the Food Administration.

Sluggish or Indolent Wounds.—If the granulations of an infected wound become sluggish, the instillation of balsam of Peru will often stimulate them to renewed activity.—*Interstate Med. Journal.*

DIETETICS IN THE HOSPITAL AND ITS RELATION TO OTHER DEPARTMENTS.

BY

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Standardization of hospitals is being widely discussed at this time, and all progressive institutions are putting forth every effort toward greater efficiency. In no part of the hospital has there been greater demonstration of this than in the dietetic department. For many years this department of the hospital has been sadly neglected—not only in planning the construction of the building but in the plans for administration as well. The kitchens and storerooms were located in any unused rooms, or in space needed for nothing else; a cook or steward placed in charge and the matter dropped from the minds of those in authority.

In recent years, however, medical men and hospital administrators have been gradually awakening to a realization of the importance of proper diet for both the sick and well. As a result the dietitian has become a recognized person in the hospital world; not, however, without having run the gauntlet of criticism and having overcome the usual number of obstacles that must always be overcome in an effort to introduce that which is new or out of the ordinary.

At first she was given the supervision of the food for the sick, particularly the patients occupying the private rooms of the hospital and a few special foods. A small diet kitchen was her domain and she was set apart from the rest of the hospital. She was not one of the professional people, nor one of the administrative force, neither was she one of the kitchen employees. One who is not familiar with hospitals is not apt to know her duties, and it is a little difficult for her to tell as yet whether hers is a profession, a business, or just an occupation. Nevertheless, today the food problem is one that concerns everyone whether he provides for an institution, a family, or an individual, and the attempt to solve the problem is making everyone realize how valuable is a knowledge of food composition and the allied subjects which treat of that which helps or hinders in the utilization of food by the body.

Comparatively few people have had any knowledge of these things until the past few years, even physicians have been generally indifferent about dietetics. The medical man has not the time to make as thoro a study of foods as the trained dietitian of today has made—or should have made; on the other hand the dietitian has not the time to study the subjects with which the medical man is familiar; nor should it be necessary for either of them to do so. By working together each can get much valuable information from the other, incidentally, as the work progresses. In the meantime the patient gets the benefit of their combined knowledge, and the hospital profits by it in many ways. When the doctor learns the nutritive value of foods more commonly used, the effect that cooking has upon their nutritive value and the different results obtained from different methods of cooking, and when the dietitian learns the symptoms together with some of the points to be observed in diagnosis of the diseases she is called upon to treat, then both will be able to work more efficiently. Naturally much better results may be thus obtained and a real knowledge of dietetics achieved.

Neither the doctor nor the dietitian can alone treat metabolic diseases as they should be treated. The dietitian should know the result of laboratory tests, history, environment of patient, in fact, everything that has a bearing on his appetite or habits of eating. She will then be able to plan his menus intelligently and in such a way that the best results are obtained. Individual treatment for each patient is the logical treatment and should be given to as great an extent as circumstances will permit. Each hospital has its own system and many conditions which go to make up its own particular problem. There is usually a solution to most of these problems if one has the perseverance to find it.

This cooperation should not be confined to the work with patients having metabolic diseases; the recovery of any patient depends more or less upon the amount and character of his nourishment. It is no unusual thing for a patient to need a mental as well as a physical tonic. There is occasionally a patient who has a prejudice against hospital food which would be overcome in an instant if he or she were informed that a well trained woman was supervising its preparation; again a little personal attention which means only a few minutes time or perhaps a few cents on the bill for food may be of inestimable value in pleasing the patient and thereby adding to the good name of the physician as well as the hospital. Much unpleasantness if nothing more serious may often be avoided if the doctor will tell the dietitian some of these personal idiosyncrasies of his patients, or, if it be better to do so, ask the dietitian to talk to his patient.

He should use the authority that is his because of his relation to the patient to persuade the patient to eat what is prescribed for him. No physician allows his patient a choice of operations because he prefers some particular kind, nor is he given his choice of medicine because he never was fond of the one prescribed; why, then, should he be permitted to eat only such foods as his fancy dictates, regardless of their adaptation to his needs? If the food is wholesome, well cooked, appetizing and plentiful, the physician should explain to his patient that the food being served by the hospital is better for him than some of the highly seasoned or highly decorated (especially if decorated with coloring matter which is not wholesome) food which may be brought by sympathizing friends from some caterer. This close relationship and state of perfect understanding between the physician and dietitian probably will not be brought about in one day. If at the end of a year's efforts a fairly substantial foundation is laid one need not be discouraged, for there are bound to be many discouragements.

Not only is the diet an important factor in the treatment of the sick, but as a means for the prevention of disease it is important. It is essential that doctors, nurses, and the other employees of a hospital be properly fed; everyone is at his best physically and mentally only when his body is in good condition and all the organs functioning normally. Persons employed in a hospital work hard, much of the time under great nervous pressure, and all too frequently with too little diversion or exercise outside of the hospital. The satisfaction or dissatisfaction of everyone in the hospital—patients, nurses, doctors and employees—depends in a large measure upon their food. It is not enough that there be an abundance of food, it should be selected with care. Tho the balanced ration is treated more or less as a

joke, the fact remains that the daily menu must contain the necessary proportions of the different food materials to keep one in good physical condition. Again, good food materials of the right kind may be provided, but if not properly cooked the body may not utilize them and much of their value be lost. The rather widespread prejudice against hospital food would not be so prevalent were there no foundation for it. One of the duties of the dietitian is to eradicate this, but at the same time there must be a great deal done in the way of educating the patrons of a hospital in the matter of food.

We are still facing the question—Shall we give our people what we know is best for them, or shall we give them what they desire? Our present food situation is going to do much in deciding this question just now; we have had to face it before, however, and we may have to again. Where, if not in a hospital, may an individual get correct information with regard to what he should eat? In how many hospitals can he get this information? What percentage of our doctors and nurses can give it? When a patient asks for something which we know he should not have, or which cannot well be served on our regular menu, will he be given an adequate explanation as to why his request cannot be granted and which he will accept without further ado; or will he simply be told he cannot have this particular thing in such a way that he will immediately become rebellious? This entails close cooperation of the medical man, the nurse and the dietitian, a plan which should be followed in every hospital.

That the dietitian may be able to accomplish this, she must have a well organized department which includes the supervision of the main kitchen as well as the preparation of special foods in the diet kitchen. It is also necessary that she have complete authority over the food and diets thruout the house in order to avoid confusion, and having the entire department under one management enables the dietitian to utilize materials from both kitchens in the most effective way. Small amounts which would ordinarily be wasted in the main kitchen may be used to advantage in special diets and for extra servings in the diet kitchen. A very great saving of the most used food materials—milk, cream, eggs and butter—is affected by this system. An efficient woman will save the amount of her salary (and a generous salary at that) on these provisions alone, in the majority of hospitals where there has previously been no head of the commissary department. You may say "Our dietitian is not competent to do all this." If she is not why is she not? If she is capable of doing part of it why not train her to do the other part?

From the administrative point of view this may seem like time lost, they lay emphasis upon the necessity for better trained dietitians. They say it is impossible to get women with training and executive ability which fit them for the responsibilities of such a work. It is true, too, that many dietitians lack the fundamental knowledge of the sciences, especially chemistry and physiology. They cannot keep pace with the investigation of bio-chemistry and the relation of foods to energy production, to metabolism, and to diseased conditions. To be sure the science of dietetics is in what Dr. Upham calls an "actively evolutionary stage" and what is accepted as important data today may be rejected as faulty tomorrow; but that is all the more reason why the dietitian should be informed as to the fundamental principles which enable

her to read scientific journals intelligently and make practical application of the information thus acquired.

Again, the dietitian may have a thoro scientific training but lack the ability to enforce orders or manage a department, or establish such a systematic course that all the details, which are so essential, shall be attended to at the proper time. Such an education as has just been advocated as necessary preparation for dietetics cannot be obtained in a one year course, nor in a two year course at college. The woman who has spent four years or more studying has had little opportunity to develop the characteristics which inspire respect and unquestioned obedience from kitchen employees. She must have either a natural faculty for supervision, or she must have the unswerving support of the superintendent to impress upon the members of her force that her authority is absolute.

Now that we have granted the point of view of the administration that time is lost in training the dietitian, let us consider the other point of view. Why should not the hospital train the dietitian? It is only a very short while ago that the hospital gave any thought at all to the dietitian, and even more recent has been the demand for a well trained woman. No inducement whatever, professionally, financially, or otherwise, was offered to the woman with a college education or with experience to go into hospitals until now, and only the more modern progressive hospitals are offering any inducement yet. These women cannot be had at a moment's notice and many are still skeptical of the outcome. Because the opportunities in this line were so limited our schools have given no thought to dietetics. Where, then, can the woman get her training but in the hospital?

Many of our hospitals are offering a course of training to student dietitians; in most instances this course is three months in length. This is commendable from the standpoint of the hospital offering the course, the dietitian giving it, and of the woman who takes this opportunity of better fitting herself for the work she has chosen. Three months is not sufficient time for this training and a few hospitals have already arranged a longer period. Our experience at Lakeside Hospital may be of interest in illustrating the great need for better training of dietitians and the equally great demand for the dietitian who has had more training.

Our class consists of four student dietitians; our course is six months in length; we take no pupils who have not had a college course in Domestic Science in some college whose course meets our approval. For the past two years our waiting list of applicants has not been less than seventy-five and at present it is nearly double that; we have applications from every state, and have located our graduates in every section of the country; practically all requests coming to us from hospital superintendents for dietitians are for experienced or mature women; it is impossible to meet the present demand for such women, and before satisfactory solution of the situation is found there must be much readjustment in the dietetic departments of hospitals and in the relation of this department to the rest of the hospital. The statement is frequently made by authorities in a small hospital that they cannot afford to pay the salary of a dietitian. The small hospital cannot well afford to be without a competent woman who can utilize their limited resources to the best advantage. She can protect their financial

interests and at the same time serve food that is well cooked and varied enough to relieve the deadly monotony so often found in institutions. In the small hospital there is greater opportunity for coming in touch with the patient, and for closer contact with the nurse who should be taught the fundamentals of nutrition, including composition, and nutritive value of food as well as the cooking and digestion of it.

So many other papers in this issue of the AMERICAN MEDICINE will emphasize the importance of dietetics in the treatment of disease that mention of any specific dietotherapy is unnecessary in this discussion. When the modern hospital gives care and thought to its dietary department from the time of drawing architectural plans to the moment of serving meals, then will it reach the standard set by Dr. Ferris:—"Furnish a guide and turn the light on the danger signals for one who desires to avoid disease, while for the impaired or the invalid it prescribes the food suited to his needs."

NATURAL AND ARTIFICIAL FOODS FOR YOUNG CHILDREN.

BY

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By the time a baby is a year old he ought to be taking five meals a day of milk and carbohydrates, and the bottle should have been discontinued. Usually the meals consist of a morning and evening feed of milk and barley water; breakfast of some cereal food or bread and milk; dinner of milk pudding with a drink of milk; and tea of rusk or bread and milk. Frequently the yolk of egg is also given, raw or lightly boiled, mixed in some of the feeds; and potatoes have perhaps been added to the dietary.

DIET AT THE AGE OF 12-18 MONTHS.

From the age of 12-18 months the following is a suitable diet:

6.00-5.00 a. m.—Six ounces of whole or diluted milk, hot or cold; a slice of stale bread or a rusk soaked in milk; or a slice of thin bread with butter, margarine or dripping.

8.30-9.30 a. m.—A basinful of one of these, according to appetite: rusk, malted rusk or bread and milk; semi-fluid porridge, groats or rolled oats with milk or cream; thick milk gruel; bread and butter with cocoa made with milk.

12.30-1.30 p. m.—One of these for the first course: mashed, baked or boiled potatoes, moistened with milk, chicken or mutton broth, the red gravy from undercooked meat, or ⅓ oz. of meat juice; potatoes or stale bread crumbs, moistened with milk or gravy, etc., and a lightly boiled, poached or scrambled egg; or bread crumbs and gravy.

Second Course:—Custard, tapioca, corn flour, flaked rice, ground rice or semolina pudding, blanc mange, corn flour mould or junket. To these may be added fruit juice of various kinds, stewed or baked apple, or fried mashed ripe bananas. The pulp of grapes and oranges, as well as that of some other fruits, may be given.

Fluid:—Cold water or barley water.

4.30-5.00 p. m.—A similar kind of meal to that given for second meal.

After being put to bed.—Milk gruel made with rice; sago, hominy or corn flour; rusk or stale sponge finger soaked in milk; or any of the well known prepared foods, if the child is delicate.

A few comments must be made on the above diet. Personally I do not often approve of the use of meat juice and I am convinced that meat extracts are given too freely to young children. It is difficult to obtain absolutely fresh meat, especially in hot weather, and the meat juice prepared from it may be crowded with organisms and set up infective diarrhea. Occasionally it conveys the ova of tapeworms. That it contains a considerable quantity of iron in the form of hemoglobin is true but, on the other hand, this is not very assimilable. I prefer to give iron in the form of yolk of egg, in potatoes and in green vegetables.

Meat extracts contain many salts and extractives, and possess little nutritive value. They act as a stimulant to digestion and are useful for flavoring potatoes if fresh meat gravy is not available. Being tasty, children often appreciate them and may lose their appetite for simpler foods. In many instances of anorexia at this period of life I have found that the primary cause is too liberal use of meat extracts, and other tasty articles of diet.

Many children may take a more liberal diet than the above at the age of 15 months, or perhaps earlier. Thus, pounded up fish may be added, and then pounded up chicken, mutton or beef. As a general rule it is best to train the child to take green vegetables in the form of a purée (being passed thru a fine sieve) at the age of 15 months. Begin with a very small quantity, mixed with potatoes and gravy. The best vegetable of all is the cabbage, omitting the coarse stalks and using only the green part of the leaves. The cabbage is, next to the spinach, the richest in iron of any vegetable. Spinach is apt to pass thru undigested, and contains a considerable quantity of oxalates which may set up oxaluria. Sorrel also possesses this defect. Practically any green vegetable can be given, such as Brussel sprouts, Scotch kale, turnip tops, broccoli, etc. It is advisable to postpone giving peas and asparagus till a later age, and I do not regard cauliflower as a green vegetable. Green vegetables are given chiefly for the sake of the salts they contain and can be given in soups, if not relished in the mixture with potatoes.

Now a word of warning as regards milk. There is much too great a tendency to give an excessive amount of milk to children of all ages after the weaning period. No child of 12-18 months of age needs more than 20-30 ounces a day, and after this age the amount can be reduced to a maximum of 20 ounces. An undue amount often leads to anorexia for other foods because of its satisfying qualities, and may induce dyspepsia, dilatation of the stomach and malnutrition. Many cases of anorexia in children are cured by reducing the consumption of milk. Sometimes it is a source of constipation; sometimes it causes pallor, puffiness and inadequate nutrition from insufficiency of iron and an inadequate supply of more appropriate foods. Occasionally the dilatation of the stomach and gastric disturbance end in an attack of diarrhea and vomiting.

Later on in childhood the more common ill-effects are constipation and intestinal dyspepsia, with malnutrition and general abdominal distension, leading to an erroneous diagnosis of abdominal tuberculosis and improper treatment by additional milk and codliver oil.

Among the poorer classes there is little fear of too much milk being given to the child. It should be used more freely, and also given in the form of skimmed milk with potatoes, etc., as a source of cheap

protein and sugar. As a rule the milk should be boiled for children up to the age of four years, especially in hot weather, on account of the number of organisms it contains. It should be rapidly "brought to a boil" shortly before being given, and not boiled and allowed to cool down and stand for some hours, for under such conditions the harmless lactic acid bacilli are killed and the more dangerous proteolytic organisms may develop. Boiling milk deprives it of a certain amount of its antiscorbutic value, possibly to a slight extent of some of its nutritive value, but neither of these is a matter of consequence in the case of a child on a mixed diet. Milk is not needed as a source of protein if a child is taking eggs, fish and meat. It should be regarded as a food, not merely a drink.

DIET AT THE AGE OF 18-30 MONTHS.

It has been pointed out that this diet may be given to strong, well nourished and well developed children at the age of 15 months. When adding a new food to the diet always begin with a small quantity and increase the amount gradually, if it agrees.

First Meal.—The same as for younger infants; more in amount, if needed.

Second Meal.—One of these: rusk or bread and milk; porridge with cream, milk, golden or maple syrup; hominy grits, Robinson's groats, Quaker oats or Chapman's wheat flour with milk; grape nuts; Frame food, shredded wheat, etc; or milk or cocoa to drink and bread and butter with a lightly boiled or scrambled egg. After the cereal food bread and butter or dripping can be given, if the child is still hungry.

Third Meal.—This consists of two courses and should contain a considerable variety of foods. For the *first course* it is advisable to give fish two days a week. The most suitable kinds of fish, in order of merit, are whiting, sole, plaice, cod and other white fish. It should be steamed, not fried; pounded up in a mortar at first and after a few weeks simply mashed up with a fork.

On two days a week give chicken, turkey, freshly killed partridge or pheasant, veal, fresh rabbit or calves head. On two days give boiled or roast mutton, cutlet, underdone beef or pounded up steak, brains or sweetbread. And on the remaining day give a breakfast cupful of a thick vegetable soup with plenty of potatoes.

Begin with a large teaspoonful of the fish, meat, etc., and increase the amount to a heaped up tablespoonful. At first the meat should be pounded up but at the age of two years mincing is sufficient. Potatoes, mashed, baked or steamed and mashed up, should be given with this course daily; or varied occasionally with stale bread crumbs and gravy; and greens also, as a purée at first and later simply mashed up with a fork. Freshly cooked young green peas and asparagus tops may be given. The leguminous vegetables, such as peas, haricot beans and lentils are best given in the form of thick vegetable soups; so, too, the tubers, such as artichokes, carrots and parsnips. In the ordinary method of boiling carrots and parsnips in water much of their nutritional value is lost by solution in the water which is so often thrown away instead of being used as soup stock.

The *second course* should consist of one of the puddings, etc., recommended for younger infants. And drink should be the same.

Fourth Meal.—Milk or milk cocoa with bread and butter, honey, golden or maple syrup, apple or other fruit jelly; stale sponge fingers, rusks and plain biscuits; plain cake, containing neither seeds nor cur-

rants; or a basin of rusk or bread and milk.

Fifth Meal (if wanted).—Milk gruel or a biscuit, rusk, sponge finger or piece of bread with a drink of milk, diluted with one-third water.

No child should be pressed to take food at this time and many sleep better without anything, the food given being a cause of indigestion and a disturbed night. On the other hand some children have vigorous appetites and lie awake from hunger, if not given an evening meal. Lack of appetite in the morning is generally an indication that the last feed at night should be reduced in amount or omitted entirely.

The meals should be given at the same times as those suggested for younger infants. At this age and even up to puberty the main meals of the day should be breakfast and dinner. No limitation as to amount should be insisted on, provided the child is not tempted with dainties. If the food is simple in character and properly cooked the child can eat as much as he likes. Tea and the evening meal are comparatively of no account.

Diet After the Age of 30 Months.

By this time all the milk teeth are cut and in active working order. There should be a definite amount of hard food insisted on as the mastication of such foods aids the development of the jaws. Possibly it is advisable to give some hard foods for the child to gnaw earlier in life. The meals should be distributed thus:—

Breakfast at 7.30-8.30 a. m.—A basin of rusk or bread and milk, porridge, rolled oats or other cereal foods, such as suggested for younger children. There is a large variety available. Milk or cocoa to drink. As a second course give an egg boiled, poached or scrambled, with bread and butter; bread and butter, margarine or bacon fat; bread and fruit jelly or honey. When the child has reached the age of four years the second course should consist of an egg, plain omelet, fried fat bacon, fish, ham or homemade potted meat. If still hungry he can finish up with bread and butter, or jam, marmalade, etc.

Lunch at 11 a. m. is generally necessary but should be limited to a little fruit and a drink of cold water, if the child has had a good breakfast. A strong, active child, especially in cold weather, can have milk and a biscuit, bread and butter or bread and dripping. If breakfast is given at 8.30 a. m. and dinner at 1 p. m. no lunch should be allowed.

Dinner at 1 p. m.—Give potatoes and greens daily with fish; chicken, turkey, partridge, pheasant; mutton, beef, veal, rabbit; or a thick vegetable soup followed by calves head or brains. As a rule red meat should not be given more than twice or at most three times a week up to the age of four years. Other and cheaper foods are available and can be given if properly cooked, *e. g.,* liver, tripe, bullock's heart, etc. It is advisable to give the simplest and most digestible foods, and to avoid anything particularly tasty or at all "high."

The second course consists of any of the puddings recommended above or simple steamed puddings and suet dumplings. Stewed fruits and moulds should be given also, especially in hot weather; and water, barley water flavored with lemon, weak homemade lemonade, or a fruit juice and water as a drink. The child should be taught not to drink until he has finished eating. It is a pernicious habit, that of washing down each mouthful of food with a drink

of water. Encourage slow eating and efficient mastication, the appetite is more easily satisfied and the food better digested under these conditions. Allow a liberal drink at the end of the meal and, as a counsel of perfection, teach the child to brush the teeth and rinse out all particles of food from the mouth after each meal. This is most important after the evening meal as portions of sticky bread or biscuit adhering to the teeth undergo fermentation and cause dental caries. A thirsty child can be given a liberal drink of water or barley water 15-30 minutes before his meal.

Tea is given at 4.30-5.00 p. m. and is of the same character as that for younger children.

At bedtime allow milk and biscuit or bread and butter, if wanted.

On attaining the age of four years the child should learn to masticate food and not require meat to be minced. Meals should be of the same character up to puberty, and even thruout school life and as late as eighteen years of age, with the exception that at and after puberty it is generally advantageous to give a bigger meal at tea time, preferably at 6 o'clock or three hours before bedtime. Give an egg, fish, calves head, or meat rissole and potatoes; and a second course of bread and jam or marmalade. Sardines, homemade potted fish or meal, or egg sandwiches may be added to the meal at tea time for younger children, say at 7 years of age.

Some general remarks must now be added on the various foodstuffs. Many children live on milk and carbohydrate foods during the second year of life and remain in good health. More often they become anemic and rachitic. A more mixed diet, containing animal proteins, is beneficial. There are many subsidiary products derived from milk which are of great value during illhealth and malnutrition, *e. g.,* sweet whey powder, a dried whey, one teaspoonful added to two ounces of water being equivalent to fresh whey; dried milk albumin; pure casein powders sold under special names. Dried whole milk is obtainable as glaxo and lacvitum. Dried casein is a valuable addition to a diet deficient in protein. It is much the same in character as cheese and more digestible. Cheese is made from skimmed milk, whole milk or milk and added cream. If dry, crumbly, not too new and not decayed, it can be given at the midday meal after the third year of life, and allowed in liberal quantities after the seventh year.

Vegetable proteins preponderate in peas, beans and lentils. They are cheap foods and very useful. But they are neither so digestible nor assimilable as animal proteins and cannot replace them with advantage. I do not think vegetarianism is permissible for children, but it is not essential to give the so-called animal foods, fish and meat, if other forms of animal protein are given in the form of milk and milk products, cheese and eggs.

Green vegetables are useful as a vehicle for fats for they take up fat readily. Lettuce and simple salads, with olive oil and perhaps a little lemon juice or a dash of vinegar, are often appreciated in hot weather and may be given after the fourth year. Radishes, cucumbers and other indigestible vegetables must not be allowed.

Fats are not always well taken, and the fat of beef or mutton is often actively disliked. Fat is best given in the form of butter, margarine, and bacon or beef dripping. All these agree much better than cream, especially if preservatives are added to the cream. As a rule I only allow cream

to be given occasionally with porridge or with stewed fruit. Margarine is not as valuable as butter for it is deficient in vitamines. Cold fat ham is often appreciated and may be given for breakfast after the fourth year. An excess of fat is a source of constipation in infants, the stools being dry, hard, and formed "like those of a dog." Ammoniacal urine may be due to this cause. Sometimes fat-dyspepsia and fat-diarrhea are produced, or the liver may become enlarged, overloaded with fat, and acidosis or post-anesthetic vomiting may ensue.

Bread is an essential food and generally liked. In early life rusks, etc., which crumble up readily, are more suitable than bread for this is apt to form glutinous masses difficult of mastication and digestion, especially if new. Bread should always be a day old. There is no virtue in toast, unless it is for the sake of its crispness enabling it to crumble up readily. Flabby toast is indigestible.

"Standard" bread is of no special value unless it is the main article of diet. The co-efficient of absorption of protein and carbohydrates in ordinary white bread is greater than that of standard bread, and any deficiency of vitamines is supplied by other articles of diet.

White fish is better than other kinds, preferably steamed and not fried. Fresh herrings are very nutritious, being rich in fat, but contain many bones. Roe is of great value for its lecithin, a phosphorus compound. Findon haddock boiled in milk is an excellent breakfast food after the third year, but the more tasty foods such as bloaters and kippers should not be given before the seventh year.

As regards meat, white meats are generally more digestible than red, and boiled meat more so than roast or baked. Boiled mutton is very digestible; boiled beef less so and not very suitable as it is generally salted. Salted meats must be given in great moderation. Sausages may be allowed after the fourth year; and pork, goose, duck, pigeon and nuts after the seventh year. It must not be forgotten that during the eruption of the second dentition, the loss of teeth, and perhaps the presence of carious teeth, leads to "bolting" of the food, so the diet requires rather more careful supervision at this time in the matter of providing digestible foods. Meat should be freshly cooked up to the fourth year. After that there is no great objection to cold meat, hash and stews.

A certain amount of consideration must be given to individual tastes and idiosyncrasies. Do not compel a child to eat food obviously objectionable. Many children acquire an unconquerable dislike to milk puddings, and there is really no special virtue in milk and milk puddings if protein is being taken in other forms. If milk is disliked it can often be given disguised as tea, coffee or cocoa. Weak China tea, half milk, can be allowed after the fourth year. Coffee must be used very weak, merely in sufficient quantity to flavor the milk and water. Malted milk is often very useful.

It is important not to give way to mere fancies. Give varied meals of simple foods, and if the child refuses any particular food do not tempt him with anything in its place. Let him go without, but do not try that particular food again for a week or two. If, after several such trials, it is still refused, discontinue it; there are plenty of other foods to choose from. Above all avoid giving tasty articles of diet, and the indigestible, innutritious pickle.

Provided the diet is simple, allow the

child as much as he likes. He will not suffer from overeating unless he is tempted with rich and unsuitable foods. Never coax a child to eat. Let him go without food, rather than press him and let him think it a matter of consequence that he should eat. A child does not suffer from starvation when suitable food is available. Permit no food between meals, and no sweets or candies. Sugar is a useful, but not essential foodstuff and is generally given in excess, encouraging the child to eat too much and often setting up gastric catarrh. Fruit and a drink of cold water on waking are a good preventive of constipation.

Artificial foods may be described as absolutely unnecessary for the normal child, tho often of great value during illness. There are innumerable varieties. One group consists of dried milk with various additions such as cane sugar (condensed milk), milk sugar and cream, maltose, or flours of various kinds. Another is made of a mixture of wheat and other flours, some of them partly or entirely malted. In a third group we may place the various meat preparations. On the whole I need only mention the meat jellies, essences, etc., as a useful stimulant to the appetite in illness and as a source of the supply of salts. Malted milk and whey powder I have already referred to as digestible foods. On the whole even in illness these proprietary foods are rarely needed, if the patient is under the care of a physician who understands the composition of ordinary foodstuffs. Practically the best results are obtained by the use of the simplest articles of diet, given fresh and in suitable amounts and proportions.

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DIET AFTER FORTY

BY

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With advancing age the system changes, the strength diminishes, and recovery from fatigue becomes less speedy. The physiologic changes which occur in the digestive system, especially in the mouth, stomach and intestines are complex, and will not be considered in detail in this paper. Let it be remembered, however, that the process of digestion of foods suitable for early adult life becomes slower, and if this important fact is not properly realized, and the ill effects guarded against, these physiologic changes result in pathologic conditions which unduly shorten life.

We cannot state definitely when these changes begin, but it seems well to consider that they commence at the age of 40, altho they should not appear in healthy people until the age of 60 or later. It seems safer, however, to commence preventive measures early, and this is in accord with modern ideas as to the great value of prevention. Perhaps the most important thing to prevent is arteriosclerosis, and in our efforts to do this we should watch carefully not only for changes in blood pressure but also for all disorders of the digestive, nervous and circulatory systems. While we have paid much attention to prevention in many directions in recent years we have sadly neglected in these same years the care of the aged. They paid more attention to that 2,000 years ago than we do now. They then laid down certain rules for the promotion of long life, including prolongation of mental and bodily energy, resulting altogether in a useful, fairly vigorous, and happy old age.

Cicero said we must stand up against old age. We must take just enough food and drink to recruit, but not overload our strength; and he put the following words into the mouth of Cato when the latter was 80 years old, "My wisdom consists in the fact that I follow Nature, the best of guides."

Let us now come down to the fifteenth and sixteenth centuries when a great Italian lived and wrote on this subject, L. Cornaro, a man of noble birth, and a litterateur of Venice, who was born 1466, and who died 1566. He had been an invalid up to his 40th year, and then changed his habits as to eating and drinking, and after "experimenting" for more than 40 years he thought it was due to his fellowmen to give them the results of his experience. He wrote his first treatise when 83 years of age. He said his desire was to demonstrate how by means of great sobriety and strict regimé in his diet he recovered his health and vigor, which he preserved to an extreme old age. This treatise on "Health and Long Life," when translated into English, was generally accepted in Great Britain and some parts of America as a classic of rare merit. In attempting to give the gist of certain portions of the essay we shall use as far as possible his own phraseology. His chief aim while changing his habits was to live up to the simplicity dictated by nature, which teaching was to be content with little, to eat no more than is absolutely necessary to support life, considering that what exceeds this causes death and disease. He goes on to say:

"In a few days I began to perceive that such a course agreed with me very well, and in less than a year I found myself entirely freed from all my complaints. I then applied myself to discover what kinds of food suited me best. Epicures tell us that 'whatever agrees with the palate must agree with the stomach and nourish the body.' I find this to be false, for, tho rough and very cold wines, likewise melons and other fruits, salad, fish, pork, tarts, garden stuff, pastry and the like were very pleasing to my palate, they disagreed with me, and I gave over the use of them. I also became careful in regard to quantity as well as quality, accustoming myself never to cloy my stomach with eating or drinking, but to constantly rise from the table with a disposition to eat and drink still more.

Even misfortunes themselves can do very little of mischief as I have experienced at the age of 70. I happened to be in a coach which was overset once, and I received so many shocks and bruises that when I was taken out, with my head and all the rest of my body terribly battered, and a dislocated arm and leg, the physicians concluded that within three days I should die; but they decided they would bleed me and purge me. I refused, however, to be either bled or purged. I just caused my leg and arm to be set, and suffered myself to be rubbed with some oils. I recovered without any bad effects from the accident."

He goes on to tell what happened at one time when he was in his 78th year. His physicians and friends insisted on his taking large quantities of food. He says therefore: "not to appear obstinate I consented to increase the quantities of food, but with 2 ounces only, so that as before, what with bread, meat and yolk of an egg, I ate as much as weighed in all 12 ounces, I now increased it to 14 ounces. This increase had in 8 days' time caused such a change in me that I began to be peevish and melancholy. On the 12th day I was attacked with a most violent pain in my side. I could not sleep half of a quarter of an hour together, in so much that everyone loked upon me as a dead man. But God be praised I recovered merely by my former course of life which rescued me from the jaws of death."

Of course, the health and strength of a man at 40 depends at least to a considerable extent on his habits as to eating formed

during boyhood and early manhood. Let us look at a healthy family of six children in which there are two boys, aged 10 and 11 respectively. The younger, Bob, is sturdy and a "good feeder"; the elder, Willie, is delicate and a "poor feeder," the mother looks after them with rather imperfect judgment; but in time the boys become men, and care for themselves. Both are alive at 40; the younger, Bob, is strong and active, the elder is not strong, and still eats very little. Supposing they are both free from organic disease, what are their prospects for longevity? Judging from my own experience, and the opinions of many other observers, they are not far from equal. One of the unexpected things we find in every day life is *that men who can't eat live long;* and this leads us to a maxim which many of our most careful physicians believe most implicitly; that in cases of doubt as to diet, it is better to eat too little than too much.

The main object of the writer would be achieved if the profession and the public should learn the lesson which the Venetian Cornaro tried to teach as to the value of restricted diet for the aged.

Weber tells us few people know how little food is required to maintain life, especially in advanced age. Professor Chittenden's experiments at Yale University in 1904 showed that the amount of food required for the maintenance of perfect life and strength was much smaller than had been previously estimated. For those interested in this subject two admirable books are recommended—Sir Herman Weber, "On Means for the Prolongation of Life"; Thomas Bodley Scott, on "The Road to a Healthy Old Age."

One of the most healthy elderly persons I know is a woman in her 88th year. She was an active worker all her life, and for many years was a very efficient matron in one of our public institutions, from which position she resigned when 84 years of age. But she never became idle, and now is fairly active, doing continuously a small amount of house work, and considerable work for our soldiers (chiefly knitting). Her diet is considerably restricted, but she enjoys her meals. Breakfast a cup of tea and small piece of bread or toast with very little butter; mid-day dinner, meat, potatoes, green vegetables (her favorite being boiled cabbage), light pudding, and fruit; evening tea or supper, bread and milk, or a little bread and butter with some preserves or cooked fruit, and a cup of tea. She enjoys her dinner which she calls her "big meal" (tho it certainly is not large) apparently quite as well as she did 30 years ago. She really enjoys all her meals, however.

Weber recommends the following daily diet for healthy middle-aged people of average weight, doing a moderate amount of physical or mental work, or both:

One-half to 1 pint of milk; 2 to 4 ounces of meat or fish or poultry (or, instead of meat, 1 or 2 eggs and 1 to 2 ounces of cheese); 2 ounces of fat; 1 ounce of sugar; 10 to 15 ounces of bread; 10 to 16 ounces of green vegetables; 4 ounces of potatoes (or instead of potatoes 1 ounce of rice); 6 to 8 ounces of fruit; one-half to 1 pint of weak tea, coffee or cocoa.

So far as my experience goes this is a good diet list, but it is well to remember that no one diet will suit all our patients. As Bodley Scott says: We should carefully watch and study results—and he asks us to remember Russell Lowell's primary law:

> "Thet sauce for goose
> A'int jest the juice for ganders."

A few general remarks may be in order.

Milk as a rule suits elderly people better than those of early adult life. Meat, even in small quantities, is frequently unsuitable,

and it is often well to proscribe it altogether, or allow a small amount only, 3 or 4 times a week. Egg and cheese do not always go well together, but sometimes they may be taken at different meals. Cheese is an excellent food, and in a large proportion of cases agrees with the aged. It does not appear to be generally known that 2 ounces of cheese contains as much nourishment as 5 ounces of beef; and it happens that one egg, and one ounce of cheese, are together equal to 4 ounces of meat. The kind of cheese recommended is that made of the whole cow's milk, which is used in most of the varieties of Canadian and American cheese; and not that made from skimmed milk, nor that made from whole milk to which cream has been added. No reference will be made in this paper to cheese made from the milk of other animals, such as the goat or ewe. In some of our institutions in Toronto the dish known as macaroni and cheese is well liked, and by many preferred to fish, which we are expected to eat on the two war-time meatless days.

It is often well to prescribe for the aged one ounce of fat and two or three ounces of sugar instead of two of fat and one of sugar.

A fair amount of bread, green vegetables and fruits is generally suitable.

Rice or some other cereal is often better than potato.

Weak tea or coffee, or both (at separate meals) and milk for the third meal are generally suitable.

Cocoa suits some, but not all.

A cup of hot water first thing in the morning (now a sort of fad with many) is generally approved.

Many discourage the drinking of water during meals. No decided opinion will be expressed as to that, but certainly neither water nor milk should be taken while there is any food in the mouth, or, in other words, the food should not be "washed down" by any liquid.

The use of alcohol as a food has been a much debated question for many years. The majority agree however that men (and women also) would be better to abstain entirely from all forms of alcohol up to the age of 40, or even that of 50 or 60. In certain exceptional cases the physician may prescribe it; and, in doing so, should consider his responsibility quite as serious as if he were ordering morphine or strychnine. Personally I do not consider alcohol a poison except when taken in excessive doses; but I say this with some reluctance because I greatly respect the opinions of some friends who think otherwise. I occasionally prescribe beer or whiskey at meals, and, perhaps more frequently, whiskey or ale at bedtime for elderly people, but I do not accept the old saying that "wine is the milk of old age," which has often been sadly misleading, and is absolutely untrue. The object of drinking whiskey or ale at bedtime is to induce sleep. I think it frequently does this, but not always. On the contrary it sometimes appears to make the patient restless and wakeful. Of course, then it should be discontinued. It may be mentioned that the importance of long hours of sleep for the aged cannot be overestimated.

Properly selected diet, with food slowly eaten, and thoroly masticated, will do much towards the proper regulation of the bowels, and that is a matter of vast importance to the aged. Lack of space prevents further remarks on this portion of our subject, but we may say that many who recognize the evils of constipation are not as careful and

unremitting in their efforts to relieve it as they should be, considering the gravity of the condition.

It is desirable to issue definite instructions, always written, to our patients which may take the following form:

One small, one medium, and one fairly large meal, but never take enough at any one meal to cause a sense of fulness after.

May take the following (here name the foods recommended).

Avoid the following (foods forbidden).

Then add any other directions deemed advisable.

The healthy aged woman of 88, before mentioned, has acted on a set of such rules of this sort for over 20 years and is well satisfied.

In many cases, however, it is better to make out a more extensive schedule containing practically the foods recommended for every meal in the week. The best lists however are those which include also weights and measures.

As a rule optimism rather than pessimism in our treatment of the sick is advisable, but in dealing with a healthy, or fairly healthy adult, it is probably well, in a large proportion of cases at least, to alarm him a little by mentioning a few diseases such as appendicitis, heart failure, and arteriosclerosis, as possible if not probable results of failure to observe nature's rules. These are good weapons if judiciously used, and if, at the same time, we assure him that by carrying out our direction he may reasonably expect, barring accidents, to reach a comfortable old age.

When there is actual sclerosis of the arteries, treatment, both medical and dietetic, is urgently required. In such treatment strict regulation of the diet is most important, and, in a large proportion of cases, the diet should be confined for some time, if possible, to milk and green vegetables.

Home for Incurables, Toronto.—At the time of the last Annual Meeting there were 233 patients, mostly aged, of whom 106 were helpless. As a rule about one-half of the inmates are bed-ridden. Those present were somewhat surprised, but much pleased, to hear Dr. Harrison state that the general health of the patients had been excellent. It is well known in Toronto that this satisfactory feature is due to the loving care, splendid nursing, and the judicious dietary, with regular meals, under the wise administration of the Lady Superintendent, Miss Esther Cook, and her efficient staff.

The diet list of the Home is an admirable one, being very generous, and perhaps rather expensive:

Breakfast.—Cereals and milk, toast, fruit or egg, tea or coffee. For certain inmates who are ill hot milk or malted milk or oxo or broth.

Mid-day Dinner.—Soup, roast beef or pot roast with sauce and gravy, or meat pie, or macaroni and cheese, or fish, fried or baked with sauce, or omelette, or occasionally roast veal or roast lamb. Vegetables—potatoes, turnips, carrots or cabbage. Dessert—Rice, custard, tapioca with cream, farina baked or steamed puddings with sauce.

Tea or Supper.—Either vegetable soup or corned soup, bisque crackers. Sometimes boiled onions with cream sauce (generally very much liked), pumpkin or custard pie, occasionally pancakes, cake, etc.

For some inmates hot milk or malted milk or oatmeal gruel at bed time.

House of Industry, Toronto.—The inmates are homeless poor, as a rule, not sick. There were last year altogether 259. About 250 were 60 years old or over; of these 100 were 70 or over, and 23 were 80 or over. The total cost including salaries, supplies, heating and all other expenses per inmate per day was last year 33⅓ cents against a cost of 23¾ cents for the previous year. The cost for food per head last year was 7 to 10 cents per day.

The dietary is not quite so generous or

expensive, but happens to be quite as nourishing as that of the Home for Incurables.

Extra Diet for Sick: Milk pudding daily consisting of sago, tapioca or corn starch served with milk and sugar, and one-half pint of milk each at all meals where necessary.

able, he is at once placed on a pure milk diet—about 3 pints a day."

The patient nearly always likes the change, and takes the milk with great satisfaction, generally for 5-6-7 days, then he commences to crave for some other food, which is gradually supplied to him until he comes back to the old regimé.

DIETARY—HOUSE OF INDUSTRY.

	BREAKFAST	DINNER	SUPPER
Monday	Porridge Milk Bread, butter Tea	Thick vegetable soup, with meat cut up in it, Bread and tea	Bread Butter Syrup Tea
Tuesday	Porridge Milk Bread and butter Tea	Fish, potatoes Vegetables Bread Tea	Rice and sugar Bread and butter Tea
Wednesday	Porridge Milk Bread and butter Tea	Thick vegetable soup, with meat cut up in it, Bread and tea	Syrup (or Fruit) Bread and butter Tea
Thursday	Porridge Milk Bread and butter Tea	Mutton stew with potatoes, carrots and onions, Bread and tea	Sago and sugar Bread and butter Tea
Friday	Porridge Milk Bread, butter Tea	Thick vegetable soup, with meat cut up in it, Bread and tea	Syrup Bread and butter Tea
Saturday	Porridge Milk Bread, butter Tea	Thick vegetable soup, with meat cut up in it, Bread and tea	Corn meal and syrup Bread and butter Tea
Sunday	Bread and butter Tea	Roast beef Potatoes Turnips Boiled rice, milk Bread and tea	Bread and butter Tea

I may say that both these institutions are exceptionally well managed. I have never seen anything better in the world.

I was very much interested in one statement made to me by Mr. Laughlen, the superintendent of the House of Industry. "If any one of the old people gets 'off color,' loses his appetite, and feels generally miser-

It is not of course possible for private families to live as cheaply as this institution, one reason being that families must pay larger prices for their foods; but it may be stated that every family can live on a diet which is quite sufficiently nourishing at 10 to 15 cents per head per day.

30 Gerrard St., East Toronto.

PLACE OF MILK AND VEGETABLES IN THE DIET.

BY

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Milk is the one article of diet whose sole function in nature is to serve as food, and it is the one food for which there is no satisfactory substitute.

Even from the standpoint of the older conception of food value milk takes a high rank on account of the forms and proportions in which it furnishes us with proteins, fats and carbohydrates. Compared on the basis either of protein or of energy value, the dairy cow is the most efficient of farm animals in the production of human food.

Armsby has recently estimated that of the energy value of the food consumed by the animal about 18 per cent. is recovered for human consumption in milk and only about 3.5 per cent. in beef.

Jordan compares on the basis of pounds of edible solids in human food produced per hundred pounds of digestible organic matter consumed by different farm animals as follows:

Animal	Edible solids produced
Cow (milk)	18.0
Pig (dressed)	15.6
Cow (cheese)	9.4
Calf (dressed)	8.1
Cow (butter)	5.4
Poultry (eggs)	5.1
Poultry (dressed)	4.2
Lamb (dressed)	3.2
Steer (beef)	2.8
Sheep (mutton)	2.6

Cooper and Spillman estimate that the crops produced per acre of cultivated farm land will yield the following returns in human food when fed to the various farm animals:

	Protein pounds	Total food calories
Milk	72.3	711,750
Beef	18.5	130,000
Pork	22.7	672,945
Mutton	14.7	137,295
Poultry and eggs	27.5	148,675

Thus it is inherently much more economical of resources to feed farm crops to milch cows than to animals which are raised merely for slaughter, and consistently with this we usually find that milk is a cheaper source of protein and calories to the consumer than is meat or eggs, unless some special marketing or other condition intervenes to interfere with normal economic relationships.

But when we take the broader view of food values, which our present knowledge of nutrition justifies and demands, we must conclude that a quart of milk is a greater food asset than an amount of meat which should furnish the same weight of protein and the same number of calories; and this for a number of reasons.

(1) The chemical structure or amino-acid make-up of the milk proteins gives them exceptionally high nutritive efficiency as has been strikingly demonstrated in experiments upon both growth and maintenance by Osborne and Mendel and by McCollum and upon milk production by Hart and Humphrey.

(2) The fat of milk is of a low melting point as compared with most meat fats and exists in an emulsified form, both of which properties are favorable to its ease and completeness of digestion. It also carries a fat soluble substance which promotes growth and has important functions in maintenance of health as described below.

(3) The carbohydrate content of milk is in the form of milk sugar which is not only easy to digest but also has a more or less specific favorable influence upon the bacterial conditions in the digestive tract as has been recently emphasized by Rettger's extended research.

(4) Milk contains all of the inorganic elements or ash constituents required in hu-

man nutrition and furnishes them in exceptionally favorable proportions. In many experiments by Osborne and Mendel and by McCollum and his associates the growth and well-being of laboratory animals kept on restricted diets have been very greatly promoted by adding to the rations such salts as would give to the total inorganic content of the food mixture a composition corresponding to that of milk ash.

(5) Milk is specially important as a source of essential nutrients other than proteins, fats, carbohydrates and mineral matter. That something other than these known nutrients is required for permanently adequate nutrition and that milk supplies the unidentified essential substance or substances was first demonstrated by Hopkins in 1906. Seeking further light upon the chemical nature of the unidentified essential or essentials, Hopkins deferred publication of the details of his experiments until 1912. Meantime Osborne and Mendel had shown that "protein-free milk" contains a water soluble substance or substances not identical with any known organic or inorganic nutrient, which exerts a pronounced favorable effect both upon growth and upon the health and longevity of laboratory animals kept upon mixtures of isolated foodstuffs; and at about the same time it was simultaneously discovered by McCollum and Davis and by Osborne and Mendel that milk also contains another essential substance distinguished by its solubility in fat and therefore for the most part dissolved in the fat globules and passing with them into the butter rather than into skim milk or whey. These two important constituents, neither of which has yet been chemically identified, are variously designated as "accessories," "dietary essentials," "food hormones," fat soluble and water soluble "vitamines," or "fat soluble A" and "water soluble B."

A diet in order to be adequate, either for the permanent maintenance of health in a grown animal or person, or for the support of growth in the young, must contain sufficient amounts both of fat soluble A and of water soluble B. Lack of either A or B quickly retards or inhibits growth. In adults, lack of water soluble B causes polyneuritis (beri-beri in man, experimental beri-beri in fowls), while lack of fat soluble A results after a time in a pathologic condition often manifested by weakness and inflammation of the mucous membranes especially of the eyes (xerophthalmia) and it is held by McCollum that lack of this fat soluble A is one of several factors concerned in pellagra.

In his recent series of papers dealing with the "Biologic Analysis of Pellagra-producing Diets," McCollum repeatedly points out that rations consisting too exclusively of the products of cereal grains or other seeds are not permanently satisfactory and that their inadequacy lies chiefly in their low content of calcium and of fat soluble A. Milk he finds to be the most efficient food in supplementing a grain diet because of its richness in calcium and in fat soluble A and the further advantage that the milk proteins supplement in an important way the proteins of the grains and other seeds, especially in those cases in which the requirements of growth, reproduction and lactation are concerned.

Next in importance to milk as supplements to breadstuffs or other products of seeds, McCollum ranks the green vegetables or edible leaves, and this chiefly for the reason that leaves are very much richer than seeds in calcium and in the fat soluble A. In the Orient, where very little milk is available to the majority of the

inhabitants, green vegetables largely take the place of milk in the nutrition of the people. My student, Mr. Y. G. Chen, considers that such vegetables are probably five times as prominent in the Oriental as in the American diet. That children in the Orient fare as well as they do with a low *per capita* milk supply, is probably explained by the much longer time during which they receive their mother's milk. With nursing continued often for two full years, and not rarely three, the child has ample time to become adjusted to the consumption of a variety of vegetable foods before its maternal milk supply is entirely cut off. It is also not improbable that the free use of green vegetables, with their high calcium and vitamine content, in the food of the mother may be a factor in her ability to continue normal lactation for such a long period, since according to McCollum the vitamines found in milk are not synthesized by the animal but must ultimately be derived from the food. Since animals store but limited amounts of vitamine in their muscles but pass relatively large amounts into their milk, it is plain that as a "condenser" of vitamines as well as of protein and energy for man's nutrition, the milch cow is much more economical and efficient than is the animal fed for slaughter.

So long as we thought of nutrition in terms of proteins, fats, carbohydrates and calories only, we were inclined to assume that a diet consisting largely of breadstuffs or other grain products could be "balanced" by the addition of meat. In fact it has long been more or less common to think of meat as the animal food *par excellence,* and milk has often been spoken of as a "meat substitute." We now see that milk is much more than a substitute for meat—in fact that meat is a very inadequate substitute for milk.

If a grain diet were deficient only in its protein content, milk and meat might serve interchangeably as supplements. But in prolonged feeding experiments milk is found to be vastly superior to meat. Neither in its inorganic nor in its vitamine content is meat suited to take the place of milk or green vegetables in nutrition. The inadequate calcium content of meat has long been known, and the inefficiency of ordinary meats (muscle) as source of vitamine has recently been strikingly demonstrated by Osborne and Mendel and also by McCollum and Simmonds.

Hence we can no longer think of milk and meat as interchangeable or of meat as a full equivalent of milk in the diet, and it becomes important for us to ascertain whether the relative prominence in American dietaries of meat on the one hand and of milk (or of milk, vegetables and fruit)

TABLE I.

Type of Food	Cost in percentage of the total expenditure for food
Meats (including poultry and fish)	32.7
Eggs	5.2
Milk (including cream if used)	9.6
Cheese	0.9
Butter and other fats	9.5
Breadstuffs and other grain products	18.1
Sugar, syrups and molasses	4.7
Vegetables	10.7
Fruit	5.2
Nuts	0.2
Miscellaneous	3.2

on the other, are such as our present knowledge of nutritive requirements would indicate as desirable.

In the average of 250 American dietary studies, each a quantitative record of the kinds, amounts and cost of food actually consumed by a family or larger group during a period of a week or more, the distribution of expenditure among different articles or types of food is shown in Table I.

That this fairly represents the usual American practice in choice of food and distribution of expenditure for food is indicated by the fact that it is in substantial agreement both with the estimates of expenditures published by the Bureau of Labor Statistics, whose data were obtained by less intensive methods of research covering over 2,000 families, and with the statistics of value of annual products of the chief food industries of the United States after allowing for imports and exports.

If now we compare the amounts of nutrients furnished by these 250 dietaries with the scientific estimates of the nutritive requirements of the people fed, we find that the average food furnished a very liberal surplus of protein above the actual requirement, while the margin of safety of the average calcium intake was by no means so liberal. When the data of individual dietaries are examined few if any cases of protein deficiency are found while about one-tenth of the dietaries are found to be deficient in calcium in the sense that they furnish less calcium per man per day than has been found necessary for the maintenance of normal nutritive equilibrium in the average of the laboratory experiments upon the balance of intake and output.

It is true that a deficiency of calcium in the food may be made good by the addition of simple mineral forms of calcium, but it is unlikely that people can readily be taught to make such additions to their regular diet and it is also advantageous for other reasons that the foods which are naturally rich in calcium, notably milk and vegetables, be made more prominent in the average American dietary. As a matter of fact, these foods actually are more prominent in those dietaries which are better balanced and show a higher calcium content than the average. This was shown by dividing the 250 dietaries into four groups according to their calcium content. Group I contained all those furnishing less than 0.45 gram of calcium per man per day—an allowance which was estimated as corresponding in adequacy with a protein content of 50 grams per man per day. Group II contained from 0.45 to 0.67 gram; Group III, 0.68 to 0.89 gram; Group IV, 0.90 gram or over of calcium per man per day.

TABLE II.

Type of Food	Group I	Group II	Group III	Group IV
Meats and fish	38.4	35.3	29.7	27.2
Eggs	4.2	5.6	5.1	5.7
Milk	5.3	7.8	10.5	14.4
Cheese	0.4	0.8	1.0	1.0
Fats	9.6	8.3	9.3	10.8
Grain products	22.7	18.8	18.7	14.3
Sugars	4.9	4.5	5.2	4.6
Vegetables	9.3	10.9	11.3	10.9
Fruits	3.0	4.1	6.0	7.5
Nuts	....	0.1	0.3	0.4
Miscellaneous	2.2	3.8	2.9	3.0

The average distribution of expenditure in each of these four groups will be found in Table II.

(The classification of foods is the same as in Table I, tho the wording is in some cases abbreviated).

Here the most striking change as one passes from the dietaries of lower to those of higher calcium content is in the prominence of milk in the food budget. Of these 250 dietaries, 92 constituted a group which were studied under the auspices of the New York Association for Improving the Condition of the Poor and have been discussed

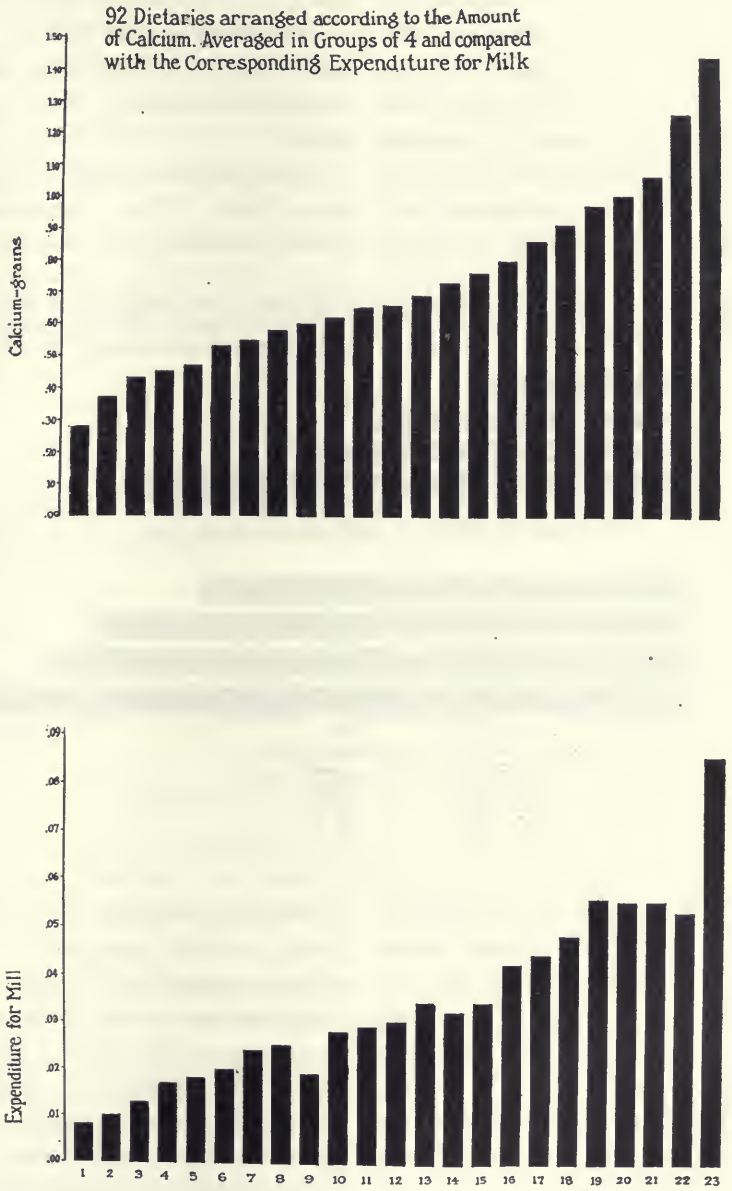

FIG. 1.

more fully in their Publication No. 121, here reproduced as Fig. 1, which shows strikingly the relation between the prominence of milk in the diet and the adequacy of its calcium content. Where the expenditure for milk was over 3 cents per man per day, corresponding to a daily consumption of one-third of a quart (prices of 1914-1915), the calcium intake was satisfactory; where less milk was used the calcium content of the diet was in almost all cases undesirably low.

Since the series of 92 studies just mentioned were all of city families, the data of 44 studies of families living in small towns or rural regions have been analyzed in a similar manner and here also it is found that the calcium content is closely related to the prominence of milk in the diet, satisfactory amounts of calcium being found as a rule only in those dietaries which contained at least one-third of a quart of milk per man per day, corresponding to a minimum of one-half pint per capita per day. Unless the supply is more liberal than this, there is little margin of safety. A supply of at least a pint of milk *per capita* per day is certainly desirable for every community and for every family in the community.

As a guide for the individual housekeeper Mrs. Rose offers the rule: A quart of milk a day for every child under six years; at least a pint a day thereafter until growth is complete; at least a half a pint for every adult.

Lusk has advised that the housewife having a family of five to feed should buy three quarts of milk before she buys a pound of meat and McCollum has also issued emphatic warning against any reduction of milk consumption on account of the unavoidable rise in price. Quoting McCollum:

"We have long been accustomed to the use of milk in liberal amounts in cookery, and of cream, butter and cheese. It is not generally appreciated that these articles have a dietary value far greater than can be expressed by their protein and energy content. They act as correctives for the deficiencies of the cereal grains and without them the nutrition of our people will suffer serious impairment. . . . . We could

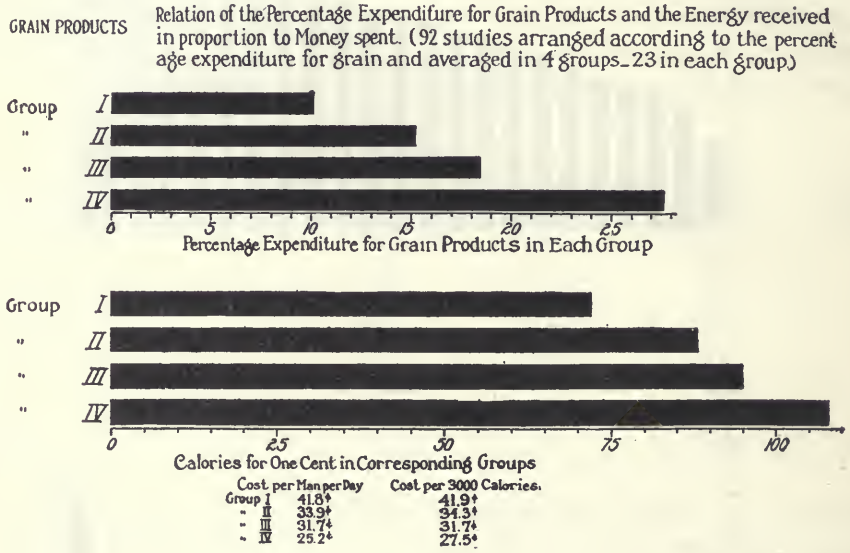

FIG. 2.

entirely dispense with meats without suffering any ill effects whatever, but if we permit the use of milk, even in the diet of adults, to fall much below the present consumption, its effects will soon become apparent in our national efficiency."

Thus the consumption of less meat and more milk, which the present food situation and the policy of the Food Administration demands, is plainly desirable also from the standpoint of our present knowledge of nutrition.

Let us also consider from the same standpoint the present food conservation program as a whole, *i. e.*, the nutritional significance of a general reduction in our consumption of wheat, meat, fat and sugar in order that more of these may be available for shipment to our armies abroad and to the Allies.

Breadstuffs and other grain products usually furnish more food value in proportion to their cost than do the other types of food. Fig. 2, which is Chart III of the above mentioned publication of the Association for Improving the Condition of the Poor, shows the close relationship between the prominence of grain products in the diet and the number of calories obtained for one cent. It is also to be remembered that the breadstuffs and other staple grain products are economical sources of protein as well. Hence people whose low incomes make it difficult for them to secure sufficient amount of food with the funds at their disposal should not be urged too dogmatically to eat less bread, but rather to use less wheat in their bread. The fact that corn may be substituted for wheat to any extent without detriment to the food value of the diet has been fully discussed elsewhere.

Aside from wheat saving, the food conservation campaign is essentially an effort to diminish our consumption of meats, fats and sugars by substitution of perishable foods such as milk, eggs, vegetables and fruit. Such a shifting of emphasis in our food habits will unquestionably make for better nutrition. Table III shows the ratios of the expenditure for meats, fats and sugars to that for perishable foods in the four groups of dietaries described in connection with Table II above, together with the average food value of the dietaries of each group. It will be seen that as expenditure is shifted from meats, fats and sugars to perishable foods, the calories and calcium of the diet increase, with usually an increase and never any appreciable decrease in any of the other factors of food value. If all groups be calculated to a basis of 3,000 cal-

TABLE III.

	Group I	Group II	Group III	Group IV
	(41)	(90)	(54)	(65)
Relative expenditure for:				
(A) Meats, fats, sugars	A:B::	A:B::	A:B::	A:B::
(B) Perishable foods	71:29	62:38	57:43	52:48
Nutritive value per man per day:				
Calories	2,605	2,981	3,343	3,886
Protein gms.	83	102	108	124
Phosphorus gms.	1.11	1.45	1.65	2.09
Calcium gms.	0.35	0.56	0.77	1.19
Iron gms.	0.013	0.018	0.019	0.022
Per 3,000 calories:				
Protein gms.	95	103	97	96
Phosphorus gms.	1.28	1.46	1.48	1.61
Calcium gms.	0.40	0.56	0.69	0.92
Iron gms.	0.015	0.018	0.017	0.017

ories it will be seen that with increasing prominence of perishable foods such as milk and vegetables, there is a pronounced improvement in the calcium content without loss in other directions. As a matter of fact, as the perishable foods are made more prominent there is decided gain not only in calcium content but in several factors which as yet we cannot express in quantitative terms but, nevertheless, recognize as of much importance, such as the better support of growth and reproduction, the maintenance of a better hygiene of the intestine, and higher reserve alkalinity of the blood and the safeguarding of the body against any tendency in the direction of the so-called deficiency diseases—diseases due to faulty diet whether wholly nutritional or not.

Before war conditions had made meat saving a matter of patriotism, many students of nutrition had begun to urge that the use of milk, vegetables and fruit should be increased and that this might be accomplished economically by transferring to the purchase of these foods a part of the money ordinarily spent for meat. The writer had suggested as a general guide, applicable to households both of small and of liberal income, that as much more should be spent for milk as for meat, and that as much might well be spent for fruit and vegetables together as for meat.[1]

This suggestion has been used as a tentative standard in the work of the dietitians of the New York Association for Improving the Condition of the Poor. Fig. 3 shows in comparison with this "standard," the average of actual percentage expenditure in a number of city families in 1891-1895, in another presumably comparable group in 1914-1915, and in a smaller group which had been influenced by the teaching of a dietitian, tho they were not under control and were spending according to their own taste and judgment.

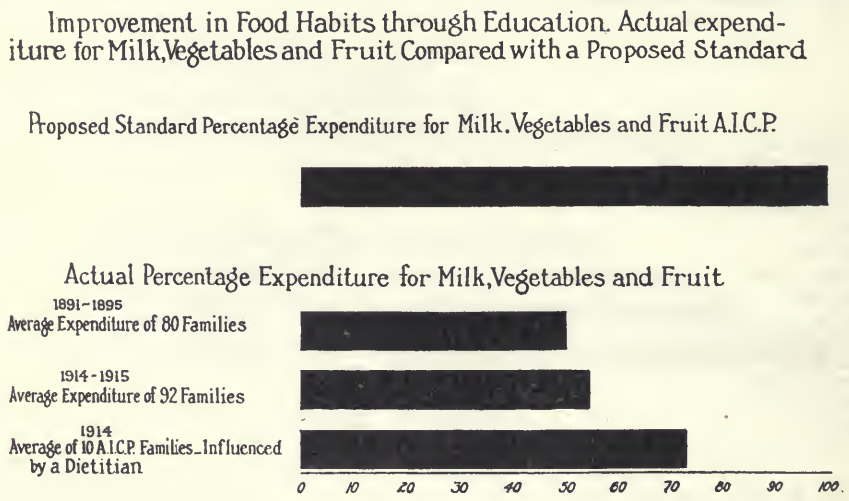

FIG. 3.

It would appear that the general growth of knowledge of food values is gradually

[1] This would make the perishable foods somewhat more prominent than in the average of the dietaries of Group IV of the above table. The practice of the writer's own household goes farther, the expenditure for milk, vegetables and fruit combined being over three times the expenditure for meats, poultry and fish.

improving the consumption of milk and vegetables in city families and that progress in this direction can be very greatly promoted by teaching—even if this be entirely non-technical and more or less incidental.

The teaching of a higher appreciation of milk and vegetables as food is a matter both of patriotism and of applying the newer knowledge of nutrition to the promotion of the public health and the improvement of our national food economy.

ARMY RATIONS: A COMPARATIVE STUDY.

BY

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Napoleon is said to have remarked that an army marches on its stomach, signifying of course that in order to fight well, soldiers must be fed well and suitably.

It may be asserted, then, in connection with the above obvious statement, that the armies which are the best and most appropriately fed, other things being equal, will win the war.

Thus the saying that "Food Will Win the War" is absolutely true.

However, the fact must never be lost sight of, that races differ very widely in the kind of food which they consume and on which they thrive. Climate has a good deal to do with this, but habit is perhaps even of greater consequence. The English speaking peoples, or rather those of English origin, are, on the whole, the greatest consumers of meat in the whole world, altho since Germany became prosperous, the Germans have run them fairly close in this respect. The quantity of meat consumed is a reliable index, to a great extent, of a nation's prosperity. The Australians *per capita* are the richest people on earth; and they are easily the greatest meat eaters.

With regard to army rations, the soldiers of this country are the best fed; but before dealing with the dietary arrangements of our own army, those of some of the other nations engaged in the war will be discussed briefly.

First, the rations of the German Army will be considered. According to Zuntz the average starvation metabolism of the resting German of average weight may be put at 1,700 large calories. The large calorie is the heat required to raise one kilogram equivalent to 2.2 lbs. of water thru 1° C. or 1.8° F. That of an infantryman doing a twenty-five kilometer march and carrying a thirty kilogram pack is 4,100 to 5,000 calories. Zuntz gives an infantryman's average weight at 63 to 67 kilograms, and his diet as follows in grams:

Meat 125, sausage 150, bread 350, yolk of egg 50, marmalade 50, butter 100, sugar 30, beer 1,793, brandy 20, mustard 1.

This diet affords 177 grams of fat, 100 grams of protein, 378 grams of carbohydrates, and 77 grams of alcohol. For a soldier four kilograms heavier, this diet, says Zuntz, must be increased, for example, 300 grams milk and 50 grams rice. The value of one gram of fat is 9.3 calories of protein, starch or sugar, 4.1 calories; of alcohol, 7 calories, the calorie worth of the lighter man's diet was 4,117; of the heavier, 4,481.

In the early part of 1915, the *Frankfurter Zeitung* stated that each German soldier got 1½ lbs. of bread, ¾ lb. of fresh meat, ½ lb. of fresh vegetables or 3 lbs. of potatoes, 65 grams of fat, 50 grams of cheese, 25 grams of salt, and 25 grams of coffee. In addition, each man got daily two portions of warm drink, coffee, tea, or cocoa, a special portion of sugar, 0.1 liter of cognac, arrack or rum, or an equal amount of tobacco or snuff. The calorie worth of this diet is probably over 4,500.

The Austrian Army diet in 1915 was given as containing 750 grams of bread, or biscuit equivalent, 375 grams of fresh meat, and 60 grams of fat, or the equivalent of these in dried or preserved meat, 250 grams of peas or rice or groats, or the equivalent

in potatoes or fresh vegetables, 25 grams roasted coffee, 2 grams tea, 17 grams of sugar and half a liter of wine. For exceptionally strenuous work and bad climatic conditions, the coffee or the tea and sugar ration is doubled or 0.1 liter of spirits is given.

The war ration of the British Army during the South African campaign contained —protein 138 grams, fat 105 grams, carbohydrates 328 grams and had a value of 3,963 calories. In peace time in 1906, the average food supplied gratis to four British regiments was found to contain—protein 133 grams, fat 115 grams and carbohydrates 424 grams with a value of 3,369 calories. The *British Medical Journal*, March 20th, 1915, has an article in which it is pointed out that in Great Britain careful observations were made of soldiers marching and bivouacing as in war time in autumnal weather. These observations were carried out before the present war by the British Army Medical Advisory Board, and it was determined that the previous scale of war diet was insufficient to maintain the weight and condition and satisfy the appetites of the men. The value of the diet for war was then raised, chiefly by the addition of bacon and cheese, to 4,500 and 5,000 calories. The scale of rations of the British Army at the present time included 1¼ lbs. of fresh meat or its equivalent in preserved meat, 1¼ lbs. of bread or its equivalent in biscuit or flour, 403 of bacon, 303 of cheese, ½ cup ot fresh vegetables or its equivalent in peas, beans, etc., ¼ lb. of jam, 3 oz. of sugar, 2 oz. of butter twice a week, ⅝ oz. of tea, with salt, mustard and pepper, and 2 oz. of tobacco or cigarettes a week. The men in the trenches have as extras, pea soup, additional tea and sugar rations and ½ gill of rum at the discretion of the brigadier-divisional commander. The value of the whole ration is about 4,700 calories, not counting the extras. The rum ration is issued twice a week approximately to all ranks and an additional half-ration is supplied on each of the other days to the men in the trenches. During the very cold inclement weather a full ration of rum is issued daily to the men in the trenches; the full ration, half a gill, is 2½ oz.

The late Col. Woodruff, up to the time of his death Associate Editor of AMERICAN MEDICINE, writing on the subject of Army Rations in the *Journal of the American Medical Association*, Dec. 3rd, 1892, worked out a table of comparisons in eight countries which were copied in Dietotherapy recently brought out by Major W. E. Fitch. Woodruff rightly holds that the rations of soldiers, to be of the greatest value, must be well adapted to the climate.

The Japanese ration in the field consists of rice uncooked 30 oz. or steamed and dried 25 oz., fresh bread 20 oz., hard bread 13 oz., meat canned 10 oz. or fresh with bones 13 oz., which may be increased to 20 oz. if procurable. Salt, dried or smoked meat 8 oz., vegetables, dry 8 oz., or green 32 oz. Pickles, sauces and condiments, tea and sugar, sake beer made from rice. The Japanese Medical Regulations provide that the nutritive value of the ration shall never fall below 2,580 calories. The scale of rations of the French Army is divided into three parts, reserve, strong and normal rations. The strong ration is the field or war-time ration. The French have fully realized that troops in the field require more food than those in the garrison, owing to the fact that in the field they undergo more physical exertion and mental strain. Therefore the strong ration gives not only additional food but is extremely elastic and supple, according to "Dietotherapy" the composition of the strong ration of the French Army is as follows: Soft bread 1.65 lbs., field bread 1.54 lbs., hard bread 1.32 lbs., fresh meat 1.10 lbs., canned meat .66 lbs., dried vegetables or rice .22 lbs., salt .044 lbs., sugar .0704 lbs., coffee roasted, in tablets or loose, .0528 lbs., coffee, green .0627 lbs., lard, when fresh meat is issued, .066 lbs. Potage salé, when canned meat is issued, .11 lbs., brandy to each man in bivouac, or when specially ordered, .2641 qts., wine .5282 qts., tobacco, "caporal" for officers, .033 lbs., "cantine" for enlisted men, .033 lbs.

Authorized Substitutive Equivalents—Substitutes for one ration of fresh meat, beef, veal, mutton, pork, rabbit, horse or fresh fish 1.10 lbs. Meat puddings, eggs, soft cheese .825 lbs., cod-fish, salted, .66 lbs., bacon .66 lbs., smoked meat, herring, salted, or salted sardines .55 lbs., cheese, Gruyère, Holland, Chester, Roquefort .55 lbs., sardines in oil .33 lbs., cod-fish, dried, meat powder .275 lbs., cow's milk 2.6412 qts., substitute for one ration of dried vegetables

or rice .22 lbs., of potatoes 1.65 lbs., turnips, carrots or cabbage, 2.2 lbs., sauerkraut 1.32 lbs., canned vegetables .264 lbs., wheat flour .22 lbs., Italian pastes, noodles, vermicelli, etc., .22 lbs., cornmeal .22 lbs.

The above list gives the substitutes which were allowed previous to the war. It has been greatly increased since. It is of interest to draw attention to the use that the French have made of dehydrated vegetables in their army during the past two years. In the first year of the war canned vegetables were imported for the soldiers. It was found, however, that not only could dehydrated vegetables be more easily transported on account of their very small bulk, but that they were more nutritious than the canned articles. The daily ration of the French soldier in war is—meat 14½ oz., bread 26¼ oz., or biscuit 21 oz., vegetables dehydrated 1 oz., butter 1 oz., rice 2¼ oz., sugar ¾ oz., soup condensed ¼ oz. The daily ration of the Italian soldier is—meat 7 to 11 oz., bread, flour or biscuit 32½ oz., bacon 9½ oz., rice 5¼ oz., sugar ¾ oz., coffee ½ oz., wine 8¾oz.

If the soldier of the United States is not the best fed soldier of the world, at least, he is the most expensively fed, and has more food and choice of food than the soldiers of any other country. The component articles and quantities of the field ration taken from "Dietotherapy" of the United States soldier is as follows: Beef, fresh when procurable locally, 20 oz., flour 18 oz., baking powder, when ovens are not available, 0.64 oz., yeast, dried or compressed when ovens are available, 0.04 oz., beans 24 oz., potatoes, when procurable locally, 16 oz., jam 1.4 oz., coffee, roasted or ground, 1.12 oz., sugar 3.2 oz., milk, evaporated, unsweetened, 0.5 oz., vinegar 0.16 gill, salt 0.64 oz., pepper, black, 0.04 oz.

Substitute Articles and Quantities—Mutton, fresh when procurable locally, 20 oz., canned meat 16 oz., bacon 12 oz., hash, corned beef, 16 oz., soft bread 18 oz., hard bread 16 oz., rice 1.6 oz., potatoes, canned, 12 oz., onions, when procurable locally, in lieu of an equal quantity of potatoes, but not exceeding 20 per cent. of total issue. Tomatoes canned in lieu of an equal quantity of potatoes, but not exceeding 20% of total issue. Tea, black or green, 0.32 oz., pickles, cucumber, in lieu of an equal quantity of vinegar, but not exceeding 50 per cent. of total issue.

The haversack ration is made up of—bacon 12 oz., hard bread 16 oz., coffee roasted or ground 1.12 oz., sugar 2.4 oz., salt 0.16 oz., pepper, black, 0.02 oz. The haversack ration is issued to troops in the field when beyond the advance supply depots. It contains about 218 grams of fat, 489 of carbohydrates, and 113 of proteins, with a total fuel value of 4,448 calories. It may be mentioned, that in the field and in the absence of fresh meat, bacon is an almost indispensable component part of the ration. It keeps well, is transported easily, when properly cooked is readily digested, and furnishes an ample supply of energy for severe muscular work.

The travel ration consists of—soft bread 18 oz., tomatoes, canned, 8 oz., beef, canned, 12 oz., beans baked 4 oz., jam 1.4 oz., coffee roasted and ground 1.12 oz., sugar 2.4 oz., milk, evaporated, unsweetened, 0.5 oz. The fuel value of this ration is about 2,735 calories.

The Filipino ration includes beef, fresh, 12 oz., flour 8 oz., baking powder, when in field and ovens are not available, 20 oz., rice 20 oz., potatoes 8 oz., coffee roasted and ground 1 oz., sugar 2 oz., vinegar 0.08 gill, salt 0.64 oz., pepper, black, 0.02 oz.

Substitute Articles and Quantities—Bacon 16 oz., canned meat 8 oz., fish, canned, 12 oz., hard bread 8 oz., onions 8 oz. The component parts of the ration yield a maximum fuel value of 3,980 calories.

Like all Asiatic eastern races the staple of diet with the Filipino is rice. To avoid beri-beri, the army regulations proscribe that only unpolished rice be issued to them, and that no more than sixteen ounces a day be used. The question of beri-beri and the vitamine content of food will be considered later. It may, however, be pointed out that it appears that in the rationing of the United States troops in the tropics, be they white or colored, the advice of Woodruff has been followed, that plenty of meat should be given. The Filipino soldier is required to use the entire meat allowance. The theory that the white man should imitate the natives of tropical climates as regards diet, has been exploded. Moreover, it must be borne in mind that the inability to procure meat and religious scruples are

the main deterrents of flesh consumption in Asia. Attention may be further drawn to the fact that the natives who eat meat are finer and stronger specimens of humanity than those who are vegetarians. Munson appears to agree, in the main, with Woodruff, for he says that the present United States army ration is made up of admirably selected articles in more than sufficient variety. He, therefore, is of the opinion that it is not only wholly unnecessary, but quite inadvisable to consider in this connection any nutritive substances outside those articles legally established as components of food for the United States soldier. Munson has suggested the following tables for tropical dietaries: Fresh beef 10 oz., calorie value 590. Flour 10 oz., calorie value 1,850. Beans 2.4 oz., calorie value 240. Potatoes 16 oz., calorie value 380. Dried fruit 3 oz., calorie value 220, sugar 3.5 oz., calorie value 397. Total calorie value 3,677.

This is another table suggested by Munson, as especially applicable to tropical field service, in which the fatty constituents attain their maximum, and the potential energy is high. Bacon 6 oz., calorie value 1,042. Hard bread 18 oz., calorie value 1,926. Beans 2.4 oz., calorie value 240. Dried fruit 3 oz., calorie value 220. Sugar 3.5 oz., calorie value 397. Total calorie value 3,825. In the present war the United States troops have not been called upon to fight in tropical countries, nor does it seem likely that their services will be required in any portion of the tropical zone. However, there is a garrison in the Philippines, and British troops, both white and colored are campaigning in perhaps the hottest and most bare region of the world, so that the matter of tropical dietaries for soldiers is of considerably more than academic interest. Experiments carried out recently at the Lister Institute by Harriette Chick and Margaret Hume, and elsewhere, have shown that the embryo of the grain cereals is much richer in anti-beri-beri vitamines even than the cortex; modern processes of milling therefore left a deficiency to be made from other sources. The most concentrated depositaries of anti-beri-beri vitamines were unmilled cereals, pulses, in which apparently the vitamines were uniformly distributed and not limited largely to the germ, as in cereals and eggs. Meat and vegetables contained a moderate amount, but not in concentrated form, while the pulpy parts of fruit contain little. They were present in milk in small but sufficient quantity. The keeping power of anti-beri-beri vitamines was good, and they stood cooking at 100° C. At higher temperature they were destroyed, and therefore canned foodstuffs which had undergone a process of superheating were deficient. The antiscorbutic vitamines were much more delicate and elusive.

They disappeared rapidly in the higher temperatures of cooking and sterilization, and diminished even in the pasteurization of milk at temperature below the boiling point.

An interesting object lesson was given on the study of the conditions of British troops during the siege of Kut.

In the early stage, beri-beri occurred among the British troops, but disappeared. During the first two months they received a ration of horse meat. On the other hand the Indian soldiers were supplied with cereals and beans containing abundance of anti-beri-beri vitamines; these had no antiscorbutic properties, and as they did not eat meat, and fresh fruit and vegetables were not procurable, scurvy was very prevalent among them. This deduction was therefore drawn. For the prevention of beriberi it is in the highest degree desirable that the germ and the bran of wheat should not be excluded from the flour destined for manufacture of bread and biscuit for troops in active service. This is the more necessary when the troops are separated from fresh food supplies and the rest of the ration consists largely of canned foods, seeing that these articles are deficient in all vitamines owing to their previous sterilization at high temperatures. To prevent scurvy, if a supply of fresh fruit or vegetables is not procurable, germinating pulses should be added to the diet. Altho the above may seem somewhat of a digression, yet if looked into closely, it will be observed that it bears not only on soldier rations in tropical countries, but at the present time on the rations in France. Fresh meat is becoming very scarce in Europe and is not very plentiful here. It is much easier to transport canned meat, "bully meat" than refrigerated meat or live animals, the consequence being that canned meat is very largely used by the American and British

armies on the Western front. As time goes on more dependence will be placed on canned meat than ever, and it appears reasonable that seeing that these foodstuffs are deficient in vitamines that the deficiency will have to be made up by other foods, and if fresh fruits and vegetables are not procurable, by germinating pulses, whole meal bread, and so on. The calorie value of the field ration of the United States army is high and well balanced, but the food supply of the American army as well as the other Allied armies depends on many fluctuating circumstances, such as the sources of supply, mainly this country, Canada, and to a less extent South America. If the food supply on this side is not very large and if efforts are not made voluntarily or measures enforced to avoid waste, there will not be the food material necessary to feed the soldiers to send to Europe. Again the means of transport present a very difficult problem. In any event, it is probable that preserved foods will be employed more and more, and it may also happen that the meat ration of the American and British soldiers will be reduced. Thus far the army rations of the Allied powers have been kept up in conformity with the tastes and habits of the several races engaged and in accordance with scientific physiologic requirements.

The Latin soldiers eat less meat and more bread, and procure their quota of protein more from the vegetable than the animal world and perhaps thrive as well as the flesh-eating English speaking troops. It is impossible to lay down a hard and fast rule for feeding soldiers drawn from various nationalities. Habit, climate and the personal equation all count. What is one man's meat is another man's poison altho it is quite extraordinary how man can adapt himself to environment and conditions. Emphasis may be laid upon one point, that preserved and dried foods are largely used, and in future will be used even more largely. In this connection it will not be out of place to refer to dried milk, a preparation which possesses many advantages for army use. Liquid milk is clumsy to handle in bulk and inconvenient for transport. In the case of dried milk practically all the solids are retained. Hence the labor and cost of transporting the water which represents about five-sevenths of the total weight of fresh milk are avoided. Its keeping properties are unlimited and it is stated that when the desiccation is properly done, the nutritive properties of the milk are unimpaired, nor are its vitamines destroyed. If all that is claimed for it is true, it would certainly seem that dried milk is particularly well adapted for use in armies.

As for the value of alcohol at the front, opinions of members of the medical profession are widely divided. Reference has been made to the rum ration of the British army, and it has also been pointed out that the Austrian and German armies, under certain conditions, were given a spirit allowance. British army medical authorities, or at any rate, the majority of them believe in the efficacy of a spirit ration when needed. French authorities share the British views as to the value of adding a spirit ration to the dietary of men at the front. Its issue is permitted whenever the official in charge of the unit concerned considers it desirable, the spirit usually given being Jamaica rum. On the other hand the use of spirits in barracks or the billets of reserve troops is strictly forbidden and efforts to lessen the consumption of alcohol by giving men an abundance of confectionery and sweets are encouraged. There is absolute agreement among medical men with regard to the value of hot drinks, as well—sugared tea or coffee, and pea soup. They not only have a calorie value as food, but warm the body by the heat of the fluid they contain.

Hot food is of immense assistance to those who have to undergo extreme and prolonged exposure to inclement weather and the rum ration might be replaced with advantage to all concerned by hot sugared tea or coffee. The medicinal employment of alcohol may be indicated in the trenches in the case of exhausted soldiers, but as a routine practice its obvious drawbacks more than counterbalance its possible advantages. It may be stated that the general view of those competent to speak with authority is that it is best in the interests of health and the fighting ability of the soldiers not to allow spirits as a component part of the soldier's ration. With regard to beer or wine, perhaps to those who have been accustomed to their use, moderate amounts may exercise no prejudicial effects. However, there is no doubt that alcoholic drinks should not be permitted to those engaged in aviation work or in the manipulation and

firing of big guns. It was mentioned in the early part of this paper that the slogan, "Food Will Win the War" is correct. Furthermore, the soldier who is the best nourished will fight the best, and therefore the energies of all in this country should be concentrated upon supplying our own soldiers and those of our Allies with abundance of food.

It is hard to definitely state the comparative value of army rations, owing to the different habits of the various races engaged in the present war. Yet this much may be said that regarded from a comparative standpoint the American army so far as rationing is concerned need fear no comparison.

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DIET IN DISEASE OF THE SKIN.

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It may be postulated as a self-evident proposition that the normal person has no disease of the skin; that the person with disease of the skin is generally in need of dieting for the underlying abnormality. Diet is to be understood in the broad sense of feeding and not in the usually accepted sense of a restricted regimen. Thus it may be exactly true that we are dieting a man when we are forcing his nutrition for threating tuberculosis and when we are limiting his nitrogenous ingesta in chronic nephritis; when we are allowing a vigorous, healthy man to eat anything within reason and when we cut off the carbohydrates from a diabetic. We are simply adjusting the fuel to boiler capacity. We want to keep an effective head of steam but we do not want to overtax the apparatus. With a freely working safety valve the fires may roar away, and speed may be steadily maintained. With youth and vigor and active emunctories little thought need be given to the regulation of supplies. A young man in good condition should be able to dispose of any edible thing in almost any edible amount and experience no disagreeable reminders. The significant expression in this relation is "active emunctories." They are the key to the whole question of individual food control. It is of little moment what goes in if it is sure of an escape for its refuse. From every atom of nutriment admitted there is a percentage, large or small, of inassimilable residue. This must get out. When it does, dieting is the simple problem of letting things alone. When it does not, the work of the emunctories must be lessened by reducing the intake. Entering into this question are idiosyncrasies, which qualify every deduction made; articles of diet usually inoffensive to the average digestive tract, will create a terrible disturbance here and there. Articles reputed dangerous to the average digestive tract are tolerated perfectly in isolated cases. Thus it is seen that there is no hard and fast rule governing the matter of dietetics. With general principles guiding our selections we must be prepared to relax or even reverse our decisions as emergencies arise.

The skin responds to the pathologic influences affecting the general economy. Added thereunto is the peculiar circumstance of its exposure to external violence. It may be pertinent to inquire what the liability of the skin to external irritations has to do with the question of diet. Diet is not reparative of trauma. Trauma is an accident disassociated from the constitutional derangements that may be fairly met by diet. That is a superficial view of a much

deeper proposition. Trauma may induce such a systemic reaction as to call for dietary restrictions, an extensive burn for example. The milder degrees of cutaneous reaction, responding to feebler forms of irritation, frequently reveal a lowered systemic resistance. In the one instance we have the vitality depressed by the injury; in the other we have the depressed vitality permitting the evil results of the injury. In both instances the diet may be an important element of the therapeutics. When we reflect, also, that local injuries, great or small, produce an acidosis of the tissues affected, the implication of diet is unmistakable.

A normal organism is proof against disease. All assaulting bacteria will be repulsed. Until resistance is overcome by demands too frequent or too strenuous, the balance of health will be untilted. This may be set down as an invariable principle. It is axiomatic. Conversely any organism in a state of disease betrays a weakened resistance. This holds good in diseases of the skin. Even where we do not comprehend the etiology of an affection, we are certain that its presence argues a letting down of the barriers somewhere to the incursion of the exciting cause. So every patient with a skin disease warrants study as an individual and not merely as an illustration of a particular or even common affliction. The conscientious investigation of nearly every case includes that of nutrition. We do not know much about a patient; we certainly cannot exercise a very judicious supervision over his physical welfare if we are not thorely acquainted with the manner of his eating and drinking; in short with all the details of his nutritive processes. So every case of acne is a distinct and individual case of acne not merely something picked out at random from a multitude of similar cases. To treat it we should not be content with a routine emptying of the bowels and bedaubing of the skin. Nor, even if we are highly progressive men, should we be puffed up with the conceit of a notable achievement when we have applied the Kromayer light to acne. Only after we have, in a manner of speaking, turned our patient inside out, examined him from every angle, and tested every physiologic process, are we in a logical position to proceed with intelligent management. This involves a great deal more than kalsomining a face or putting it in the spot light. Whether or not we concede the complicity of Sabouraud's micro-bacillus of seborrhea, or of the so-called acne bacillus, we are forced to concede an indispensable predisposing constitutional insufficiency. These omnipresent bacilli (whether you adhere to one kind or the other) do not take hold of every skin. While actually rather common—the cases are relatively rather rare. The constitutional insufficiency may prove to be a varied character. Nutrition may be at fault owing to intestinal stasis. Anemia (a deceptive term, really expressing the result rather than the cause of malnutrition) is many times a conspicuous accompaniment. The aggravation of acne, by menstrual disturbances, brings forcibly to our attention the great and ever-growing etiologic importance of the endocrinous glands. There is little doubt that the thyroid is frequently at fault in acne. There is no doubt at all that the ovary is also. These two glands thru the interaction of their hormones supplement each other. Whether the thyroid is incited by the ovary or the ovary by the thyroid, between them somewhere lies the responsibility for many an obstinate case of acne, and you might blaze away with the Kromayer

till the patient was skinned and you would never cure the eruption unless you administered the organic extracts. What of diet here? The great question arises, What causes the imperfect glandular action? Some of it is due to inherited abnormality. Some of it is undoubtedly due to the stress of perverted metabolism extending over many years of dubious feeding. The endocrines in their struggle to keep all things straight, to maintain the balance of nutrition, may be overwrought and become incapable temporarily at least of full and fruitful function. It is reasonable to assume that they partake of the general intoxication arising in a lethargic and fetid intestine, and that they express their resentment in a manner peculiar to themselves. We have evidence that the adrenals are especially susceptible to the influence of infection. The adrenals disordered will affect the whole chain for thru the hormone balance "the injury of one becomes the concern of all." It is thus possible for the endocrine system to sustain a doubly disturbing impression from the same cause. The diet in acne from the first perception of the pathologic tendencies of imperfect digestion has been a matter of deep concern to the clinician. It has been subjected to every sort of experiment. Numberless observations have been made of the effect of the various foodstuffs common to our people, and induction has drawn some very sage and practical conclusions. On one thing all agree. There must be free elimination of the offal of digestion. Meals should cease with the substantial articles of food. Desserts of all kinds should be rigidly excluded for the double reason that of themselves they excite fermentation and that they are usually forced down upon an already repleted stomach because they taste attractive. The latter reason is probably the more serious. The stomach is jammed, its motion is slowed, its secretion is overstimulated, its capacity overtaxed. Reaction brings atony, fermentation and ptosis. The intestine receiving an incompletely prepared commixture makes every effort to rectify the defect. But having to deal with material too highly acidulated its capacity for alkaline neutralization is exhausted and alkaline intestinal digestion is halted and delayed. Then we have all the evidences of decomposition, flatulence, pain, lethargy, headache, myalgia, anorexia and sallowness. We have gradations between acute attacks of "sick headache" and slight furring of the tongue. Any comestible that retards gastric activity that is slow of digestion or develops irritating qualities may bring about the same unfortunate result. Experience has put in this class pork, veal, salted and pickled foods, cabbage and its congeners cauliflower and Brussels sprouts; fried things whether animal or vegetable; heavy gravies; salad dressings, and oatmeal. Of liquids, alcohol, tea, coffee, cocoa and heavy greasy soups are objectionable. It is probably true that many a patient may safely indulge in some of these prohibited ingesta and slip on something omitted as innocuous. As old as human experience is the truism that "one man's meat is another man's poison." Idiosyncrasies must be discovered and discounted. Most of the proscriptive list appeals to our common sense as salutary and sound. It might be asked, however, what is the objection to oatmeal or cocoa? Cocoa is usually substituted for coffee and tea in the regimen for acne. It is a bad selection. It is a thick, viscous, sweetish carbohydrate, open to all the objections raised against desserts in general. Oatmeal appears to have a select-

ive influence detrimental to the skin. It is not attributable altogether to the manner in which it is usually eaten, soaked with milk and cluttered with sugar. No matter how it is prepared it will aggravate most skin diseases and precipitate many. In dermatology it is taboo. Rice hominy or cream of wheat may be employed in its stead. After all is said and done you will find the conventional dieting of acne frequently disappointing. There is likely some reputedly harmless article which the patient is consuming and to which he has an undetected idiosyncrasy. In such a situation we should not despair, but patiently exclude one thing after the other from the regular allowance until we have put our finger on the disturbing element. This will take time and constancy. But it is easy to see why the treatment of acne is so often unsatisfactory.

Eczema presents a dietary problem of even greater difficulty. It is so prevalent and so varied that the obstacles to success are numerous and stubborn. In order to grasp this it is necessary to understand the nature of the disease especially from the etiologic standpoint. Eczema is probably the dean of the strictly dermatologic roster. It is old. It began with a portentous array of manifestations which have many of them found final adoption under other titles. With the development of our knowledge it has shrunk to a fraction of its pristine greatness. But this fraction represents still the commonest by far of all diseases of the skin. Eczema is a dermatitis. It is always due to irritation. This may be external, such as cold, wind, water, lime, dyes or antiseptics; or it may be internal such as the deleterious products of imperfect metabolism. In many instances both factors are operative. In some the internal causation alone is discernible, in others again external causation would appear to be efficient. It may be repeated without fear of effective contradiction that no sufferer from a dermatosis is in normal health. External irritants are powerless on a healthy skin unless sufficiently violent to produce immediate lesions. Internal irritants are of themselves capable of exciting dermatitis because they presuppose the loss of resistance requisite for this result. External irritants striking a skin weakened by internal irritants find a luxurious field of action. This is the ideal and the usual combination of circumstances observed in most rebellious eczemas. It is readily deducible from these observations that the essential point of attack for the therapeutist is not the skin but the abnormal conditions beneath the skin. Within the patient lies the cause of his conspicuous and distressing eruption. How to get at it? Consult the oracle; in this condition spelled "emuctory." The tale of elimination is the tale of metabolism. In the urine it is writ large and clear. "Tales written in water" are quoted as the symbol of inconstancy. This does not apply to tales written in urine. They may be relied on absolutely. You may find albumin or casts; you may find sugar; you may find excessive urates, phosphates or oxalates; indican, indol, indoxyl and the ethereal sulphates. The indications as to diet are plain in the light of such discoveries. There are other cases, however, where the findings will not be so distinctive and here a broader general plan of dietetics must be resorted to. You will never err in reducing the nitrogen allowance in a dubious case. If the urine is of high specific gravity the system is striving to get rid of excess waste. If it is of low specific gravity it is failing to accomplish it. Under

both circumstances curtailment of animal food is decidedly indicated. The "made-up" sweets, under which may be comprehended all desserts except raw fruit, irritate the digestive tract by the acid decomposition resulting from their imperfect conversion and by the gastric distention due to overcrowding. Salted, pickled and highly spiced foods excite the production of excessive amounts of gastric juice and mucus inducing, in effect, hyperchlorhydria and a low grade of gastric catarrh. The evil thus begun is continued and augmented in the intestine. Cabbage, cauliflower, turnips, in a word the larger vegetables with considerable residue are prone to arouse intestinal disturbance both on account of their bulk and injurious qualities peculiar to themselves. Fried foods are justly viewed with disfavor. Whether it is that they become impregnated with grease and thereby impervious to the gastric secretion or whether they undergo indurating changes in the process of cooking, certain it is that they add to digestive difficulties, and retard the cure of eczema.

There is testimony to the unfavorable influence of gout and rheumatism on the skin. Both are metabolic upheavals; explosions as it were of long smoldering and encroaching derangements of function. No one may fairly deny their competency to produce eczema or at least to markedly reduce resistance to external causes. The diet should be meat-free and sweet-free. Alcoholic beverages are unequivocally vicious. This applies to almost every dermatosis of whatsoever origin.

While upon the subject of rheumatism, it will be convenient to dispose of several affections clearly attributable thereto. Erythema nodosum studs the shins with painful nodules. Readily enough relieved by treatment it shows defect in the assimilative processes and demands the dietary restrictions preventive of graver manifestations. If care is not taken to rid the tissues of the accumulating acid elements involvement of the joints or the heart may occur. As a danger signal erythema nodosum possesses considerable significance.

Purpura hemorrhagica is also rheumatic when it is not scorbutic, infectious, cachectic or medicinal. In the great majority of cases it is rheumatic. It is amenable to management as a rule but should be taken in its more vital relation to the probable damaging of important structures. Schönlein's disease presents a commingling of purpura, urticaria and erythema multiforme; indicating broadly enough the rheumatic origin of all these dermatoses. Often there will be hemorrhagic blebs drawing into the etiologic relation erythema bullosum. Associated arthritis and endocarditis are found as confirmatory evidence. The diet in this disquieting outbreak should be that of acute rheumatism. It should rigidly exclude animal protein and sugar. Lemon juice seems to sustain in this complication its ancient repute in the therapeutics of rheumatism.

Urticaria and erythema multiforme having been reasoned into the rheumatic class sometimes present themselves under embarrassing circumstances. We see them follow the taking of certain foods or drinks with a promptness demonstrating cause and effect. Intervening rheumatism has no opportunity to develop. And yet how many times in pathology have we seen the cart before the horse; have we seen the complication precede the original disease? How many times have we seen the endocarditis precede the arthritis? Rheumatism is an acidosis; urticaria is also. The irritating

ingesta if persisted in would probably precipitate the more serious development. In sweeping out the bowels in urticaria we are proceeding on the same program of elimination as in rheumatism. The diet in both conditions could be interchanged and serve admirably. Everything said of urticaria applies as well to erythema multiforme. They are blood relations if not actually of the same parentage. Angioneurotic edema is a Gargantuan form of urticaria and demands the same circumspection in eating and drinking.

While seborrheic dermatitis (usually miscalled seborrheic eczema) is regarded as a purely local disease and commonly treated only by means of salves and lotions, there is no satisfactory explanation from this standpoint of its capricious selection of victims, and its equally capricious variation, in the same victim. Within the encompassing integument is to be found the reason of its own susceptibility. Let the microbacillus of seborrhea be ever so enterprising, the fact that it misses some skins shows that in its successful raids it meets with less resistance. Postulating the bacillus as a myth brings us to the inevitable admission that something out of joint in the patient is responsible for the undue production of this necessary lubricant. When cases of this sort are studied with an eye for probable metabolic derangements, better results will be obtained. It would appear rational to consider any excessive colloid secretion as a phenomenon of acidosis and regulate the diet accordingly. A celebrated tonic of a famous clinician contained iron, a bitter and an alkali. The success of the medicine was greatly enhanced by the action of the alkali in combatting the acidosis always imminent in anemia, the so-called starvation acidosis.

When we approach the subject of psoriasis we are humiliated by our lack of trustworthy information. We can diagnose it correctly. After we have done that, we have accomplished the only positive, definite and certain event in connection with its management. Its etiology is unknown. Its treatment in the most commendatory terms is lamely palliative. Cure is unhoped for by the dermatologist. The patient at the instigation of quacks or inexperienced general practitioners may labor on to that unattainable end, but disillusionment is inevitable. The intensest endeavor of the wisest minds in practical therapeutics has fallen short of substantial achievement. One of the most noted of teachers lecturing to a class in a post-graduate school said without the flicker of a smile, "Put your patient with psoriasis to bed; give him hypodermics of arsenic, and collect your bill before he relapses." This sums up the prognosis exactly. Arsenic will sometimes control the eruption; sometimes it will fail. Chrysarobin ointment is a more or less valuable adjuvant depending on whether the patient would not prefer the disfigurement of the disease to the relief obtained by the most repulsive application ever concocted. It stains the skin; it ruins the clothes; it sets up a distressing dermatitis, and if it gets near the eyes will do considerable mischief. While distinctly efficacious on occasion for the production of temporary relief it is inadmissible about the head or face. And psoriasis patients sensitive to a degree on the matter of their affliction are always in dread of enroachment from the scalp onto exposed situations. On the scalp we are forced to resort to ammoniated mercury. In the happily rare instances where the face is invaded the same remedy must be used. The very best we can look for is enforced

resession for a time. Relapse will come with the regularity of seasonal changes and with episodal depreciations of general vitality. This supplied the hint as to the possible nutritional basis of the eruption and gave us the one method of attack that offers any prospect of sustained improvement. It was clear that a disease with such vicissitudes was influenced by the condition of its host's defenses. Ignoring for the nonce the intermediation of the ductless glands, we must ascribe that condition to the level of his nutrition and this in turn to the quantity and quality of his ingesta. Here then was a fixed point of deduction. It was only necessary to resort to patient application of the principle involved to find the element perpetuating the trouble. Long experience has shown that abstinence from animal foods somehow braces the system against the dominance of psoriasis. It is not at all plain in what way. Faulty metabolism is invoked to explain the relation but this simply adds a link to the chain without providing a point of support. Practically it is only important to know that an animal-free diet will hold the eruption at bay. Its manner of accomplishing this, while doubtless of the highest scientific interest, if demonstrable, will add nothing to the efficacy of the plan. The internal and external remedies occasionally of service should be religiously adhered to on the principle of availing ourselves of every adjuvant in campaigning against such a stubborn enemy. Failures are reported of this dietetic therapy. But for the matter of that, failures are reported of every form of therapy for every form of disease. Failures here are referable to the want of determination on the part of the patient. It is notoriously hard to keep any one to a rigid diet after the shock of evil tidings has a little abated. The pull of habit, the dulling of apprehension with the lapse of time and the disposition of most men to "take a chance" for the satisfaction of their cravings, bring about a relaxation of resolution and a regrettable relapse. With his customary evasion of personal responsibility, the patient shifts the blame at once to inefficient treatment and calls down discredit on a worthless and disagreeable method. If a man will faithfully and unfaltering abjure animal food for good he will eventually master the disease. It will be a drawn battle to be sure, but as victory consists in the fading of the eruption, even this conclusion is a great desideratum.

The tubercular diseases of the skin, including those step-relations known as tuberculides, may be briefly disposed of by the reflection that as the object is to fortify the patient against the activity of the bacilli he should be urged to consume every nutritious article of diet that his stomach will tolerate. Selection, if it be exercised at all, should run in favor of the fats.

Ichthyosis and xeroderma undoubtedly due to deranged internal secretion are to receive generous lubrication within and without. Fat is indicated in any form in which it can be taken, and in any amount short of creating gastric revolt.

The victim of lichen planus is out of gear. He is usually depressed and nervous. While we do not know the etiology, these symptoms point to a significant loss of tone. It is not sufficient to attempt the relief of the exasperating pruritus. Internal medication is necessary for ultimate cure. Curious as it may seem bichloride of mercury has a stronger controlling effect on the outbreak than anything else, bichloride of mercury by the mouth, and rubbed up in ointments. There is no suggestion here of linking up

the disease with syphilis. The mercury internally doubtless acts as a chologogue. It stirs up hepatic activity and eases elimination. An eminent dermatologist has long advocated the use of nitric acid alternated with chlorate of potassium in this affection. The benefit of nitric acid in derangements of hepatic function was a tenet of the past generation. "There were giants in those days" in the practice of medicine. We are learning every moment that "they builded better than they knew." Their observations were sagacious; their deductions keen. Their suspicion of the liver, while sometimes unverified, led to the formulation of the doctrine of lithemia and this to the advocacy of a diet of vast avail in combatting acidosis. Both the bichloride and nitric acid therapy of lichen planus indirectly implicate the liver. Thence to the curtailment of animal pabula is a short, direct step. It will be well in addition to follow the dictates of ordinary prudence in not setting up fermentation by the ingestion of sweets. Lichen ruber, lichen ruber acuminatus and dermatitis exfoliativa are all credited with a lowly origin in the contaminated gut. Opinion is undivided that the most active and dangerous toxins generated therein are due to the nitrogenized elements of the food. In these conditions, therefor, the recommendations to abstinence are positive and clear.

Pemphigus and pemphigus foliaceous are grave diseases of unknown origin. How often are we compelled to take refuge in that discreditable phrase! And what a wretched figure we cut with all of our scientific research apparatus, standing abashed with deprecatory hands, and mumbling "origin unknown"! If the microscopist and the serologist avail us naught let us pin our faith to the newer dispensation and cry "all hail to endocrinology."

Practically still *terra incognita* it will, I am confident, yield amazing fruit whereever worked. The day will dawn when the ticketing of bacteria will be subordinated utterly to the study of predisposition as revealed in the internal secretions. Meanwhile, in this pitiable ignorance of ours what shall we do in the matter of diet for this perilous pemphigus, "origin unknown"? It is a disease of great prostration. It kills by devitalization. The Wassermann has deprived us of the feeble hope clinging to a luetic suspicion. How shall we feed the afflicted? Anything that he can encompass without distress. We must strive to build. The outlook for success is unpromising but it lies in the direction of generous providing. A supporting diet without restrictions except those imposed by the exigencies of the situation comprises the sum and substance of the regimen.

The term hydroa of ancient and honorable usage has been judiciously revived to cover a number of bullous manifestations variously denominated in more recent classifications. Among them are to be found dermatitis herpetiformis, hydroa gravidarum and hydroa vacciniforme or estivale. The best that is offered in the way of etiology is "neurosis." This is a shuffling evasion. What is back of the neurosis? To glibly declare that the nervous system is at fault in a given pathologic phenomenon, is simply to whistle down the wind. Nerves are not diseases. They are affected by disease. The disease affecting the nerves may perhaps be the cause of the cutaneous reactions, but not some vague instability of problematical reality. We shall have to do better than that if we wish to hold the interest of thoughtful men. Underlying every

physiologic process, actuating every vital function supplying to every remotest cell the wherewithal of diverse cunning, is this stream of internal secretion. With all the glands that elaborate it working in healthful harmony, the balance of well-being is maintained. With any one of them incapable or perverse, the whole system is out of joint, and we experience in a more or less intense degree the discomfort of disease. Here lies the secret of predisposition, that amazing tendency to take on or resist infection which has been the puzzle of pathology. Here lies the cause of all those "neuroses" of which we have prated so volubly in the past. It is to a study of the ductless glands that we shall have to turn for the explanation of our many unsolved problems in dermatology.

The feeding of the patient with dermatitis herpetiformis has to do with the alleviation of his diabolic itch and the maintenance of his nutrition. Things bad for the patient with eczema are bad for the patient with dermatitis herpetiformis. In the absence of the anticipated illumination from the endocrine glands we must blunder along in the light of painful experience and give the sufferer the benefit of such waifs and strays of wisdom as have happened in our path. If he is plethoric he needs fasting. If he is undertoned, as he is more liable to be, he needs feeding.

Beer and alcohol in every form are interdicted as in nearly every variety of cutaneous disease. Oatmeal also. There is no question that if we get a patient below par, it will be unwise to restrict too rigidly the taking of even suspected substances. We shall do as much damage by sapping his vitality as by introducing possible irritants. Watch along the lines of intestinal sanitation. Known disturbants such as pork, veal, corned and pickled foods must yield to wiser counsel. There are many safe substitutes for these. The question of sweets is often a debatable one. Their offense consists in setting up fermentation not in the fact of their being carbohydrates. Their chemical constituents are not obnoxious to good health. If they are properly taken care of in the digestive tract there is no valid objection to them. To the other manifestations of hydroa the same reflections will apply.

Diet in luetic outbreaks is overshadowed today by the esteem in which salvarsan is held. The hope of the stricken sensualist and his medical adviser is centered in the semimiraculous reputation of Ehrlich's Speedy Specific. But occasions have arisen where this reputation has been discredited by abject failure; where also mercury has been unavailing. One such is related where the patient, afflicted with what seemed to be malignant syphilis, went from bad to worse in a city hospital. In despair the attending dermatologist ordered all specific medication stopped, and putting the patient in the sunlight at the open window he tried to force his nutrition. Improvement soon began and from an apparently hopeless situation an excellent result was finally obtained. This proves that our specific treatment is inefficient without the cooperation of rising vital forces. It also explains the disparity in the results on different patients of precisely the same course of treatment. It is the patient's own powers of resistance which finally prevail over the obscene invader and the salvarsan, mercury, *et al* simply help to arouse them. From the beginning of systematized management of syphilis the avoidance of alcoholic beverages has been a cardinal condition. That is a matter of diet. The necessity of a proper

amount of food has always been recognized as indispensable to the favorable conduct of the case. Under the old dispensation acid articles were discountenanced as prejudcial to the best effects of the mercury. There was a glimmering on the therapeutic horizon of the light of acidosis. It is indisputable that an underfed luetic will develop more disquieting symptoms than one adequately nourished. It is as indisputable that an overfed gluttonous luetic will bring upon himself a great deal of avoidable trouble. The liver is a favorite hunting ground of the spirochete and if it is put in a highly vulnerable condition by dietary indiscretions, disastrous consequences may ensue. The luetic is forced by his misfortune to do what he might more profitably have done as a decent man; namely, to live chastely, soberly and temperately.

It would be a work of supererogation to discuss the subject of diet in cancer were it not for the fact that the question has been raised of the possible etiologic relation between the two. It has been gravely asserted with much display of statistics, that cancer is caused by the eating of animal food. This might be allowed to pass without serious dispute were it not for the further fact that it jeopardizes the life of the victim by inducing him to forego operation. Altogether aside from the trivial academic interest of such a theory is its tremendous practical interest to the misguided patient. We might view with equanimity the ingenuity of the arguments adduced, if the price of error were only a remediable itch. But when the price of error is an irremediable growth, when lurking in the seductive sophisms is the sentence of an awful death, it is the duty of the thoughtful man to cry "Hold. Enough!" It may be retorted that in this paper we have repeatedly questioned the advisability of animal protein in certain diseases of the skin. Granted. But these diseases were at most a nuisance. Experimenting with the exclusion of animal protein did not mean disaster. They were also diseases whose wider distribution put them in quite a different relation to a metabolic etiology than the single lesion of cancer. Then again they were largely diseases of inflamatory origin. Cancer is a surplusage of the normal cells of the part with proliferation downwards. The cells turn and rend their compeers. They force their way inverted into the normal organization of the part so that in a cancer pearl the rete will be the outer-most layer and the scarf skin the innermost. By what process of reasoning metabolism could be accountable for an eccentricity of this sort it is somewhat difficult to understand. To squeeze out of this uncomfortable corner, resort is had to "embryonic rests." An "embryonic rest" is a microscopic waif stranded during fetal life in a foreign locality. A bit of ovary may be far from home in the liver. A bit of kidney may be irretrievably lost in the stomach. A bit of spleen may be comfortably sheltered by the lower lip. These vindictive ingrates at the first opportunity strike at the place of their adoption, and incited by the toxins of animal proteid, lowered general vitality and the disturbance of some local irritation begin the formation of the malignant neoplasm that is to take the life of the patient. That is the theory advanced by the proponents of the metabolic origin of cancer. It is cumbersome and complicated at all events. It is somewhat weakened by the circumstance that commonly the cells found in the cancer are the cells indigenous to the affected area. Sometimes, but very rarely, we have teratoma or mixed tumors

due to congenital displacement; but as Dr. Bainbridge lucidly remarks in "The Cancer Problem": "The superposition of malignant new growths upon the growth of embryonic tissue is today regarded as being just as much a problem for solution, as is its acquirement by tissue still growing in normal continuity with its surroundings." The migratory cells that form the basis of this theory are when found involved in malignant neoplasms, the outposts of metastasis, in a vast majority of cases. Cancer of the stomach will transfer to the liver, cells peculiar to the stomach. That there is something out of true in the cancer suscept, is undeniable. Otherwise cancer would be as common, let us say, as measles. What the abnormality is at present escapes our keenest pursuit. That it cannot be due to anything as widespread as meat eating is evidenced by the ridiculous disproportion between the number of meat eaters and the number of cancer victims.

The adjustment of diet in cancer of the skin is, in view of the foregoing, very quickly accomplished. Sustain the patient. There are no contraindications except those laid down by ordinary prudence.

Lepra presents many of the characteristics of lues with the prognosis of cancer. We have the bacillus, but that is of avail only in establishing the diagnosis. It aids us in no way to understand the method of invasion or the conditions favoring its insemination. Cures are imputed to Chalmoogra oil. Cures of lues are imputed to salvarsan. Cures of cancer are imputed to diet. Whether or not the imputation is justified, our duty is to feed the patient. We are to get up his resistance by supplying the elements of nutrition as freely as he can accommodate them.

Pellagra is a disease with which we, in this latitude, are unfamiliar. While the origin is at issue there is a preponderance of opinion in favor of its being the eating of damaged maize. The diet here would coincide with the essential therapy.

Frambesia or Yaws also alien to this neighborhood, ought to have about the same attention as lues in the way of general supporting measures. Leukemia cutis is fortunately rare. The analysis of the blood determines the diagnosis. Supporting measures are decidedly indicated especiallly bone marrow.

There is a long array of dermatoses for which having no etiology we have no specific dietary. We might cite at random; acanthosis nigricans, mycosis fungoides, xeroderma pigmentosum, scleroderma, leucoderma, alopecia areata, et al. There is another array of purely local origin where feeding can only be of importance to the general well being. We might cite again blastomycosis, actinomycosis, sporotrichosis, favus and tinea. Furunculosis may call for radically different systemic management according to whether there is merely a lack of resistance to the staphylococcus or a diabetic dyscrasia. In one instance it would be homicidal to push the nutriment essential in the other. Xanthoma diabeticorum carries with it imperative restrictions.

Diet in diseases of the skin in children offers some difficulties peculiar to the immaturity of the subjects. For example a bottle-fed baby with eczema must continue to be bottle-fed. We cannot omit the cow's milk which is making all the disturbance. We must temporize; compromise; synthetize; adapt; adjust; arrange; back and fill; yield a little to gain a little, and thru it all we must hold firmly to the cow's milk as the substantial basis of our dietetics. There are many clever modifications of

cow's milk designed to reproduce with more or less exactness the composition of mother's milk. These do very well on many occasions. Needless to say that they do not reproduce the composition of mother's milk. They remain cow's milk in modified form. They are conformable to the requirements of infant digestion to a greater or less degree, but being the food of a different animal cow's milk cannot fail to tax the feeble powers of the alien stomach. Eczema is frequent in art-fed babies. To diet them we are forced to depend on a weakening of the offending fluid. This we denominate variously. Sometimes we are frank and call it dilution. Sometimes we deceive ourselves a little and call it attenuating the curd. We add cereals and claim we are simply bringing up the carbohydrate content. We add lime water to prevent too rapid coagulation of the curd. We do a lot of things to it under divers subterfuges, but the thing we accomplish when we accomplish anything is a dilution suitable to the capacity of the baby. As many babies thrive on milk diluted with water as on the finely graded mixtures of the percentage formulas. They thrive on milk diluted with barley water, with rice water, with oatmeal water. They thrive on diluted condensed milk, than which a more haphazard mixture could not be devised. In short they thrive on the milk that they get in spite of the disadvantages under which they get it. In dieting a baby with eczema who is dependent on cow's milk we have no recourse but to try one method of dilution after another until we come as near as possible to the suitable proportions. But we must not let our zeal to cure the eczema lead us into the costly blunder of sacrificing the child's vitality.

Older children, subsisting on solid food, seem to gravitate out of the eczema and into the urticaria class. Eczema does not disappear from among them, but urticaria becomes more prevalent. Urticaria in the adult has been discussed in its relation to rheumatism. Children too are prone to rheumatism. Urticaria and rheumatism are aggravated by the same faults of feeding. For relief, animal proteid and sweets must be eschewed. Eggs are especially mischievous. Tea and coffee are out of the question. Fish, unless of unimpeachable quality, is apt to produce not only irritating but dangerous reactions in the intestines. To these the skin responds with great alacrity. The same precautions will apply to the management of any itching dermatosis.

The care of psoriasis in children does not differ materially from the care of psoriasis in adults.

From the foregoing it is evident that rational dieting in diseases of the skin, except where we can put our finger on a distinct and positive indication, such as albuminuria, glycosuria or tuberculosis, is a procedure based on prolonged observation of the individual. Experience has taught us that in the general run of cases, certain factors are objectionable; but the personal equation interposes, when we least expect it, to upset our sagest calculations. There is probably no class of patients less amenable to rigid dogmatizing than those we are discussing. Man is the microcosm. He is a little universe in *se ipso*. He is governed by laws of which he is in a sense the maker; for is not every man a law unto himself? The meaning is obviously that every man has his own peculiar adaptation of universal law to his individual needs. Variations in type alter reaction to environment. This in turn alters receptivity of impres-

sions. This modifies the influence of compelling forces. If in the regulation of diet we would but remember this notable diversity of assimilative capacities, if we would but dwell on man, the microcosm and not man, the cipher, if we would study his individual and not merely his generic qualities, we should soon attain to a degree of accomplishment impossible under the present perfunctory method.

FOOD IN THE TREATMENT AND PREVENTION OF RICKETS.

BY

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The few remarks on the above subject which I am contributing to AMERICAN MEDICINE, at the request of the editor, are based entirely on the theory that the bony deformities of rickets are due to an acidosis and that the many symptoms of malnutrition which so often accompany the disease and are generally described as essential features of it, merely represent symptoms of pathologic conditions which may themselves lead to an acidosis, or are themselves consequent on it. For a more complete account of my views on the etiology of rickets I must refer the reader to the September number of this journal, page 630, in which will be found a statement of the grounds on which I base my arguments.

Food becomes, or may become, a factor in the etiology of rickets when the supply is not physiologically adjusted to the demand, especially when the supply, as measured in calorie values, is greater than the demand. From this it follows that the fault of this want of adjustment may lie in the demand quite as much as in the supply. To take a concrete case: A baby is supplied daily with food of the value of 2,000 calories. His physiologic requirements are for 800 calories. Under such circumstances we may say that the food is 1,200 calories in excess of the requirements, or that the demand, while the baby weaker for food by reason of the work he does, is 1,200 calories short of the number he receives in his food —is in fact too small.

We can therefore adjust the difference, or at least attempt to do in one of two ways. We can cut down the food to an 800 calorie level, or we can make the infant work up to a 2,000 calorie basis. In either way the supply will equal the demand. It is a correct appreciation of the bald statement of fact that makes dieting in rickets a comparatively simple matter. If you cannot make an infant live up to the theoretical standard of requirements, that is to say, if you cannot make him create a demand for food which fulfils the accepted physiologic standards, you must reduce the food supply, no matter to how low a level, until it equals the demand. This demand is measured by the amount of work the infant does in the 24 hours, by the amount of heat he dissipates by lung, skin and other emunctories, by the role of growth, and by the quantity of secretion he elaborates in his body.

If the demand is less than the supply, the excess will be disposed of in one of the several ways which we recognize as symptoms of malnutrition; that is to say, by pathologic, rather than by physiologic means. One of these means is by the wasteful combustion of food with the production of acid bodies of large molecular size instead of by its complete and economical combustion to urea, CO_2 and H_2O. This wasteful combustion which merely represents the fulfil-

ment of the ordinary laws of the conservation of energy results in the production of an acidosis, and the acidosis prevents the due mineralization of bone and hence the typical osseous malformations of rickets.

Now rickets has been included in the category of "Deficiency Diseases" by many writers. For my part I feel convinced that if referred to any particular group at all it should be classified as an *"excess"* disease, and on this assumption I base all I have to say with respect to the dietetic treatment of the disease.

Altho the one essential element in the treatment, both prophylactic and curative, is the correct adjustment by the amount of food to the physiologic demands, that is to say, by attention to the actual caloric value of the food, this does not cover the whole of our duty. The caloric value must be made of mixed elements of food—proteins, fats, carbohydrates, etc.—in such proportions as fit in with the general physiologic make-up of the subject in question. That is to say, the food must be of such a nature as to be capable of being digested, of being assimilated, of being used up by the tissues for their various purposes, and again of being eliminated as end-products by the excretory organs without imposing undue strains or by causing injuries, for the moment strains are imposed or injuries inflicted, the efficiency of the body as a working machine is adversely affected, the capacity for work is decreased, and those very conditions produced which constitute *"relative over-feeding,"* the one essential cause of rickets.

Even tho the required caloric value may not be exceeded, a great excess of carbohydrate, as compared with fat or protein allowance, will impair the efficiency of the body as a whole in the same way that a great excess of fat as compared with the two other important elements will produce a similar result.

In the treatment, as in the prevention, of rickets the first thing to do is to determine approximately the number of calories required by any given infant. This having been done these calories must be supplied by food which consists of mixed elements combined in the proportions which experience has shown to be here suited to the physiologic make-up of the human infant. In other words, in the proportions in which they exist in human milk. If there is any abnormality or idiosyncrasy in the infant which precludes such a combination, allowance must be made for it.

The dietetic treatment of rickets becomes quite hopeless if it is assumed that the disease is *"caused"* by want of fat, by the giving of starches, by the want of antiscorbutic elements or by any one of the other hundred and one causes that have from time to time been included in the etiology. Any one of these may be a contributory cause by impairing the efficiency of the body as a working machine, but the cause of the bony deformities is the acidosis which is finally produced by any one of them individually, or by several, or all of them in combination.

I believe it is a very good thing to give young babies small quantities of starch, provided they are in a position, *i. e.,* have been taught to digest insoluble carbohydrates, for by so doing you are giving them a food which, so to speak, stays by them longer than soluble carbohydrates, which are immediately absorbed and thus flood the circulation with sugar—quicker possibly than can be utilized immediately. Want of fat, or the giving of starches are rare causes

of rickets, tho each may become so under suitable conditions.

I have met with the greatest success in the treatment of rickets in the wards of my hospital by giving quite simple directions. Provided the child's digestion is not impaired, quite simple food of the ordinary kind is allowed but never in excess. Great attention is paid to the creation of a demand —a physiologic demand for food—by insisting on work, muscular work up to the full capacity of each patient. This often involves massage and resistance exercises. The child is not kept too warm so that a natural demand for combustion may be created. Any expedient which creates "muscular tone," which I regard as a form of internal muscular work, is encouraged, as for instance, by a daily douche of tepid or cold water, by open air treatment, etc. Above all, attempts must be made to repair all injuries inflicted on the machinery which impair its general efficiency for work.

Food is indeed an important element in the treatment of rickets, but chiefly so by reason of the importance of adjusting it quantitatively to the demands, but the exact qualitative adjustment is not nearly so important as is generally imagined.

A Substitute for Milk.—One of the best substitutes for milk, according to Parker in the *Brit. Med. Jour.* (Jan. 12th, 1918) is a preparation of oatmeal. Four ounces of rolled oats are thoroly boiled, a little diastase added and the product allowed to stand in a warm place, when a portion of the starch is converted into maltose. The liquid is then strained and water added to a pint or a pint and a half. The result is a liquid very like milk. Ground rice treated in the same way is even better in color and flavor, but the nutritive value is less than in the case of oats.

THE DIETETIC TREATMENT OF DIABETES MELLITUS.

BY

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It is now generally agreed that the treatment of diabetes mellitus is essentially dietetic and that altho drugs may be of use at times they cannot be relied upon to exert a specific curative effect on the disorder. Before considering modern dietetic methods it will be useful and instructive to glance briefly at some of the more important of those employed in the past, since by doing so we shall see how the accepted treatment has varied from time to time with altering views of the pathology of the condition and so perhaps guard against a too ready acceptance of any one plan of dealing with a disorder, the primary cause of which is even yet unknown. Up to the middle of the eighteenth century nearly all physicians, following the lead of Galen, regarded diabetes as a disorder of the kidneys, which they considered failed to retain water much as the intestine failed to retain solid food in diarrhea, and it was not until 1775 that Matthew Dobson, a physician of Liverpool, opened the way for a different conception of the disease. Having succeeded, with the help of a pharmacist named Poole, in isolating sugar from the urine of diabetics, and noticing that the blood serum had a sweet taste, he came to the conclusion that the urinary sugar was probably not formed in the kidneys, but resulted from imperfect assimilation of the chyle, which he pointed out always contains a little sugar. As the excretion of sugar in the urine of diabetics demonstrated by Dobson appeared to afford an explanation of the malnutrition and loss of weight seen in these cases attempts were soon made to treat the disease with

large doses of sugar administered by the mouth, but needless to say with unsatisfactory results. There the matter rested for over twenty years, until, in 1797, John Rollo, an army surgeon, published an account of how he had been able to control the glycosuria and relieve the symptoms of several cases of diabetes by a diet from which all vegetable substances were rigidly excluded. Rollo was ignorant of the fact that normally starches are converted into sugar in the digestive tract and based his treatment on the theory that diabetes was a disease of the stomach which might be cured by limiting its activity as much as possible. It was with that object in view that he prescribed an animal diet, but in addition he gave narcotic drugs and, to counteract the "superoxygenation of the humors" which he considered were present, he also administered emelics and sulphate of ammonia. Fallacious, and even fantastic, as the theories now appear that underlay Rollo's treatment it gave far better results in practice than any other method previously suggested and for more than a hundred years his system of dieting was the basis of the treatment generally adopted. The use of emetics and "deoxygenating" agents was soon abandoned, but a protein-fat diet combined with narcotic drugs was, and unfortunately still is, widely employed. After Chevruel demonstrated in 1815 that the sugar in the urine of diabetics is identical with glucose and Tiedmann and Gmelin showed in 1821 that dextrose is formed from starch in the intestine and is absorbed into the blood, the explanation of the benefit resulting from Rollo's system of dieting became evident and every endeavor was then made to discover an absolutely carbohydrate-free diet to which patients with diabetes might be restricted. It was soon found, however, that no matter how strictly starches and sugar were excluded from the diet some patients continued to pass sugar in their urine and for long no satisfactory explanation could be found. It was not until 1876 that the real reason was divined by Külz, who suggested that sugar could be formed from albumin in severe diabetes. Experimental confirmation of his surmise was furnished by Lépine and Barrah in 1891, and a year or two later by Pavy, but it seems to have had little influence on treatment until about 1903 when Kolisch and Schumann-Leclerq published an account of cases of diabetes in which the sugar excretion had been controlled by reducing the protein in the diet. Recognizing the harm that might be wrought by the continued employment of a diet consisting almost entirely of animal food von Noorden advocated regular "vegetable days" and Naunyn caused his patients to fast at intervals.

Meanwhile another aspect of the diabetic problem had attracted attention. In 1828 v. Stosch recorded the history of a case of diabetes which had died comatose but attributed the coma to the large doses of opium that had been used. A few years later Prout described the condition more fully and suggested that it might be a result of the diabetes. The reason why coma should supervene remained a mystery however for over half a century, altho several possible explanations were suggested. In 1874 Kussmaul showed that acetone, which had first been discovered in the urine and blood of a diabetic by Petters in 1857, is toxic when administered to animals in large doses and it was therefore concluded that diabetic coma was due to acetone poisoning. This hypothesis was soon disproved when it was found that very large doses in-

deed were needed to bring about a fatal issue and that the symptoms produced were not identical with those of diabetic coma. In 1865 Gerhardt had discovered the reaction of diabetic urine with perchloride of iron known by his name and when it was shown by v. Jaksch that this reaction was due to the presence of aceto-acetic acid that substance was for a time regarded as the cause of coma, but the researches of Brieger ultimately proved that it was not more toxic than acetone. The next step was made by Goetghens in 1880. On balancing the acids against the bases present in the urine of a case of diabetes he found the latter in considerable excess over what would be required to neutralize the determined acids and therefore came to the conclusion that some unknown acid was present. The nature of this acid remained uncertain until in 1884 Külz and Minkowski independently discovered beta-oxybutyric acid, which they suggested was the missing toxic substance responsible for diabetic coma. The experiments of Woldvogel, Desgrez and others showed, however, that beta-oxybutyric acid, like acetone and aceto-acetic acid, is only slightly toxic and it was not until Walther and later Eppinger had demonstrated that similar symptoms to those met with in coma could be produced by inorganic acids that it came to be recognized that beta-oxybutyric acid and its associates might produce their effects in virtue of their acid characters and not as a result of any specific poisonous properties they possess. Further observation and research have tended to confirm this theory of acid intoxication and shown that the depletion of the alkaline reserves of the body resulting from increasing acidosis is the commonest cause of symptoms of diabetic coma.

The source of the acetone bodies was for long a subject of keen controversy. At first it was believed that they were formed from carbohydrate owing to abnormal fermentative changes in the intestine, but this hypothesis was abandoned when it was shown that the administration of starchy foods did not increase acetonuria and often diminished it, while a carbohydrate-free diet on the other hand tended to augment the output, thus explaining how some patients managed to save their own lives by breaking away from the strict diet imposed by their medical advisers as a result of the Rollo tradition. The discovery of the antiketogenic properties of carbohydrates not only resulted in a much more circumspect use of carbohydrate-free diets but also had an important influence on the treatment of diabetes in another way since it led to numerous attempts being made to discover some carbohydrate which would be tolerated by diabetics and so allow the tendency to the formation of acetone bodies to be controlled without the output of sugar in the urine being increased. Of these the best known are v. Noorden's Oatmeal cure, Mossé's Potato cure, and v. Duering's Rice cure, each of which had only a temporary vogue as it was found they did not fulfil the claims made for them in the majority of cases. The same may be said of the use of inulin, levulose and other carbohydrates and carbohydrate derivatives advocated from time to time by various writers. Experience with these and similar methods of treatment served however to demonstrate the important fact that the failure of diabetics to metabolize carbohydrate is very seldom absolute and that a limited quantity can generally be tolerated in some form or other. After carbohydrates had been excluded as the source of acetone bodies in diabetes

suspicion was turned on proteins and for long the chief matter in dispute was whether all forms of protein were capable of furnishing acetone bodies or whether they were only formed by the destruction of the body tissues. It is now clear that acetone and its associates can be derived from any protein and that its source does not influence their production excepting in so far as it determines the nature of the constituent amino-acids, some of which, such as histidine, do not yield acetone at all, while others like leucine (44 per cent.) tyrosine (34 per cent.) and phenylamine (35 per cent.) give rise to various proportions. Incidentally it may be pointed out that similar variations in the percentage of dextrose yielded by different amino-acids occur and that these facts together help to explain the satisfactory results sometimes given by a diet composed largely of casein, as administered by Donkin and more recently by Williamson, also the empirical employment of casein as the chief constituent of many diabetic foods, since casein yields theoretically only 8 per cent. of acetone bodies, as compared with 24 per cent. by serum albumin, 16 per cent. by the avenine of oats and 11 per cent. by ovalbumin, while the theoretical yield of dextrose by casein is about 46 per cent., gliadin yielding 64 per cent., gelatin 60 per cent., gluten 56 per cent., and ovalbumin 52 per cent. Theory as well as practice therefore agree that casein, and to a less extent gluten, is the least likely of the common food proteins to increase acidosis and glycosuria together. Altho considerable quantities of acetone bodies may be formed no doubt from the fatty acids derived by deaminization from the amino-acids of proteins in severe diabetes, the amount passed in the urine, especially in mild cases, is usually much greater than can possibly be explained by protein destruction, and as the forced feeding of diabetics with fats and fatty acids has been found to increase the output of acetone bodies rapidly it is obvious that their chief source is not proteins but fat. Control of the fat intake, as well as the protein allowance, is consequently of the utmost importance in preventing and combating diabetic acidosis. Recent research suggests that regulation of the fat allowance in the diet is necessary from another point of view also, namely the utilization of carbohydrates. At one time it was held by some that sugar could be formed from fat in the body and altho this view is not accepted, clinical experience shows that a diet rich in fat tends to interfere with the utilization of sugar. This effect may not be apparent at once but the ingestion of more fat than can be easily and completely utilized leads ultimately, as a rule, to a reduction in the carbohydrate tolerance, as the experiments of Allen on dogs have recently demonstrated. A further argument in favor of the need for control of the fat intake is furnished by the observations of Bloor on the blood in diabetes. He has shown that the lipoids are increased in nearly all cases and that generally the more serious the condition of the patient the greater is the variation from the normal. Since the fat content and relations of the blood are disturbed from an early stage it is probable that difficulties in fat metabolism play a much greater part in the pathology of diabetes than has been supposed and that fat is frequently a more serious source of danger than carbohydrate, particularly as imperfect utilization of the latter gives rise to a readily recognizable sign, in the shape of glycosuria, whereas imperfect fat metabolism is more likely to progress unnoticed and unchecked.

It will thus be seen that with advancing

knowledge and experience the dietetic treatment of diabetes mellitus has passed thru three stages, progressing from a comparatively simple problem with one unknown quantity, the carbohydrate tolerance, to a complex investigation involving the determination of at least two additional factors, the optimum allowance of protein and the limit beyond which the fat intake must not go. Whether further investigation will show that still other elements in the diet need to be taken into consideration it is yet too early to say, but that it is not unlikely is suggested by recent work on the influence of particular amino-acids on normal nutrition and the role of inorganic salts in the metabolism of the body. At least it is clear that the rule-of-thumb method so long followed of giving a diabetic patient a list of "carbohydrate-free" foods which he may take in unlimited quantities and another of carbohydrate-containing foods which he must avoid cannot meet the requirements of modern treatment, since the proteins and fats of which the diet largely consists will almost certainly be taken in excess while the limited amount of starchy food which might be taken with safety and advantage will probably not be reached. As I pointed out in 1912, a properly balanced diet can only be secured by teaching the patient to take his food quantitatively, a proposition I am glad to see is now generally accepted by writers on the treatment of diabetes. Quantitative regulation of the diet is not such a difficult matter as it might seem at first sight, for minute accuracy is neither necessary, nor in fact possible, in practice, as the natural variations in foods according to the season, method of preparations, etc., are so considerable in the majority of instances that more than approximate values cannot be obtained even by careful weighing; great accuracy in that respect is consequently only waste of time. Except in severe cases where the tolerance is very low, sufficient control of the diet can be secured by teaching the patient to judge by the eye the weights of the commoner food materials representing a certain allowance of protein, carbohydrate and fat. In order to avoid the employment of large figures I am in the habit of teaching my patients to calculate their diets in arbitrary units termed "rations" with the following values:

One protein ration (P. R.) = 20 grams of protein (= 3 eggs).

One carbohydrate ration (C. R.) = 4 grams of carbohydrate (= ¼ oz. bread).

One fat ration (F. R.) = 5 grams of fat (= 1 average egg yolk).

By fixing these values in their minds and thinking of their food in terms of eggs and bread patients are better able to appreciate and remember the relative protein, carbohydrate and fat values of different foods than if they think of them in percentages or grams. My patients are also taught to take their food in "average servings," which represent the weights of various foods found by experience to be taken by an average individual at one helping, or on one day. As soon as the patient comes under treatment he is provided with an "average serving" card, arranged in groups of predominantly protein, carbohydrate and fat foods, and with each group sub-divided according to the ration values:

A. PROTEIN FOODS.

Group I.	P. R.	F. R.
1 small egg	¼	1
1 large egg white	¼	1
2 Av. egg yolks	¼	2
Bacon 1 oz.	¼	3

Group II.	P. R.	F. R.
Tripe 3 oz.	½	..
..... ———	..	..
Smelts 2 oz.	½	1
Sprats 3 oz.	½	1
Sardines, tinned, 1½ oz.	½	2
Ham, bld., 1½ oz.	½	2

Group III.	P. R.	F. R.
Chicken 1¾ oz.	¾	..
Plaice 3¼ oz.	¾	..
Sole, 3¾ oz.	¾	..
Whiting 3¼ oz.	¾	..
..... ———	..	..
Salmon 2½ oz.	¾	1½
Turbot 3¼ oz.	¾	2
Pork 2 oz.	¾	2
Tongue, tinned, 2½ oz.	¾	3

Group IV.	P. R.	F. R.
Pheasant 2 oz.	1	..
Turkey 2 oz.	1	..
Veal 2½ oz.	1	..
Cod 3¾ oz.	1	..
Haddock 3½ oz.	1	..
Hake 3¼ oz.	1	..
..... ———	..	..
Pigeon 2 oz.	1	½
Duck 2¾ oz.	1	½
Halibut 3½ oz.	1	1
Mutton, bld., 2¼ oz.	1	1
Herring 2¾ oz.	1	2½
Beef, rst., 2½ oz.	1	2½
Mutton, rst., 2¾ oz.	1	3
3 eggs (av.)	1	3

B. CARBOHYDRATE FOODS.

Group I. (Av. serv. = ¼ C. R.)

Raw.—

Lettuce 1 oz.
Endive 1 oz.
Cucumber 1 oz.

Boiled.—

Vegetable marrow 14 oz.
Cabbage 6 oz.
Cauliflower 6 oz.
Seakale 5 oz.

Group II. (Av. serv. = ½ C. R.)

Raw.—

Radishes 1 oz.
Sorrel 1 oz.
Watercress 1 oz.

Boiled.—

Turnip 5 oz.
Celery 4 oz.

Group III. (Av. serv. = 1 C. R.)

Raw.—

Tomato 3½ oz.
Celery 3½ oz.
Onion 1 oz.

Boiled.—

Spinach 4 oz.
French beans 4 oz.
Asparagus 4 oz.
Leeks 4 oz.
Onion 2½ oz.

Edible portion.—

Brazil nuts 1½ oz.
Green olives 1½ oz.
Filberts 1 oz.
Almonds ¾ oz.

Group IV. (Av. serv. = 2 C. R.)

Boiled.—

Brussels sprouts 6 oz.
Carrots 6 oz.
Salsify 2½ oz.
Beetroot 2 oz.

Edible part.—

Rhubarb 6 oz.
Lemon 3 oz.
Lemon juice 2½ oz.
Walnuts 1½ oz.

As purchased.—

Watermelon 10 oz.
Peach 3 oz.
Cranberries 3 oz.
Nectarine 2 oz.

Group V. (Av. serv. = 4 C. R.)

Boiled.—

Fr. artichoke 10 oz.
Green peas 3 oz.

As purchased.—

Strawberries 7 oz.
Blackberries 4 oz.
Fresh currents 4 oz.
Gooseberries 4 oz.
Raspberries 4 oz.
Apricot 4 oz.
Cherries 3 oz.
Fresh pineapple 3 oz.

Starchy foods.—

Bread (av.) 1 oz.
Oatmeal, dry, ¾ oz.
Macaroni, dry, ¾ oz.
Rice, dry, ¾ oz.
Sago, dry, ¾ oz.

Group VI. (Av. serv. = 6 C. R.)

As purchased.—

Orange 8 oz.
Grapefruit 8 oz.
Apple 5 oz.
Pear 5 oz.
Grapes (av.) 5 oz.
Plums 4 oz.

Starchy foods.—

Potato, boiled, 4 oz.
Potato, baked, 3½ oz.
Potato, chips, 1½ oz.
Banana (ed. p.) 3½ oz.

C. FATTY FOODS.

	P. R.	F. R.	C. R.
Olive oil ½ oz.	..	3	..
Lard ½ oz.	..	3	..
Suet ½ oz.	..	3	..
Butter ½ oz.	..	2	..
Margarine ½ oz.	..	2	..
Cream (18%) 2 oz.	..	2	¾
Cheese, cheddar 1¼ oz.	½	2	¼
Milk 10 oz.	½	2	2½
1 Av. egg yolk	..	1	..

After two or three weeks' practice with actually weighed servings the eye is generally sufficiently trained to permit of surprisingly close estimations being made without the help of the balance, so that patients are in a position to take their food without being conspicuous at table and, with the help of the average serving tables to which they are by then accustomed, they can select their diet from an ordinary menu and yet keep within the limits allowed, substituting one food for another as circumstances demand in appropriate amounts in the specimen diets given them.

In order to arrange a diet which will keep the patient sugar-free, prevent acidosis, and yet supply sufficient energy and body-building material for his needs, it is necessary that the carbohydrate, protein, and fat tolerance should be worked out experimentally. Each patient is a law unto himself in these respects and recognition of that fact, with consequent individualization of the treatment is, I consider, one of the most vital advances made in the control of diabetes in recent years. It cannot be too frequently repeated, or too clearly recognized, that it is upon the care with which the diet is adjusted to the capacity and need of each case that the success of the treatment depends in any particular instance. Before the tolerance tests can be applied it is essential that the patient's metabolism should be brought into as satisfactory a condition as possible by diminishing the strain on his over-worked functions and giving the organs and tissues a chance to recover their full metabolic capacities. As a starting point each patient should be put on a test diet of known composition for two or three days and a record be kept of the actual amount of food eaten. The test diet I usually employ, modified to suit the age, etc., of the patient, is as follows:

TEST DIET.

Bread 3½ oz., Oatmeal (dry) ¾ oz. made into porridge.

Beef 2½ oz., Chicken 1¾ oz., Sardines 1½ oz., Eggs 3, Bacon 2 oz.

Cheese (Cheddar) 1¼ oz., Cream 2 oz., Butter 2 oz.

Vegetables—3 Av. Servings from Group I (*e. g.*, Lettuce 1 oz., Cabbage 6 oz., Cauliflower 6 oz.).

Vegetables—3 Av. Servings from Group III (*e. g.*, Spinach 4 oz., French Beans 4 oz., Tomato 3½ oz.).

This diet contains about: 86 grams, or 22 rations, of Carbohydrate; 94 grams, or 4¼ rations of Protein; 150 grams, or 25½ rations of Fat; and yields about 2,000 Calories.

The whole of the urine passed during each twenty-four hours is separately collected, taking care that there is no loss when the bowels are opened, and the daily excretion of sugar, nitrogen, ammonia nitrogen, acetone bodies, etc., worked out. By balancing the output against the intake, due allowance being made in the case of the

food for the sugar that may be derived from the protein, and an investigation of the nature of the sugar, degree of acidosis, etc., an estimate of the severity and character of the case can be formed.

The first point that should be attended to is the relation between the intake and the output of nitrogen. As a rule it is found that diabetics are not in nitrogenous equilibrium, that is to say the average quantity of nitrogen passed in the urine is in excess of the average intake in the diet. So long as this condition exists normal metabolism cannot be established and satisfactory control of the glycosuria is impossible, as I showed in 1915. If, therefore, the nitrogen excretion in the urine is high relative to the intake in the food the protein allowance in the diet must be reduced, for example by half. Should sugar still be passed in the urine and the excretion of nitrogen continue higher than it should be, preparation is made for a further reduction of the protein, and eventually of the carbohydrate also, by eliminating fat from the diet as far as possible, thereby removing the chief source of acetone bodies. After a day or two on a fat-free diet protein foods may be omitted altogether and the carbohydrate allowance gradually reduced without there being any serious danger of acidosis. In many cases it will be found that lowering the protein intake, eliminating fat from the diet, and reducing the allowance of carbohydrate is sufficient to put the patient in nitrogenous equilibrium, render the urine sugar-free, and bring down the blood sugar to a normal level, but in others these results are not obtained and it is then necessary to carry the treatment a step further and adopt the fasting method advocated by Allen. As I have already mentioned fasting is not a new departure in the treatment of diabetes, for it was occasionally used by Naunyn and others, but the fear that it would increase the acidosis prevented its general employment. In 1910 Guelpa reported a number of cases he had treated by several days fasting, combined with purgation, with highly satisfactory results and stated that the treatment was free from danger and caused no serious inconvenience. He admitted, however, that his cure had no definite scientific basis and it remained for Allen to supply this by the articles he published in 1913-4-5. A discussion of Allen's work and the theoretical basis of the starvation treatment are outside the scope of this paper and it is sufficient for our purpose that both animal experiments and observations on man have shown that the urine can be rendered sugar-free, acidosis diminished, and metabolism be brought to a basic level in the majority of cases of diabetes by withholding food for a sufficiently lengthy period. In many instances the desired result is obtained by a fast of one, two, or three days duration, but in some the glycosuria still persists, altho at a reduced level. On the strength of his animal experiments Allen has stated that the fasting period may be prolonged to ten days or more without danger, but I am inclined to think this is not sound clinical teaching and that as a rule it is better to follow Guelpa's plan of intermittent fasting when an initial fast of three or four days does not control the glycosuria completely. It is much less trying for the patient and is less likely to seriously deplete the body reserves of protein and alkaline bases, while the same control over the disturbed metabolism can be secured if care is taken to prescribe a suitable diet between the fasts. When a twenty-four hour sample of the urine is found to be free from sugar, the blood sugar has fallen within normal

limits, and the nitrogen output in the urine has reached a constant level feeding is recommenced with vegetables of a low carbohydrate value, say three servings from Group I. Each day subsequently an additional ration (4 grams) of carbohydrate is added to the diet in the form of vegetables selected from progressively higher groups, so long as no sugar appears in the urine, until three servings from Group I, one from Group II, two from Group III, and one from Group IV, or 5¼ rations, equal to about 20 grams of carbohydrate, are being taken in all. The fourth group vegetable is then dropped temporarily and replaced by ¾ of an ounce of dry oatmeal made into porridge which is taken with the morning meal. If no sugar still appears in the urine and the blood sugar ranges about normal, the fourth group vegetable is again added to the diet, which now contains some 35 grams of carbohydrate. By further substitutions and additions made in a similar way the carbohydrate rations are gradually increased until the reappearance of sugar in the urine, or an excess of sugar in the blood, shows that the limit of carbohydrate tolerance has been reached. The glycosuria, or hyperglycemia, is then at once controlled by fasting or a vegetable day, according to the severity of the case, and is followed by a diet containing not more than 50 to 75 per cent. of the carbohydrate found to be the limit of tolerance. When testing the carbohydrate tolerance it is important that reliance should not be placed entirely on the results of examinations of the urine for sugar as is so often done, but that the urinary tests should be checked by estimations of the sugar content of the blood, since the real aim of our treatment of diabetes should be to prevent hyperglycemia and not merely to eliminate sugar from the urine, or in other words we should "grasp at the substance and not be content with the shadow." This is particularly necessary in "gouty" individuals and cases of long standing where the kidneys often have a high threshold value for sugar and the hyperglycemia has consequently a tendency to persist for some time after the disappearance of the glycosuria. My experience has been that when the carbohydrate allowance in the diet is regulated by the results of blood-sugar estimations there is less tendency to relapse and the neuritis, neuralgias, cardio-vascular symptoms, etc., from which such patients are liable to suffer improve and are controlled with much greater certainty than when urinary tests for sugar are alone taken as the guide. In order to secure comparable results the blood for analysis should be taken as nearly as possible at the same time of day and under similar conditions in each case, due allowance being made for the normal variations in the blood sugar curve.

Meanwhile as soon as it has been found that 2½ rations, or about 10 grams, of carbohydrate in the form of vegetables do not cause glycosuria, half to three quarters of a ration of protein is allowed. As a rule it should be given in the form of white fish, chicken, or white of egg so as to avoid fat as much as possible. A rise in the nitrogen excretion will follow, but in a day or two it will reach a fairly constant level again and a full protein ration may then be allowed. By cautiously adding protein to the diet guided by the nitrogen excretion in this way, nitrogenous equilibrium may be established and the dangers of an excessive protein intake be avoided. It is frequently stated that the limit of the protein allowance can be determined empirically from the body weight by allowing one to one and a

half grams per kilogram, unless the appearance of glycosuria shows that an excess is being taken, but the weight is not a reliable guide to the active tissue mass of the body and consequently to the nitrogen need, especially in diabetics with much acidosis, and to rely upon the appearance of sugar in the urine is to "put the cart before the horse." I am frequently consulted by patients whose protein allowance has been calculated in this way, because they have steadily lost weight and feel depressed and miserable, altho their urine has remained sugar-free. A readjustment of the protein content of the diet on the lines indicated has always resulted in an improvement in their mental condition and stopped the loss of weight.

Until very recently fat has been regarded as a comparatively innocuous food for diabetics and they have been encouraged to take it in as large quantities as possible in order to maintain their weight and if possible to improve it, as it was considered that gain in weight meant gain in strength as well. Modern research has shown that this is not so and that not only is fat imperfectly utilized when the proportion of higher fatty acids to available dextrose exceeds three to one, but that an excessive fat intake eventually leads to further failure in metabolism with diminishing strength, and later to a return of the glycosuria, as I have already mentioned. It is obvious therefore that the fat allowance in the diet must be quite as carefully regulated as the allowance of carbohydrate and protein. Unfortunately analysis of the urine does not help us to that end and we are obliged to rely upon estimations of the fat content of the blood and variations in the body weight. As yet blood-fat determinations are hardly suited to routine clinical work, altho a method I am experimenting with now, that gives rapid and seemingly fairly reliable results, suggests it may be possible to make such estimations as readily as blood-sugar estimations are now carried out. When the body weight is taken as the guide no fat is added to the diet, except such as occurs incidentally in the protein foods, until the optimum nitrogen allowance has been ascertained. It is then introduced at the rate of 5 to 10 grams (1 or 2 fat rations) every alternate day. At first there may be some disturbance in the nitrogen balance and it may be necessary to cut down the protein a little, but as the metabolic processes adjust themselves the protein can generally be resumed and the addition of fat continued until constant body weight is reached. In arranging the final diet the allowance of fat aimed at should be just sufficient to prevent progressive loss of weight, in fact the whole diet should be so balanced that neither gain nor loss of weight occurs, for progressive loss of weight renders the patient more susceptible to infectious diseases, etc., and can only end in death from some such cause or from inanition, while feeding a diabetic beyond his metabolic capacity causes further reduction in his tolerance for food and, as Williams has shown, in loss of strength also. Theoretical calculations of the caloric requirements of the case should not be allowed to influence the arrangement of the diet scheme as a rule, since they are likely to result in over-feeding with ultimately disastrous consequences.

In a previous paper on Acidosis I pointed out that the diet in diabetes should be arranged with a view to (1) limiting the acid products of metabolism as much as possible, (2) conserving the store of alkaline bases in the blood and tissues, (3) maintaining the balance between the bases at, or

near, the normal level. The method of dieting I have described fulfils the first and second conditions by regulating the fat and protein intakes so as to prevent the formation of acetone bodies as much as possible. Automatically it also tends to ensure the third condition being fulfilled, for the lower the patient's tolerance for carbohydrate is the more he is driven to take his carbohydrate food in the form of bulky vegetables from the early groups, thus ensuring a larger supply of the contained bases. In order to make assurance doubly sure I always advise that at least one serving, and sometimes more, should be taken in the form of uncooked salad. All diabetic patients should have at least one "vegetable" day each week on which the protein allowance is cut down to half the usual amount, all the starchy food permitted on "ordinary" days is excluded, and vegetables, with fruits in some cases, containing a total of not more than half the usual allowance, are given. On these days the fat allowance should likewise be correspondingly reduced, for a "vegetable-fat" day such as von Noorden and others have for long prescribed, is apt to be dangerous from the large amount of fat allowed. With a correctly balanced diet containing a considerable proportion of fresh vegetables, and regular full "vegetable" days, acidosis, with consequent coma, is no longer a danger that need be seriously feared and the most common cause of death in the past among diabetics can be largely eliminated. The medicinal use of alkalies, and particularly sodium bicarbonate, at the same time becomes unnecessary, and is in fact contraindicated as it tends to disturb the balance of bases in the body necessary for normal metabolism, beside setting free bound toxic substances and having a depressing action on the heart. I have not prescribed alkalies for any of my patients for a considerable time now and find that much better results are obtained, even in those with very serious acidosis, when a diet scheme such as I have outlined is followed.

When the proper diet for any particular case has been worked out, and the patient has been taught to manage it for himself correctly and intelligently, no attempt should be made to alter it for at least a couple of months, unless some definite indication for readjustment arises. If the investigations have been carefully carried out and the patient has been meanwhile living as nearly as possible under the conditions he is likely to be in subsequently this will probably not occur. I consider it is most essential that during the preliminary treatment, and even while fasting, patients should be allowed to follow their ordinary occupations so far as they can and be encouraged to take sufficient exercise. That is to say they should live a normal life.

Altho the arrangement of a suitable diet, fitted to the patient's metabolic capacity, is the first essential in the treatment of diabetes, attention must not be focussed on it to the exclusion of other aspects of the case. A wide general view should be taken and the history, clinical signs and symptoms, the results of analyses of the urine, feces, stomach contents, blood, and alveolar air should all be considered so that any abnormality may be detected and appropriate treatment be adopted. Investigation of the feces, and urine, in my cases has revealed evidence of disturbances of digestion and chronic gastro-intestinal catarrh in some 70 per cent. and I find that when means are taken to deal with these conditions it is usually a much easier task to control the glycosuria and improve the patient's nutri-

tion. I am confident that if all cases were more thoroly investigated from both a chemical and clinical point of view much better results, immediate and remote, would be secured than is often the case at present and moreover a considerable number of patients labeled "diabetes" or "glycosuria" might be saved the necessarily irksome restraint that a diagnosis of that description entails. In short, careful diagnosis is as necessary for the correct treatment of "diabetes" as for any other disorder. Take only one example, the nature of the "sugar" present in the urine. It is not sufficient to find that alkaline solutions of copper are reduced, for other substances than dextrose have that property. If Benedict's solution is employed as the testing reagent, the mistakes likely to arise from normal constituents of the urine when Fehling's solution is used may be largely avoided, but there are other bodies occurring pathologically, the possible presence of which must be borne in mind. Some of these are sugar while others are not, altho they all give much the same general reactions. With the exception of lactose the sugars met with in the urine other than dextrose are of no great clinical importance, as they are comparatively rare, but this is not the case with a non-saccharine body to which I have given the name pseudo-levulose. This substance was first described by Howard and me in 1915 when we showed that true levulosuria, or fructosuria, is exceedingly rare and that the so-called levulose of most diabetic and other urines is really a levo-rotatory ketonic acid akin to glucuronic acid. Further observation has confirmed this conclusion and shown that pseudo-levulosuria is even more common than we supposed when our first paper was written, also that patients passing pseudo-levulose in their urine are generally diagnosed and treated as diabetics, often with very unsatisfactory results.

Pseudo-levulose reduces alkaline solutions of copper and bismuth, altho rather more slowly than dextrose, is fermented by brewers' yeast and gives an osazone with phenylhydrazine similar to that yielded by dextrose and levulose. Like levulose it is levo-rotatory and gives a positive reaction with Seliwanow's test, but it can be differentiated by its reaction with Borchardt's modification of that test and by the fact that it is precipitated from acid solutions by saturation with lead acetate. It also gives a para-bromphenylosazone with a characteristic melting point. For purposes of clinical diagnosis the delayed reaction with Benedict's solution is rather suggestive but cannot be relied upon entirely as a low percentage of dextrose gives a similar result. With Borchardt's modification of Seliwanow's test there is no difficulty in arriving at a conclusion. A mixture of 4 c.c. of the urine and 1 c.c. of Seliwanow's reagent (resorcin 0.5 gram, hydrochloric acid, sp. gr. 1.195, 30 c.c., distilled water 30 c.c.) is heated to boiling in a water-bath for a few minutes; if pseudo-levulose or true levulose is present the solution assumes a purple-red color, but dextrose alone gives no color change. To distinguish pseudo-levulose from true levulose the solution is cooled, made alkaline with solid sodium carbonate, and extracted with 2 or 3 c.c. of ethyl acetate; if true levulose is present the ethyl acetate extract is red or pink but with pseudo-levulose the watery solution retains the pigment and the extract is yellow or brown. If necessary the diagnosis may be confirmed by preparing the para-bromphenyl-osazone and taking its melting point. The osazone of pseudo-levulose melts at 265°

C, that of true levulose at 197° C, the osazone of dextrose at 220° C, and the hydrazone of glucuronic acid at 236° C. In order to estimate pseudo-levulose in the presence of dextrose advantage is taken of the fact that the former is precipitated from alkaline solutions by calcium, along with true levulose and glucuronic acid, while the dextrose remains in solution. The total reducing power of the urine is first determined by some method with a sharp end-point, such as Bang's, Scales', or my modification of the latter; into a 15 c.c. centrifuge tube are then placed 10 c.c. of the urine, 4 c.c. of a ten per cent. solution of calcium chloride and 1 c.c. of thirty per cent. sodium hydrate solution, and the contents well mixed. The tube is centrifuged for 3 or 4 minutes and the clear super-natant fluid filtered off. The reducing power of 7.5 c.c. of the filtrate, corresponding to 5 c.c. of the urine, is then determined in the same way as for the total sugar. The result allowing for the dilution, gives the percentage of dextrose, and the difference between that and the total sugar shows the percentage of pseudo-levulose (true levulose, and glucuronic acid). If true levulose was found by the qualitative tests it may be estimated by ascertaining the reducing power of the filtrate from a specimen of the acidulated urine treated with a saturated solution of lead acetate, since the lead salts of dextrose and true levulose being soluble remain in solution, while the insoluble lead salt of pseudo-levulose is precipitated out and remains on the filter. In order to remove the lead from the filtrate before carrying out the sugar estimation it is treated with an aliquot part of a saturated solution of sodium sulphate and filtered.

Pseudo-levulose, or iso-glucuronic acid, is probably of protein origin and is particularly apt to occur in the urine of persons who have been living largely on a meat diet. Chemical investigation of the urine and feces suggests that its presence is associated with disturbances in the functions of the liver, and histologic examination of the liver in a number of cases tends to confirm this, showing in all instances distinct pathologic changes. Sometimes it occurs in the urine alone, but often it is associated with more or less dextrose. In frank diabetes pseudo-levulose may or may not be present, its presence and the amount depending to a large extent on the nature of the diet, when this consists chiefly of meat and other proteins pseudo-levulose may constitute 50 per cent. or more of the total "sugar," but when the protein intake is regulated to the nitrogen requirements of the body it is usually absent. Since pseudo-levulosuria appears to be dependent upon an excessive protein intake and inefficient action of the liver, due probably to deficient carbohydrates, it is obvious that the correct treatment is to reduce the protein and increase the carbohydrates of the diet. Practical experience confirms this conclusion and I find that when cases of pseudo-levulosuria are placed on a diet of dextrinised oatmeal (von Noorden's cure), or potato (Mossé's cure), or vegetables and milk (Labbe's cure) so that it consists largely of carbohydrate, especially if dextrinised, with little or no protein, the "sugar" quickly disappears from the urine, the bowels act more regularly, and a sense of well-being replaces the previous depression of spirits that generally constitutes a feature of the case. Similar results may be obtained by starvation, followed by an increasing diet of vegetables and carbohydrate, with a gradually augmented protein

intake, but the treatment is more irksome, takes more time and is altogether less satisfactory. In cases where the urine contains both pseudo-levulose and dextrose it is probable that the pancreas as well as the liver is at fault and the treatment should be arranged accordingly. Alternate periods of dextrinised starch diet with a vegetable diet, or fasting, give the best results I find as a rule, but each case must be considered individually and the treatment arranged according to the results of complete analyses of the urine and feces, etc.

I have dealt at some length with the diagnosis and treatment of pseudo-levulosuria, as I believe that the general recognition of this condition as a clinical entity will do much to explain the failure of some cases of "glycosuria" to respond to routine treatment in the way that is expected. Further it serves to emphasize my point that individualization of the treatment is necessary in dealing with diabetes if the best interests and comfort of the patient are to be considered. When pseudo-levulosuria has been controlled by suitable treatment recovery appears to be complete, as I have had several cases without any sign of recurrence for 4 or 5 years, altho they have been living a normal life and taking an average diet, except for some limitation of the protein, in the interval. It seems not unlikely that some of the reported cures of diabetes, especially following treatment with oatmeal, potato, and vegetable diets, have been cases of pseudo-levulosuria, and as this condition is particularly apt to occur in elderly people and "gouty" individuals it is probable that the non-progressive and mild character of the diabetes met with in many such cases is due to the reducing substance in the urine being largely, or entirely, pseudo-levulose. At any rate I am convinced that more careful investigation and analysis of the urine in cases of glycosuria will result in the discovery that simple dextrosuria is much less common than is supposed, with consequent modification in the treatment and frequently of the prognosis also, in many instances.

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DIET IN THE TREATMENT OF TUBERCULOSIS.

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As indicated by its synonym "phthisis," derived from the Greek φθίσις to waste away, pulmonary tuberculosis is a disease of nutrition. Underfeeding, among other evils, lowers resistance to infection; once the disease is established, progressive toxemia impairs not only the mechanism of digestion, but also the nutritive functions of all cells thruout the body; and many symptoms, both early and late, are referred to the alimentary tract.

With a healthy appetite the thought, sight, or odor of food causes a reflex secretin of HCl in the stomach and so begins digestion. When the proteid extractives from food reach the pyloric end of the stomach, a substance called gastrin is formed in the pyloric mucous membrane. Gastrin is soluble in the blood stream and is thus carried to the gastric glands on which it acts by exciting a flow of gastric juice. Digestion is therefore a continuous process as long as any food remains in the stomach. Moreover, by means of peristaltic movements the food is thoroly mixed with gastric juice in the intermediate and pyloric portions of the stomach and is thus reduced to a thin liquid called chyme. This acid fluid induces the pyloric sphincter to relax intermittently so that a portion of the gastric contents is forced into the duodenum. The pyloric sphincter then remains closed until that portion of the acid fluid is neutralized by the alkaline secretion of the duodenum. When the gastric contents enter the duodenum another chemical messenger or hormone, called secretin, is formed in the duodenal mucous membrane. Secretin is soluble in the blood stream and is thus carried to the pancreas, where it excites a secretion of pancreatic juice.

These intricate nervous, muscular and secretory functions may be deranged either by toxins in the blood or by gross structural changes in the digestive viscera; and difficult digestion is therefore divisible into two groups, toxemic and structural, according to its origin. This classification avoids any distinction between "functional" and "organic" dyspepsia. Indeed, no logic distinction can exist, because any disturbance of function implies some organic change, and all organic changes cause some derangement of function. Structural dyspepsia arises from inflammatory and malignant diseases of the alimentary viscera. Toxemic dyspepsia may occur in tuberculosis, syphilis, carcinoma, diabetes, Bright's disease and in anemias; and is due to the action of toxins circulating in the blood, on the nervous, muscular and secretory mechanism of digestion.

Loss of Appetite.—The sensation of hunger is probably due to energetic peristaltic movements of the empty stomach in response to a call for nourishment from the tissues of the body, and want of appetite is an early symptom of pulmonary tuberculosis.

Tuberculous toxemia may weaken the stomach muscles so that their peristaltic movements become sluggish, and peristalsis may also be inhibited directly from the central nervous system thru the inhibitory fibres in the vagus nerve. Anorexia in mental excitement, in great emotions and in insanity, is well known; Cannon found by observations on cats that gastric peristalsis ceased as soon as the animal showed

signs of anxiety, rage, or distress; and tuberculous toxins affecting the higher centers possibly contribute towards loss of appetite.

Sometimes there is an aversion to butter or fat and this aversion may be defensive because gastric secretion is greatly inhibited by oils and fats.

Toxemic Dyspepsia in Tuberculosis.—The gastric secretion of hydrochloric acid is diminished in pulmonary tuberculosis; and not infrequently, the latter disease may be detected in patients who are being treated for dyspepsia. Achlorhydria is a variety of dyspepsia; dyspepsia itself is not a disease but a symptom—common to many derangements, from alcoholic gastritis to cancer of the stomach; and toxemic dyspepsia is often the earliest symptom in tuberculous disease of the lung.

There is continuous loss of appetite with uneasy sensations during digestion. Epigastric pain, neither localized to one spot nor referred to the back, may come on soon after meals and in severe cases there is vomiting. These symptoms are often present long before the patient complains of cough or of expectoration.

With a progressive increase of tuberculous toxemia the function of both the acid and the peptic glands is further impaired and this eventually leads to the grave dyspepsia of advanced disease. Food lies fermenting in the stomach and symptoms range from a feeling of weight in the epigastrium to flatulence, delayed pain after food, eructations of insipid mucus or "waterbrash," vomiting and dilatation of the stomach.

The gastric syndrome described here as toxemic dyspepsia also occurs in longstanding anemias and in non-tuberculous intoxications; and these must be distinguished from tuberculosis. On the other hand, toxemic dyspepsia is frequently diagnosed wrongly as "functional" disease. With the advance of scientific medicine many symptoms once thought to be due to obscure functional derangement have been traced back to their primary cause, either a visceral lesion or a toxemia; and tuberculosis is one of the maladies which should be carefully excluded before functional dyspepsia is diagnosed in any patient.

Some have said that dyspepsia can be neither an early nor a frequent symptom in pulmonary tuberculosis, because very few dyspeptics become tuberculous, but they err in failing to distinguish toxemic from structural dyspepsia. The truth is that the dyspepsia of the voluble dyspeptic is not toxemic, but structural and mostly arises from gastric catarrh, gastric and duodenal ulcer, or from chronic appendicitis. I have seen pulmonary tuberculosis diagnosed as duodenal ulcer, and many surgeons bear witness to similar mistakes. "On more than one occasion the rebellious dyspepsia of incipient phthisis has been refused a gastroenterostomy."[1]

Tuberculous patients occasionally develop dyspepsia due to other causes. Unsuitable food, liquor, or toxins from decaying teeth may cause gastric catarrh in which symptoms are more severe than in toxemic dyspepsia; and again, simple gastric ulcer may occur, giving rise to acute pain, to vomiting after food and to hematemesis.

Malefic Circles.—Many malefic circles have the toxins of the tubercle bacillus for their center. Tuberculous toxemia reduces the appetite, weakens gastric peristalsis and lessens the secretion of gastric juice. Digestion is impaired, a portion of the food sup-

[1] W. A. Mackay & Ian Macdonald, Gastro-enterostomy, *Lancet*, 1913, Vol. 1.

ply of the body is cut off and general resistance is lowered. Consequently the disease gains ground, toxemia is increased and the mechanism of digestion is further deranged, whereby a malefic circle is complete.

Tuberculous toxins also produce an oversensitiveness of the vagus nerve, so that the stimulus of food in the stomach is followed by a copious secretion of mucus thruout the respiratory tract. This leads to coughing, hawking, retching and even to vomiting after meals. Coughing may also stimulate a hypersensitive vagus, and if the irritation is referred to the stomach it may be followed by retching or vomiting.

Dietetics.—The aim of rational treatment is to break these circles in disease at as many points as is possible. Dietetic treatment in tuberculosis aims at breaking the malefic circles of toxemic dyspepsia and consequently should be combined with open air treatment and rest, in order that the primary toxemia may be reduced. Suitable food aids digestion, increases the nutrition of the body and therefore raises general resistance to the tubercle bacillus. Consequently toxemia is diminished, digestive functions are improved and a benefic circle is established.

Fresh Air.—The earliest symptoms—loss of appetite and toxemic dyspepsia—are frequently the first to disappear when a close atmosphere is replaced by a constant supply of fresh air. Fresh air is nature's grand *apéritif* and gives healthy hunger in place of a jaded appetite. Light and sunshine play their part and patients often eat better when meals are served outside. If nausea still persists, the amount of rest before and after meals should be increased and the patient should be fed reclining.

Meals.—In most cases the dietary should be simpler than that to which the patient was accustomed before treatment. Among rich and poor there are epicures who prefer a stimulating to a physiologic diet and revision of their menu varies in individual cases.

The simplest food may be spoiled in the cooking and the gourmet is physiologically right in asking that meals be cooked and served in a manner pleasing to the senses, because this stimulates the primary reflex secretion of gastric juice. If a cup of tea with toast be taken on waking, the teeth should be cleansed first, as otherwise toxins accumulated in the mouth during the night will be swallowed. Three meals a day are best, at 8 a. m., 1.30 p. m. and at 7 p. m., the last meal being lighter than the others. A glass of milk may be given at 11 a. m., and a light afternoon tea at 4 p. m., but many are better without the latter, especially if it impairs their appetite for dinner. Breakfast should begin with coarse oatmeal porridge made with half milk and boiled for forty-five minutes, or if this be not acceptable, some form of prepared breakfast cereals, of which there are many varieties on the market, with cream or whole milk, followed by eggs, soft boiled or poached, and mild bacon, or raw meat in various forms, or fish, with toasted stale bread, butter, marmalade and tea, coffee or chocolate, well diluted with milk.

Lunch includes a cup of soup, to which a varying quantity of pounded raw meat may be added just before serving, fish of different kinds with simple butter sauce, well hung underdone steak or roast beef, chicken, game, cooked vegetables of all kinds, farinaceous puddings, stewed fruit, cream, creme de chantilly, cheese (Cheddar, Cheshire or petit Suisse), toasted stale bread, biscuits, butter and a glass or more of milk.

Dinner should be lighter than lunch, but on similar lines. Of necessity the menu must vary according to the patient's circumstances. Moreover a diet, which on paper contains the proportions of proteid, carbohydrate and fat necessary to maintain health, may nevertheless be unsuitable, owing to its ingredients, bulk or cost. I have found the following to be a good standard sanatorium diet for sailors, soldiers and manual workers. The pre-war cost was under a shilling a day, but the present cost, in 1918, at contract prices is about two shillings.

Alcohol.—Alcohol in the mouth excites a reflex secretion of gastric juice in the stomach, but when swallowed it diminishes the activity of the gastric ferments. Most patients, even when accustomed to a stimulant, are better without it, and if given at all, the amount should not exceed a glass

of sound wine or mature spirits with meals.

When a patient has a poor appetite, a feeble pulse and an irregular temperature, he may be benefited by one or two tablespoonfuls of mature whisky added to a glass of milk at meals, or, if he prefers, by an equivalent amount of alcohol in the form of good wine, beer, or stout, but if alcohol in any form causes gastric or hepatic disturbance, it should be stopped immediately.

After an execessive amount of alcohol some patients feel better for a day or two, their cough and expectoration being reduced. This apparent improvement, due to loss of fluid by diuresis, is both transient and fictitious, because in reality the disease has had every encouragement to gain ground. The tendency of alcohol to increase fibrosis thruout the body is no advantage; pulmonary tuberculosis when associated with alcoholism and premature old age more often runs a rapid than a chronic course; and chronic alcoholism is an obvious hindrance to rational treatment. Alcoholism itself is not a disease but merely a symptom of some more complex mental or physical weakness and this should be first diagnosed and treated.

Milk.—Milk is a valuable addition to a general diet, but too much milk, owing to its high nitrogen content may cause biliousness and constipation. The amount should be carefully regulated for individual cases and those who cannot digest pure milk easily will thrive on milk diluted with a third of barley water.

Forced Feedings.—As appetite returns and digestion improves the quantity of food can be gradually increased. Forced feeding is unwarranted and had no place in the original English and Scottish conception of physiologic treatment as practised by the earliest pioneers. It arose in Germany among a people who are admittedly the greatest gourmands in Europe; but to force a patient to swallow a certain bulk of food every day and to sit at a table until the food is consumed, regardless of the resultant mental and physical nausea, is neither refined nor scientific treatment. Moreover, an increase of weight in the form of fat is not beneficial, but often harmful; whereas the welcome milestones are steady gradual gains in weight which mark an increase of muscle, tissues and consequently a rise in general resistance.

Special Diets.—When a patient has an aversion from food the cause should be found, and if necessary, the diet is then altered to suit him. For example, a strictly physiologic diet is needed when fever persists notwithstanding rest, when gastro-in-

STANDARD SANATORIUM DIET FOR SAILORS, SOLDIERS AND MANUAL WORKERS.

Amounts per head in ounces.	Contains in grammes.			Heat value in Calories.	Cost during 1917.			
					In London.		In New York.	
	Proteid.	Fat.	Carbohydrate.		S. D.	C.	S.	C.
Wheat bread 10	20.12	0.56	157.34	732.7	1.650	....	....	.10
Beef (mutton or pork) 12 oz. with bone..8	47.17	3.40	.68	227.8	7.750	....	....	.20
Bacon 2	1.70	45.64	.....	431.4	3.000	....	....	.05
Potatoes 8	4.53	0.45	46.74	214.3	.482	....	....	.01
Beans (peas or lentils) 3	5.95	0.42	14.37	87.2	1.078	....	....	.02
Spinach (cabbage or cauliflower) 3	1.78	0.25	2.72	20.7	.937	....	....	.02
Sugar 2	....	....	56.7	242.4	.5	....	....	.015
Jam 1	....	....	14.17	58.0	.437	....	....	.03
Milk 15	14.03	17.01	21.26	302.8	2.250	....	....	.08
Butter 1½	....	35.54	.....	330.5	2.250	....	....	.05
Oatmeal 3	9.0	4.08	38.26	231.7	.531	....	....	.025
Rice 1	2.26	0.08	22.40	101.8	.187	....	....	.01
Cheese 2	14.16	3.96	1.70	101.8	2.000	....	....	.05
Prepared cocoa ..... ½	....	3.54	7.08	62.0	.328	....	....	.02
Tea ..... ¼	....	....	.....	....	.227	....	....	.01
Salt, mustard, and spice .....q. s.	....	....	.....	....	....	....	....	...
Totals	130.7	114.9	382.5	3045.7	1-11½d	....	....	.69

testinal symptoms continue despite open-air treatment, when emaciation exists, or when intestinal tuberculosis is present.

Zomotherapy.—Zomotherapy is dietetic treatment with raw meat. When given to a tuberculous dog, raw meat causes a rapid gain in weight even when the animal seems *in extremis,* whereas cooked meat fails to prevent emaciation. After one hour's digestion in the human stomach a meal of cooked minced meat is still present, but a meal of raw minced meat cannot be detected; and raw meat is therefore more easily and rapidly digested than is cooked meat. Moreover, raw meat may have a therapeutic as distinct from a dietetic value, because muscle plasma is rich in enzymes, complement and immune substances which in the living body help to resist bacterial infection.

The clinical results of this treatment are generally constant and often remarkable. There is an increase in digestive functions, in nitrogen retention, in hemoglobin and in digestive lymphocytosis.

These brilliant results depend on attention to details. Some patients who refuse, owing to a natural and sometimes insurmountable prejudice, to eat raw meat would have taken it had they not known how it is prepared. The subject ought never to be discussed with a patient; the diet, daintily and attractively served, should be represented as a special treatment; and in these matters much can be achieved by a good nurse.

Frozen meat and commercial extracts of meat are worthless for our purpose. There is as much sustenance in one egg as in three teaspoonfuls of commercial meat extract which contains a minute quantity of nutritive proteid and a large amount of stimulative extractives. Fresh meat free from fat, is necessary, and its preparations must be homemade. If possible, raw meat should be consumed two or three hours after the animal has been killed, and when meat juice is given it must be prepared immediately before use. In cold weather, all raw preparations of meat or eggs before being served should be gently warmed to remove the chill. A minimum of half a pound of raw meat is taken daily, and this quantity twice or thrice daily is better.

Raw Meat.—The pulp, scraped free of the fiber from a good cut of steak, or finely minced fresh killed beef is served *natural,* seasoned with salt to taste. Rissoles of raw minced meat with toasted bread crumbs are served cold or slightly warmed and may be garnished with salad or with aspic jelly.

Raw Meat Juice.—Muscle plasma or raw meat juice is given when the patient has an aversion from raw meat, or when the active constituents of meat are required in concentrated form. To one half pound of fresh minced meat add half a pint of water, in which half a teaspoonful of salt is dissolved and extract for two hours at 100° F. The liquid is then passed thru a strong straining cloth and served.

It is better to extract the juice by pressure with an ordinary domestic press. The minimum daily dose is the *total* juice from ½ pound of meat, and, since the ordinary domestic press will only squeeze out about 25 per cent. of the total juice, it is necessary to press two or three pounds of meat in order to obtain the minimum dose.

Raw Meat Soups.—Half a pound of fresh minced raw meat is mixed with the cold stock of beef, chicken, veal, or mutton, to form a thick paste of uniform consistency, and half a pint of milk at 150° F. is added just before serving.

Fresh Beef Essence.—To 8 oz. of distilled water in a bowl add 5 drops of dilute hydrochloric acid, ½ a level teaspoonful of salt, and 1 pound of fresh minced beef. The contents are well mixed, allowed to macerate for three hours and then strained. The product is served cold and has an agreeable taste.

Blood Serum.—The blood is collected direct from the animal at the slaughter house into a large clean jug, previously well scalded with boiling water, and is set aside in a cool place to clot for twenty-four hours. A tumblerful of the fresh clear serum exuded from the clot is taken once or twice a day. The blood should never be whipped up with a bunch of twigs, as is usually done in slaughter houses, because the serum is then colored with hemoglobin and has a forbidding appearance. Blood serum costs but a trifle and gives excellent results.

Duration of the Raw Meat Diet.—As long as the patient is gaining flesh and his liver is acting well, raw meat can be continued for weeks or months, but generally as he gets better this strict diet may be re-

laxed and a more varied menu gradually introduced.

Sometimes the bacillary flora of the intestine converts the albumoses and peptones of raw meat into noxious products which may be absorbed by the portal circulation and carried to the liver; and these intestinal toxins, unless destroyed by the liver cells, cause sickness, biliousness and even jaundice. This toxic decomposition in the intestine may be prevented by giving a pure living culture of lactic acid bacilli, such as Lactèol, thrice daily after meals; and one clinical test of an active culture is that the intestinal excreta become odorless within a couple of days. Old preparations of lactic acid bacilli, which have been long in chemists' shops, contain no living organisms and are worthless.

When gastro-intestinal symptoms do occur a dose of calomel is given at night, followed by a saline draught in the morning, and a strict milk diet—three or four pints daily, diluted with barley, lime or soda water—takes the place of raw meat for two or three days. After this interlude, a raw meat diet may be resumed.

Raw Eggs.—One or two newly laid eggs are broken into a glass and swallowed like oysters. A pinch of salt may be added but nothing else. Taken before meals, especially an hour before breakfast, raw eggs are very easily assimilated, pass thru the stomach in twenty minutes, and are a useful addition to the raw meat diet.

Diet During Fever.—When food is absorbed from the intestinal canal a further process of digestion begins. Just as yeast cells break up any sugar in the surrounding liquid, so all living cells thruout the body oxidize food material in the lymph and plasma. This oxidation, whereby heat is produced, is a constant vital process in which dead food material is broken up under the influence of living matter into simpler products.

During fever the excretion of nitrogen and of CO_2 from the body becomes greater, the total oxidation of protein and non-protein substances by the tissues is increased, the flow of digestive juices from the saliva downwards is reduced, and appetite is lost. Consequently, when the available food material is oxidized, the body cells are threatened with starvation. The nervous and circulatory systems then begin to live at the expense of other tissues, principally fat and muscle, which undergo intracellular digestion, pass in solution into the blood, and are thus consumed in prolonging the nutrition of more vital organs. This destructive oxidation may be the attempt of living matter to oxidize a toxin of simple molecular structure, but of the mechanism whereby it occurs our ignorance is complete.

There has been much controversy about diet during fever. Some advise a low diet to diminish the fever by reducing oxidation, while others would provide for increased oxidation by a full diet and so prevent tissue waste; but in either treatment there is a fallacy. It is assumed in the first that the fever is due to excessive oxidation, and in the second that increased oxidation is the only disturbance of nutrition during fever. The work of the liver includes the destruction both of bacterial toxins in the blood and of toxic end-products of digestion which would otherwise pass into the circulation; and these functions, in common with the functions of all the visceral organs, are impaired during fever. It is, therefore, rational during fevers of short duration to ease the work of the organs by a starvation diet. During the long continued fever often present in tuberculosis this is impracticable and rational treatment is represented by a diet which puts least strain on the digestive organs and is most easily assimilated by the tissues of the body.

A strict raw meat diet meets these requirements. At all events it is well to reduce carbohydrate and vegetable food; and in the treatment of intermittent pyrexia the following diet may be necessary for several weeks. A raw egg is taken an hour before breakfast. For breakfast the patient has buttered toast, a raw meat rissole, and a glass of warm, slightly diluted milk, to which in some cases a tablespoonful of rum may be added. Lunch and dinner include raw meat juice, raw meat, buttered toast, stewed fruit and a glass of slightly diluted milk or a little light wine.

Milk Diet.—A milk diet requires and obtains for its digestion the weakest secretion of gastric juice; and for patients with severe gastrointestinal disease, either toxemia or structural, it may be necessary to alternate a strict raw meat diet with a milk diet. Three or four pints of milk, suitably diluted with tea, coffee, cocoa or

alcohol, are given daily. A pleasant change is good butter milk, soured milk or goat's milk; and the latter most resembles human milk in its proportion of casein to albumen. Patients on milk diet who are very ill should have 1½ ounces of milk every two hours.

Barley water (Decoctum Hordie) is a nutrient demulcent drink for fevered patients and when added as a dilutent to cow's milk the curd is more easily digested. A cupful of pearl barley is washed in cold water and the washings are rejected. Fifteen cupfuls of distilled water are added to the washed barley, boiled for twenty minutes in a covered vessel, strained and allowed to cool.

Koumiss.—Koumiss of the Tartars is made by fermenting mare's milk with the kephir ferment of yeast cells and bacillus caucasicus. In the preparation of artificial koumiss bacteriologic cleanliness is necessary. A quart of milk is brought to the boil and allowed to cool in a covered vessel. When cool, 4 ounces of the milk are poured into a glass and mixed well with 20 grams of yeast. Pour 4 ounces of distilled water into a sterile quart bottle and add ½ ounce of grape sugar. Then add the 4 ounces of milk and yeast, fill up with the remainder of the milk. Cork and wire the bottle, set it aside in a cool place, and shake daily. After four days the fermented milk, containing 1 to 2 per cent. each of lactic acid and alcohol, is ready for use, and makes a pleasant drink for fevered patients.

Predigested Diet.—When digestion is much impaired by great toxemia or by intestinal disease, predigested foods are given to maintain strength and to relieve symptoms.

Pancreatized milk is made by mixing in a saucepan ⅔ pint of milk with ⅓ pint of water or lime water, and heating to 140° F. Two teaspoonfuls of liquor pancreatis and half a level teaspoonful of sodium bicarbonate are added. The mixture is well stirred, poured into a covered jug, and kept in a warm room for twenty minutes, after which it is brought to the boil to check the action of the ferment, and then allowed to cool.

Peptonized beef essence is prepared like fresh beef essence, but 5 gr. pepsin are added to the acidulated water and after the raw mince has been added the mixture is set aside for three hours at 98.8° F. Many varieties of predigested foods, such as peptonized beef or chicken jelly and preparations from cereals or milk, are on the market and make a pleasant change.

Nutrient Enema.—Neither egg albumen nor caseinogen solutions are absorbed from the rectum and most so-called nutrient enemas are worthless. When swallowing is difficult, an emema of glucose 1 oz., sodium chloride 40 grs., in 10 oz. of water at 99° F. may be given once every six hours. A large, soft, rubber catheter attached by three feet of tubing to a funnel is introduced as high as possible, the funnel is held not more than three feet above the patient, and the fluid is allowed to flow in at the rate of 1 oz. in two minutes. The lower bowel should be washed out daily with warm water.

Nutrient Tonics.—Cod liver oil is a nutrient tonic to the tissues, and is richer in unsaturated fatty acids than are the animal fats and oils. Now 98 per cent. of unsaturated fatty acids are absorbed from the intestine, whereas only 14 per cent. of saturated fatty acids are absorbed; and moreover in a mixed diet the unsaturated fat aids the absorption of saturated fat. Fats are decomposed by the liver and pass into the blood as unsaturated fatty acid, but there is no evidence that the latter have any direct destructive action on tubercle bacilli. The pure oil may be given in 1 drachm doses thrice daily after meals, but emulsions are generally more agreeable.

Preparations of petroleum are not substitutes for cod liver oil because the mineral oils pass thru the alimentary canal without being absorbed; but they act as a mechanical lubricant, cleanse the intestines, facilitate peristalsis and reduce copremia.

Casein is a useful nutrient tonic and the following formula is a useful one.

℞ Casein .....95 grammes.
Sodium glycerophosphate 5 grammes.
Misce at fiat pulvis.

A teaspoonful, made into a paste with water, then dissolved in milk and taken during meals.

Drug Treatment.—Systemic intoxication is the cause of gastrointestinal symptoms, excepting those due to intestinal tuberculosis; and consequently it is useless to treat them unless treatment is also directed against the primary toxemia. A liberal supply of fresh air and the reviving in-

fluence of rest are the best cures for loss of appetite and for toxemic dyspepsia; but any unfavorable influences such as carious teeth, a septic condition of the mouth, or unsuitable drugs should also be corrected. When gastrointestinal symptoms are present the diet should always be revised because a change from an unsuitable to a suitable diet is the only means whereby the digestive functions can permanently regain their activity. In treatment based on these lines certain drugs are of value not only in relieving the patient's immediate symptoms, but also in breaking the malefic circles of disease.

Toxemic Dyspepsia.—Fresh air is the best *apéritif,* but some good aromatic mouthwash may be used half an hour before meals. Ordinary bitters in the mouth cause a reflex flow of gastric juice in the stomach, but when swallowed, they often hinder digestion.

The routine use of acids and of digestive ferments in dyspepsia is symptomatic treatment of the worst description and discourages the use of the patient's own gastric and pancreatic secretions; but when dyspepsia has been diagnosed as due to tuberculous toxemia the use of these agents to aid nutrition and thus reduce toxemia is fully justified, because we cannot afford to neglect any measures, direct or indirect, which contribute towards overcoming the disease; pending the return of normal secretions the following may be given to avert the consequences of toxemic dyspepsia.

℞ Acidi nitro-hydrochlorici diluti..℥ iv.
Infusum gentianae ..... ad ℥ vj.

A tablespoonful to be taken thrice daily in quarter of a tumblerful of water fifteen minutes before meals.

After meals glycerinum pepsini, 1 to 2 drachms, pepsin with diastase, elixir pepsini bismuthi et strychninae, 2 to 4 drachms, are valuable for our purpose.

When there is fermentation of the stomach contents and a tendency to gastric dilatation, one minim of creosote or of tincture of iodine, diluted in a wineglass of water, is taken after meals; or ½ to 1 gr. of grey powder may be given every second or third day.

Vomiting.—A patient who is partaking well of a generous diet may have an occasional "bilious attack," for which 2 to 4 grs. of calomel are given at night and are followed by 4 drachms of sodium phosphate in the morning. Stronger salines are apt to cause gastric disturbance and weaken the patient. The following pill is valuable as a routine measure every seven or eight days.

℞ Pilulae hydrargyri .....gr. xviii.
Extracti aloes barbadensi...gr. xii.
Extracti belladonnae .....gr. iv.
Misce et divide in pilulas duodecim.

One pill to be taken at bedtime every seventh night.

Persistent vomiting in severe toxemic dyspepsia may be due to a toxic condition of the stomach. When food is constantly rejected the patient should drink one or two pints of warm water, each containing 60 gr. of sodium bicarbonate, which dissolves the toxic mucus on the gastric mucosa. If the draught be rejected the treatment should be repeated.

SOME REFLECTIONS ON FOOD FOR THE SICK.

BY

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It is now a good many years since I advocated a more rational system of feeding patients afflicted with typhoid fever; the success which has attended my methods and their recognition by the profession have led me to an extension of the principles to many other diseases, especially those of an acute pyrexial character. For such diseases, the best books, in universal chorus, advocate a light and nourishing diet; but beyond milk and eggs beaten up in milk, they rarely give any details, and so far as I know, without exception pay no regard to the individual patient's desires, appetite and likes, and it is upon this aspect of the problem that I desire to offer some points for consideration.

The first question I would ask and attempt to answer is, what constitutes "a

light and nourishing or nutritious diet?" Nourishing or nutritious must, I presume, be taken to mean an article of diet which, after the action upon it of the teeth, the saliva, the gastric juice and the juices of the gut below the stomach, including the liver, and after absorption from the alimentary canal, provides some substances which can be conveyed by the lymph channels going to the cells of the body, and in turn be assimilated by those cells for their own intrinsic purposes, whether these be of a constructive, secretive, or energizing nature. Now I take it that the experience of many thousands of years, and many billions of human beings, has proved that *every* ordinary article of food employed as part of a diet has some nutritious or nutrifying quality, and hence it follows that *every* article of diet must be included under the term nutritious diet. But as it would be obviously unwise to feed a sick person on precisely the same diet as a healthy one, we must consider now the other adjective, "light," only assuming that no single article of any kind whatsoever is absolutely taboo because it is not nutritious or nourishing. Obviously the words "nutritious" and "nourishing" are here used as the equivalent of easily digested, or digestible, and for this reason, we have to take into consideration the diminished digestive powers of the bulk of our patients; for I assume that these powers, in acute pyrexial disease at any rate, are as a rule diminished to a greater or less extent.

It seems to me that there are two main conditions in digestibility: the *first,* and perhaps the most important of which is that the food of whatever nature (from raw turnips or lobster salad to a protein molecule) must be in a state of fine division; and here we come at once to an important practical point. Many, perhaps nearly all our acute pyrexial patients are too ill, or too indifferent to—and impatient of—their surroundings to be able to use their teeth and muscles of mastication to any extent. Hence we commonly assume that a light diet is, in the main, a liquid one which can be swallowed easily by the mere simple action of the pharynx, and that on arrival in the stomach, will mix with the gastric juice in fine emulsion. This is true of most liquids, with the very important exception of plain raw milk, which on arrival in the stomach curdles into large firm masses. Here is a most imperative reason for giving to those patients who like (*vide* below) milk, milk foods (junket, milk puddings, curds and whey, custards, baked or boiled) prepared in a way that avoids this massing behavior of milk. Here we see the desirability of using arrowroot with milk, etc.

The *second* condition in digestibility is that there shall be in the alimentary canal a reasonable amount of fairly active digestive juices all the way down. In health this is, of course, the natural condition; but, even here, experiment has proved that what may be called an appeal to the palate—as opposed to merely satisfying hunger—is a powerful adjunct to the secretions concerned in digestion. Now in febrile affections, and indeed in many other diseases, there can be no doubt that the secretion of digestive juices is usually interfered with, both in a quantitative and in a qualitative direction; in other words, there is frequently a lack of active secretions, a condition which is chiefly indicated, in my opinion, by a depreciation or loss of appetite.

My practical deduction from the above consideration of what constitutes a light and nutritious diet is, then, that it is such a diet as the patient desires, presented to his

stomach—which is not, be it observed, quite the same thing as presented to his teeth—in a finely divided state and under such conditions of attractiveness, thru taste, cleanliness and odor, as will appeal to his palate.

Feeding the Acutely Sick.—It seems to me, from the above considerations, as well as from practical experience, that the right way to feed private patients (it is not so easy in hospitals, where routine is more or less a necessity) is to throw over, absolutely and at once, all hard and fast rules as to meals and mealtimes, and to substitute therefor, as far as possible, the wishes and appetite of the patient.

Let us take, as an example, a case of acute pneumonia—tho precisely the same arguments apply to influenza, typhoid, smallpox, septicemia, bronchitis, or in fact to any acute disease—the patient's main concern is to get on with his breathing and living. His temperature is very high; his tongue and mouth dry; and his appetite absolutely in abeyance. Where, then, is the wisdom of worrying such a patient by urging him to swallow food against which his whole soul cries out in disgust? Probably his thirst is great, and against water, which he asks for, I have not a word to say. Let him take an ounce or so just as often as he asks for it; but food that requires mastication or digestion is *anathema maranatha* to the patient. Why, therefore, should he be compelled to take it? Some one, especially an anxious mother may reply, "he will get weak without food; he will die of exhaustion." Die he may, and that of exhaustion too, I admit. But if so, the exhaustion will have its origin in toxemia and not in mere starvation. I have kept patients for three, four and five days continuously on nothing but water, with nothing but benefit to —and blessings from—the sufferer, tho mothers and even trained nurses have been on tenterhooks the whole time. Long before death from starvation is anywhere near there will be a desire for a little custard or jelly, a cup of tea, or a bit of bread and butter; a desire which on my orders is promptly complied with, believing as I do, that desire means capability of dealing with a small quantity of finely divided nutriment.

Abdominal Distension.—In typhoid I believe this to be one of, if not the most fatal of complications; very easy to prevent, but almost impossible to cure. In pneumonia and other acute pyrexial diseases, I have seen it arise from an injudicious forcing on an unwilling patient of the routine "three ounces of milk every four hours"—and become "the final straw" thru embarrassment of heart and lungs.

I am not sure that its origin is always and invariably due to the presence of undigested food; but I am confident that this is its most frequent causation. Its commencement can be detected by placing the hand on the patient's abdomen and estimating its fulness by careful palpation. At the moment when abdominal resistance rises beyond the normal, *all* food must be stopped and water and a purgative administered till the tension has subsided, if indeed it will subside. Since the adoption of my system of feeding a patient according to his wishes, and not by routine, this danger has slipped from my ken.

Feeding in Convalescence.—When a patient has been fed on "slops" in a pernicious routine, his first solid meal is always a serious experiment, and in typhoid seems frequently to induce, or to be coincident with, a relapse. In my plan no such crucial experiment needs to be made—which is

another strong argument in its favor. Apart from this point, however, I would like to ask why condiments are usually so sparingly used when it is desirable to increase a convalescent's appetite? Mustard, pepper and sauces of all sorts seem by custom to be taboo, but I have never been able to see why. Surely they all appeal to the palate, or act as stomachics (I presume this word means something that produces a mild stimulation of the alimentary mucous membrane, thereby producing a good flow of juices) and to many patients who are accustomed to them, food is apt to be somewhat insipid without them.

As a last word, I would urge my readers to let common sense, rather than routine, rule in feeding a sick patient. Appetite is a subjective sensation and in certain nervous states may lead us astray. But in the ordinary average person ill with acute disease, I am convinced that its presence or absence is based on natural internal conditions of the alimentary canal, which may be much more safely trusted than some rigid rule of routine born of fear or of ignorance.

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MILK-BUTTER, FATS, NUT-BUTTERS AND OLEOMARGARINE FOR THE CHILD.

BY

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Upon burrowing thru my mail one morning a short time ago, I came upon a letter from an acquaintance in France. Abbreviated it reads:

"Dear Doctor:

It seems a long time since I have seen you and when I do I am going to tell you all about my travels, and of the many dangers encountered —of sights, horrible mostly, we have many, but to me quite the worst is the extreme malnutrition and fat starvation one sees on every side. Fats, fats, fats—these poor infants and children need fats, pure, wholesome, digestible fats."

A short time afterwards I came across the weekly *Bulletin of the New York Department of Health* and under the caption "Fat—A Necessary Constituent of the Dietary," I read an interesting summary:

"So far as the fat content of the diet is concerned, the feeding of the civilian Belgian population for example showed according to Mr. Hoover, that health could be maintained by a daily ration providing 40 grams of fat. The present German ration provides but little over 30 grams of fat while its consumption by the American people is over 150 grams per person a day."

In my student days fats and carbohydrates were thought to be interchangeable, an idea quite erroneous, as a certain amount of fat in the diet is indispensable. Again Mr. Hoover states that an increase in tuberculosis seemed to take place among the Belgian children when the fat ration was reduced too low. But according to this article the most striking effect of this reduction was the so-called "war" edema. This has spread in Germany and according to Maase and Zondek is purely a nutritional disorder.

These observers say:

"The first cases occurred in January, 1917; males above the age of 40 years have been almost exclusively the sufferers. No noteworthy premonitory symptoms were observed, but suddenly great edema developed, especially of the lower limbs. The face and scrotum were often affected also, and in a small number of instances ascites and hemothorax occurred. There were no cardiac symptoms, and the urine never contained any albumin. As soon as the patient was put to bed a very marked diuresis at once began, and the edema quickly disappeared. Remissions and recurrences were fairly common. The composition of the edema fluid in these cases had been compared chemically with the fluid effusions in renal disease and obstructive conditions such as hepatic cirrhosis. The chief difference found was the high ammonia figures in the 'Kriegsoedem' as contrasted with the two other conditions. The pulse-rate was markedly slowed during the disease and examination of the blood gave, as a rule, a red count of three to four millions. This condition of anemia it was thought might probably be ascribed to hydremia. The occurrence of diarrhea was fairly common. The authors, in agreement with others, consider the

cause of the disease to be underfeeding, especially the diminished quantity of fat. They suggest that toxic products of albuminoid metabolism may cause damage of the endothelial lining of the blood vessels, and so lead to edema. The high residual nitrogen and ammonia values found in the blood, urine and edema fluids were considered to be evidence in favor of this hypothesis. By giving three patients 100 grams of fat daily for a week the authors were able to cure the disease completely without rest in bed or any other remedial measure."

Fat Starvation.—Children thus affected also suffer from a reduction of the proteins and carbohydrates, as the body in need of fat calls upon the reserve supply of both of the latter, as together with the salts these form the natural diet. Of fat starvation in children, and a child can tolerate more fat in proportion than an infant as it works off the surplus storage in exercise, we find multiple phenomena. There may be hunger, thirst, gastric and intestinal features, often pain—a diminished pulse-rate and respiration and a fall in temperature, great muscular weakness and emaciation. The amount of urine is lessened and as a characteristic feature, there is a diminution in the expired carbondioxide from the lungs. The duration of the starvation period depends to a great extent upon the amount of reserve food, principally the fats. To realize the severity of fat starvation one has only to visit pediatric clinics in some large city. The extreme emaciation of the child or infant—the loss of subdural fat—the sunken eyes, cheeks and retracted abdomen—the extreme weakness and feebleness, anemia, purpuras, eczemas, etc., all present a very pitiable picture and one not easily forgotten. It has been observed, states Brubaker in his "System of Physiology," that there is a steady diminution in the excretion of carbondioxide in cases of fat starvation. As fat contains about 76 per cent. of carbon, one part of carbon equals 3.66 parts of carbondioxide or 1.31 parts of fat. Hence for every one gram of carbon or 3.66 grams of carbondioxide excreted it may be assumed that 1.31 grams of fat have been metabolized. The daily excretion of carbon indicates the extent of fat metabolism. In a case of extreme emaciation seen by me in consultation this daily decrease in carbondioxide was observed and commented upon. Now in relation to the fats themselves, certain facts should be remembered: that in the intestine the fats are completely broken down into glycerol and fatty acids; that preliminary emulsification is an advantageous but not an essential condition; that the fat is absorbed as glycerol and fatty acids and the latter in great measure is first converted into soaps; that the bile aids the digestion of fat, the bile salts acting in the same way as the coenzyme of pancreatic lipase. Bile also is a solvent of fatty acids, the intestinal membranes are moistened by it and assist in the fat absorption by reducing the surface tension of the intestinal contents. Now the fats have more than twice the energy value of either the proteins or the carbohydrates in nutrition, says Sherman. It is useless, he says, to question the general wholesomeness and food value of butter, oleomargarine, lard, olive oil, cottonseed oil, peanut oil and the like. It is well to point out the fact whenever a certain form of fat is to be selected for the child's diet, that the melting point of some fats lies much above the body temperature and that they will not become sufficiently fluid in the intestines to be readily emulsified and digested. For instance, the beef fat has a higher melting point than lard, and beef fat stearin a still higher one than tallow. Hence they form ideal ingredients with which to mix the oily components. Thus, such an edible fat had best be given to older children, those above five years. For example, cottonseed oil and cottonseed oil stearin are now important ingredients of oleomargarine. They are oily and fluid and when added to lard or stearin they produce a compound with the melting point slightly above that of butter. They are useful in warm weather and can be given to children under five years. The oleomargarines manufactured for tropical regions contain larger quantities of stearin than those intended for temperate zones or for winter. Under the latter two conditions, large quantities of cottonseed oil and cottonseed stearin are used.

The edible butter-fats which should be employed in the child's dietary are the milk-butter, the margarines such as oleomargarine and the nut butters.

The word oleomargarine is a name applied to any fatty substance which is prepared to be used in the same manner as butter and it comprises all substances known as oleo-

margarine, oleo, oleomargarine oil, lardine, suine and all mixtures and compounds of oleomargarine, also all lard extracts and tallow extracts, all mixtures and compounds of tallow, beef fat, suet lard, lard oil and vegetable oil. The manufacture of oleomargarine can take place in the United States only under the supervision of the Internal Revenue.

Oleomargarine was first discovered by Mège, a French chemist in 1870, and was a method for churning fats other than milk-butter with milk or cream to a butter-like emulsion. The soft beef fat from freshly killed beeves was the original basis of this product. Oleomargarine, as now made, is both clean and wholesome alike attractive to the sight and to the taste. Prof. H. W. Wiley testified that from a nutritive point of view all the fats and oils used as food have nearly the same value as heat producers, butter-fat having a heat value of a little more than 9,000 calories per gram, while the beef fat of oleomargarine has a slightly higher heat value, the butter-fat according to him, however, being slightly more digestible. It would seem from certain experiments, notably one made in 1883 by Adolph Mayer and later by M. Kienzel in 1898 that while 97 per cent. of natural butter is digested, the digestibility of the artificial product is only about 0.7 per cent less. In France butter and oleomargarine are often on a par and before the year 1897 butter and oleomargarine could be mixed together in any proportion, unfortunately often leading to deception. However, after the latter year the amount of butter-fat used was limited to 10 per cent. Dr. Arnold Lorand speaking along this line believes that if animal fats are of good quality the product is just as good as butter-fat. Undoubtedly in the adult there is a certain human antipathy towards manufactured products as for instance towards the margarines. This is partly natural and partly acquired. The natural aversion can be usually overcome easily with patience, but with the acquired form it is infinitely harder as the condition has entered the chronic stage. Does the usual mother ever really believe that the young child cannot be made to eat what is placed before him and that he inherently shrinks from the food? The taste for milk butter-fat is acquired and for beef-fats can also be assumed. The taste for butter-fats, oil-fats and for meat-fats is individual and different, each to each. In the oleomargarines the characteristic taste depends to a large extent upon the absence of many free fatty acids. The margarines at the present time are practically made the same as formerly except that the digestion of the fat is done away with and a certain proportion of vegetable oil is added. For instance such oils are cottonseed, olive, palmnut and cocoanut oils enter into their composition while glycerine is sometimes added to the margarines to give that peculiar glossy appearance and sugar and glucose are added to sweeten it. While the margarines are practically stable compounds, clean, healthy and digestible, and made under proper governmental precautions and by representative manufacturers the butter-fats do not possess this same uniformity. The latter are sensitive creations, liable to develop very unpleasant odors and flavors even when stored at temperatures as low as 10 degrees F. and the amount of change increases with the acidity of the cream from which the butter was made. Simmons and Mitchell in fact have shown that when butter has been made from sterilized cream and acidified with various acids that there was a gradual development of unpleasant flavors which showed that the lactic acid bacteria had a marked influence in bringing about the slow decomposition of unstable compounds in the butter. But they say it is also true that butter made from sweet sterilized cream shows less tendency to change on storage than when made in the ordinary way, the flavor however being usually too mild. A glance around on a subway car usually discloses the fact that "Pearson's" perfectly pasteurized butter-fat is food quite fit for angels while equally sure is another advertisement which shows that oleomargarine in reality assumes that lofty position alone: which one is right? A closer study of the butter-fats might lead to the answer. The average composition of milk-butter, and it may vary according to the methods used in the manufacture and within certain limits can be controlled by the butter-maker, is fat 85 per cent., casein 1 per cent., salt 3 per cent. and water 11 per cent. The percentage of fat should not fall below 80 per cent. nor the water content rise above 15 per cent. while the percentage of casein should not exceed 4 per

cent. Oftentimes the percentage of fat in good butter rises to 86-88 per cent. The calorie value of this fat is very high, and of oleomargarine almost equally so. One tablespoonful of butter-fat yields 100-109 calories while a similar amount of oleomargarine shows a value of 100 calories or more. The quality of a butter is judged by its flavor, texture, color, the amount of salt used in its preservation, its general style and appearance. Good butter, says H. H. Wing, should have characteristic flavors well pronounced; it should be free from rancidity, clean and pure. The flavor is often of individual taste but the bouquet of high class butter is a mild, distinct volatile flavor or a combination of flavors. The so-called texture of butter depends upon the state of the granular condition of the fats. One notices that when butter is first formed in the churn, it has the appearance of minute, irregular granules and in the further process of manufacture these granules never lose their individuality. This texture of good butter is still further shown in the fact that in breaking asunder a lump into parts, it resembles somewhat the mesh of cast iron, and for further illustration, if a lump of butter be of the best texture no particles of fat will adhere to a knife-edge cutting thru it. This texture deteriorates, however, if the particles of butter are churned into too large masses. Milk-butter contains more butyrin and less stearin than other food fats. Now this product is unfortunately subject to extreme physical changes for according to Browne, sickness of the cow, the peculiarities of the food, and the advancement in the period of lactation are the principal causes of these irregularities. It is a curious fact that certain feeds such as gluten meal tend to increase the proportion of olein in the butter while beets and other roots have just the opposite effect. Again the composition of milk-butter varies with the season of the year, possibly is lowest in October and increases steadily until it reaches the maximum in March—then holding its own until July it drops again when October is approached. Stable feeding often gives a whitish or less yellow color to butter while meadow-feeding yields a distinctly yellow coloration to it. Butter also should be kept in a cool and dark place as light and heat affect it, for when good fresh butter is subject to high temperatures free fatty acids may be engendered which irritate the stomach by the great quantity of these acids, a point to be remembered in adding it to the child's diet. Even a weak stomach will digest a small quantity of fresh, pure, unsalted butter—another point to be considered.

Fats—I mean here the milk-butter fats—can with great advantage be added to other foods for children. Sweet, pure, unsalted butter had best be used, as salted butter even in small amount often irritates the delicate tubules of the kidney in young children. In butter-making the milk fat is removed from the milk in the form of cream which as I mentioned before should contain from 30-87 per cent. or more fat. The larger the fat globules the more easily do they rise to the surface. Farmers know that the milk from certain breeds such as the Jersey and Guernsey produce creams and butters more easily digested than those of the Ayrshire and Holsteins.

Since the fat globules decrease in size as the lactation period advances, the milk from new milk cows will cream more easily than that of cows far advanced in lactation. If the proverbial wolf or one of her whelps should some day knock on our door and we could not buy butter—milk-butter—we have wonderful substitutes in the margarines. The latter goes under several trade-names, according to the products used in its manufacture. For instance, in nut-butters we have a very valuable food. Nuts themselves have a high nutritive value and bulk for bulk contain more fat than any vegetable I know. These nut-butters are usually more economical than the other two kinds, the milk-butter and oleomargarine, and are fully equal in value to them. Just as the flavor of the milk-butter is dependent upon many conditions—and as the margarine-fats are influenced in somewhat like manner—so the flavor of nut-butters or nut-fats is dependent upon certain oils altho in some varieties are found specific flavoring bodies. The fat value of certain nuts is high, the pecan is, of all nuts, probably the richest in fat, 70.7%, while the Brazil nut, the butternut, the filbert, hickory-nut, walnut and the pine-nut contain 60%. Nut-butters are nut kernels pounded in a pestle or mill until of thick creamy consistency then strained thru two layers

of clean, boiled muslin cloth or thru a fine wire sieve to remove any lumps.

Such butters made as above are really nut oils, unless mixed with stearins, and will be considered so in another article.

Manufacturers of nut-butters often add other fats to this nut-oil, producing a substance of greater weight and consistency. These butters and the margarines can be colored by adding certain harmless vegetable dyes to them and then they easily resemble the natural milk-butter.

In an article from a daily paper which lies before me, under the heading "Less Tax on Oleomargarine" the Revenue Bureau recommends the reduction of the tax on this product as a war-measure. Considering the fact that the consumption of milk-butter is enormous some such attractive bait should be dangled before the public to stimulate the use of other edible fats. Besides the expense, possibly the greatest factor in the use of fats other than milk-butter is the possibility of disease from bacterial sources. Nuts are clean, their meats encased in protective coverings, and under cleanly methods their butters contain no pathogenic bacteria. The margarines are pure, that is the method of manufacturing them ensures their purity. The fat of beeves for instance undergoes a process of cleaning, chilling, melting, steaming, cooling and pressing. Again it is cooled to proper temperature when the desired proportion of stearin is crystallized out. Of milk-butter, however, conditions are quite different unless the cream is pasteurized or sterilized rendering it flavorless and unappetizing. The germs of tuberculosis are very often transmitted in milk-butter made from raw milk. Milk on standing, for instance, or passed thru a centrifugal machine separates as is well known into three distinct layers, cream, skim milk and sediment. Now the sediment in fresh, pure, normal milk is so small that it often escapes detection. It has a chalky white appearance and is composed mostly of leucocytes and epithelium cells. Tubercle bacilli, the basis of many epidemics, are easily transferable in milk and remarkable as it seems when present soon disappear from the skim milk but thrive successfully in the cream and sediment.

Curiously enough these bacilli have a higher specific gravity than cream and a lower one than milk, and it would seem that they would gravitate away from the cream and leave it free from imperfection. This in truth would be true if the cream were a homogeneous substance and not an aggregation of small globules. The bacilli adhere to these globules. Therefore, if there are any bacilli in the milk they will disclose themselves in the cream and later in the butter. In the butter also these bacilli can be more easily demonstrated than in the original whole milk owing to their concentration. This same can be said of other milk-carrying bacteria, such as scarlet fever, typhoid, diphtheria and the like. The bacillus coli communis and that of typhoid fever have been found many, many times in butter. The dreaded cholera bacillus as pointed out by Laser when implanted in milk-butter can remain alive and virulent for 32 days—the typhoid bacillus from three to four weeks. Gasperini found the bacilli of tuberculosis in butter 128 days old, in fact these latter germs may in such propitious media live over 90 days. A guinea pig inoculated with a piece of butter the size of a small pea died of tuberculosis 97 days after infection.

A rigid inspection of the milk supply at its base is the remedy and not the sterilization or pasteurization of the product. Butter acts not only as a carrying agent of these bacteria but as a medium for their proliferation. The salting of butter does play an important part in the destruction of microbes. The latter live but a short time in such prepared fat while butter unsalted harbors them for a long period. Cattle should be vigorously inspected as it has been proven that the tubercle bacilli may enter the body from their intestinal tract without, however, affecting these intestines in the slightest while at the same time affecting the lymph glands and the lungs. That the direct rays of sunlight kill the tubercle bacilli in less than an hour is well known but the moist opaque character of the milk undoubtedly shields it against the germicidal action of light and then on drying favors the preservation of these bacilli.

In view of the fact that with the progress of the world's war the Federal Government will undoubtedly, little by little, restrict the sale of the milk-butters and that the transportation facilities of the railroads will become haphazard and problematical; that

with these restrictions the price will rise abnormally inflicting hardships on the poor; that the preservation of the margarines is of a simple nature compared to that of the milk-butters; that the latter are more unstable and more quickly become rancid than do the margarines and are less easily standardized; that oleomargarine contains practically, bulk for bulk, the same number of calories; and that it is just as palatable to the tastes and just as attractive to the eye as the milk-fat products. Moreover the Federal Government exerts a stronger control over the manufacture of oleomargarine than does the state over the products of the dairy or over the farm and the cattle. The very process of manufacture destroys any bacteria which may be lurking in the fat of beeves, etc. And finally the taste for oleomargarine can be cultivated just as easily as the taste for the milk-fats. Therefore I strongly and in no undecisive tone urge the use in our households of the margarines and their combinations, in short, fats other than milk-butter.

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THE KARELL TREATMENT FOR DROPSIES AND CERTAIN OTHER CONDITIONS.

BY

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Phillipe Karell presented his now celebrated paper on "La Cure de Lait," to the Medical Society of St. Petersburg in November, 1866. The method was the result of wide clinic experience. Karell attributes his inspiration to Inosemtzeff of Moscow who had published a book, "De la Cure de Lait" in 1857, based on the treatment of 1,000 cases. He offers no explanation of the benefit from his treatment than the pragmatic "it works." We are told by Karell that Niemeyer employed the method successfully and praised it, but in spite of his high authority it did not gain wide acceptance until endorsed and elaborated by Lenhartz in Hamburg. Its introduction into America is directly traceable to Americans returning from study or treatment in Germany and to German medical literature. It is probably on this account that Karell has been unfairly regarded as a quack, and that the customary directions are the regulations of the Hamburg-Eppendorf City Hospital as set forth in Jacob's paper from Lenhartz' service, rather than the original directions of Karell.

Karell recommended the sipping of two to six ounces (60 to 200 grams) of skimmed milk (*de lait écrémé*) at eight o'clock in the morning, at noon, at four and at eight p. m. This is to the exclusion of all other food and drink. He explicitly cautions against any laxity in directions and warns against simply ordering a milk diet. Success does not attend a doctor who merely says: "Buvez du lait quand vous voudrez et autant que vous en voudrez." (Drink milk when you wish and as much as you like.) This diet was continued for five or six weeks with the following modifications: Extreme thirst was relieved with plain water or seltzer and after the second or third week a little stale white bread with salt or morsel of salt herring was given with the morning milk, and some stale bread at noon. At times oatmeal gruel was substituted for the milk. Constipation was treated by offering stewed prunes or a baked apple. Castor oil and rhubarb or plain water enemata were sometimes employed.

As I have seen the method employed in the hospitals of New York City, the directions are those given by L. Jacob. His practice is that of Lenhartz. Their directions follow: 200 c. c. of raw milk, warmed

to taste, are given four times a day at eight, twelve, four and eight for five to seven days. In the next two to six days the diet is augmented by an egg at ten a. m. and some zwieback at six p. m. Later two eggs are given, then vegetables. Gradually rice with milk or tea is substituted for the milk. By the twelfth day the diet has been so increased that the patient receives a full diet with the single restriction that the total fluid intake shall not exceed 800 c. c. in twenty-four hours.

Jacob insists that absolute bed rest is a cardinal part of the treatment. Karell does not insist upon this nor have I found it necessary with many patients. Accordingly they may be treated ambulant, either with a strict Karell or with modifications which an understanding of the fundamental principles allows. I have frequently, from the outset, permitted patients to add one-half of a banana or some puffed rice to the milk. It seems to give them comfort without detracting materially from the results. Possibly it assists them to persevere in the treatment. Before proceeding to give a list of the conditions in which Karell's treatment may be employed advantageously, I shall describe the usual result of instituting the diet and seek rationally to explain the phenomena.

After a latent period of from two to three days, occasionally less and at times more prolonged, during which there has been a slight increase there occurs a sudden very marked increase in the volume of urine. This may even be as much as eight or ten times what has been excreted during twenty-four hours before commencing the treatment. The urine excreted is lower in specific gravity than at the outset. The marked diuresis continues a varying period depending on the amount of precedent edema until all evidence of anasarca or effusion is gone. If the diuresis had been definitely initiated, it does not seem to matter whether the diet, as outlined by Karell, is strictly adhered to or not. The urine continues abundant until the patient has been relatively desiccated, and his weight has been diminished from twelve to thirty pounds. This may take one day or several days. There is usually a marked fall in blood pressure, frequently as much as thirty, forty or sixty millimeters of mercury, tho at times the blood pressure rises when it has previously been too low. There is always a very great subjective improvement in respect to dizziness, freedom to breathe, sleep and what the patients term clear-headedness. This is frequently manifest before the marked diuresis appears. On this point all writers agree and it has been my own experience.

The *critical* onset of improvement does not seem to me to have been sufficiently emphasized by my predecessors in this field, and on this account it is possible that they have failed in explaining the result.

The benefit has been attributed to the rest in bed and improved renal perfusion, by reason of the reduction of the work required from the heart. This is accounted for by bed rest and diminished fluid. Secondly, it has been charged to the low salt content of the diet.

It is evident that the benefit is not due to the rest in bed from the fact that the benefit may accrue, tho the patient remains up and about. The marked diuresis is certainly not due to the improved circulation because when the circulation is at its best and compensation has been restored, the volume of urine falls and the specific grav-

ity rises even tho the blood pressure may be optimal for urine excretion. That it is not entirely due to the limitation of fluid was shown by Fernand Widal who nullified its benefit by adding sufficient salt to a milk diet, and conversely his achloride diet frequently caused the disappearance of dropsy when there was no diminution of the fluid intake. Widal recognized the paramount importance of drink restriction and frequently reduced the fluid intake to 500 c. c. a day. I wish to emphasize the fact that Widal's achloride diet may contain as much as 400 grams of meat, 500 grams salt-free bread and 1,000 grams of potato. This large quantity of protein and starch is a very important element of his diet, a fact which Epstein has recently sought to make use of in what he terms his "high protein diet."

The dropsy and the preedema which is common ante partum disappears in the parturient, altho she is digesting and absorbing several pounds of meat (her uterus). Possibly, it vanishes even because of this. The signal benefit of Karell's diet is not due entirely to sodium chloride deprivation, since there are cases which are unaffected by the regime and Martin H. Fisher has successfully treated edemas with hypertonic salt solution intravenously. It is well known that sodium chloride is an excellent diuretic, it is also the chief constituent of many hydragogue saline cathartics.

The Karell diet is employed in dropsy of Bright's disease where there is a proven retention of sodium chloride with impaired elimination; salt retention may also occur without edema. It is likewise employed in the edema of the cardiac with lost compensation whose congested kidneys have been shown by Nonnenbruch to have the power, in spite of their edema to excrete quantitatively in 24 hours an added load of salt or water. Wittich's cases in which the diuresis appeared on the same day that the Karell was started, after two days of achloride diet, does not impress me as an argument against the value of simple salt restriction, tho so quoted by Goodman. The diuresis was only to be expected on the third day and data concerning the particular achloride diet employed are not supplied.

Where shall we seek the common factor which makes clinical conditions so essentially diverse yield to a single dietetic procedure? A satisfactory working hypothesis for the Karell regime is quite important; a rational understanding will explain our failures and assist in overcoming them.

If we cannot find the explanation of the benefit induced by the diet in the kidneys or in the heart, where shall we seek them? To this there is an obvious answer. In the edematous tissues themselves. This response makes more insistent the search for the beneficial mechanism of this *combination of salt and water restriction.* Here we must turn to a consideration of the colloidal conditions involved.

Dilute solutions of table salt increase the swelling capacity or hydratation of colloids. When the salt is restricted in a diet further hydratation of the ingested colloids ceases. These colloids may be protein or lipoid. It is a well-known fact that solutions of lipoids are changed to emulsions and that dispersions may be made more coarse in the presence of salts. The soap-maker employs this principle in salting out soaps. Protein colloids require more water the finer their dispersion as they present a larger surface for adsorption. Lipoids, too, when colloidally dispersed have a greater surface and adsorb more water than when dissolved or deposited in the fat depots. When there is

progressing edema with unrestricted fluids the conditions for hydratation may be most favorable, and the swelling capacity of the tissues may be satisfied to the utmost. If the water supply is limited and fluid is withdrawn from the body by the vital process, fluid must come from the hydrated or swollen colloids if life is to continue. The salts become concentrated. The result is inevitable under most conditions, the emulsion state is broken. The floculation or aggregation of particles proceeds thru the entire fluid mass (the body). Larger particles require less fluid of hydration. Water becomes liberated, and when brought to the kidneys is excreted, carrying with it the salt which induced the hydratation. That deprivation of water may break or destroy the emulsion of oil in water even reverse it to an emulsion of water in oil may be seen when the yolk of an egg dries. It is the normal process by which sebaceous secretions or coverings are formed. When Levanzin was given insufficient water, seborrhea of his scalp appeared. It is this critical change in the state of aggregation of the body colloids which in my opinion accounts for critical increase in the excretion of water, for the delay in the benefit from the diet, and for the subjective improvement which precede diuresis.

Similar critical changes are familiar to all clinicians. All have seen a sudden and startling loss of tissue-swelling in patients deprived of water by esophageal stenosis or by prolonged vomiting. Such patients continue for a number of days gradually wasting, suddenly there is a critical change with a liberation of free water; the urine becomes more profuse (involuntaries); they perspire, (the skin becomes moist and clammy) and the mind becomes clearer (euphoria) in the preagonal or pretyphoid moments as they enter the typhoid state with its marked emaciation and hyppocratic facies. There is no such critical loss of weight and condition if an adequate amount of water (tho distilled) is supplied. This was shown in the thirty-day fast of Lavanzin studied by F. G. Benedict.

The question may properly be asked: "What is the advantage of skimmed milk over a similar short ration of water?" The answer is found in the experiments of Clowes who showed the antagonism of calcium salts to sodium chloride. Milk supplies available calcium cations which hasten the change in relative proportional effect of the salts; this may assist in inducing more prompt production of free water.

Viewed from this angle we can readily understand why the Karell may fail in certain cases where the dispersion is exceptionally well protected either by the presence of some resistant protective colloid or by the fact that dispersed particles have attained a size and a concentration difficult to influence by dehydration. It may be that the emulso-static colloids under the conditions involved are not affected by drying or by salt deprivation. We cannot definitely say that the flocking out is not due to salt concentration in spite of the apparent obvious deprivation of salt. I know of no adequate studies on the relative speed of water and salt elimination or of the salt concentration in the tissues or edema fluids during salt deprivation or Karell treatment, tho they would be valuable. Possibly the salt becomes relatively more concentrated in the tissues during salt deprivation. There are other factors involved such as $\frac{P}{H}$ concentration and the changed relations of chloride and phosphate concentration.

Resistant cases may be and are influenced by high carbohydrate and high pro-

tein feeding. Carbohydrates have a specific desiccating action; proteins diffusing into emulsions or colloidal dispersions may flock them out.

Such resistant dispersions are flocked out by the massive doses of saline intravenously, by hypodermic or oral administration of iron preparations, acetate or other anions, and other procedures. (Fischer.)

From the mechanism of the Karell it is easy to deduce *a priori* the indications for its employment tho a long list has been enumerated as the result of practical experience. The Karell is indicated for edema or effusion of cardiac; or renal origin; in the swelling of eclampsia; internal aneurysms with acute symptoms; in congestions of the lungs with or without obstinate chronic bronchitis; in gastrointestinal disturbances due to congestion such as watery diarrheas of long standing. It is useful in obesity with or without pre-edema; in chlorosis and in weeping eczemas of the extremities. (In salt starvation the skin suffers 60-90 per cent. of the chloride loss.) It has failed me in hepatic cirrhosis and it is distinctly contraindicated in true uremics with nitrogen retention. In this last condition large quantities of water must be given in an effort to prevent concentration of the toxins.

What are the dangers of the regimen? To me they seem to be:

(1) Thrombosis. The concentration of the blood may lead to thrombosis in the diseased blood vessels. Unfortunately in some of the otherwise suitable cases this is a definite drawback which must be weighed. Thrombosis of the cerebral vessels with hemiplegia or aphasia has been induced. Thrombosis was definitely sought by Tuffnell, who employed a very similar diet (ten ounces of solid food, eight ounces of fluid) in the treatment of internal aneurysm and says that "the effect on the blood is to make it thicker and more fitted for deposit."

(2) Acidosis. This is partly due to the starvation, the deprivation of carbohydrate and protein; on this account skimmed milk as recommended by Karell is preferable, and in part to the too prolonged salt deprivation. Karell was not guilty of the latter as may be seen from his original directions. The writer has seen a sudden fall of CO_2 tension in the alveolar air (as low as 20 Marriot method) with slow, deep breathing, gastric oppression and vomiting which was promptly relieved by large doses of bicarbonate of soda. Soda bicarbonate is absorbed from the stomach as sodium chloride. Children bear water deprivation poorly and my observation in the Scarlet Fever Hospital (Willard Parker) was that an acidosis would speedily develop if a Karell was attempted in them, tho the method is valuable in acute scarlatinal nephritis with edema in adults.

(3) Wasting. If persisted in for too long a time or repeated too frequently, there is considerable loss of tissue which is undesirable unless it is the purpose to reduce the body mass to the reduced functional capacity of a diseased organ, whether kidney or heart.

(4) Poisoning. Whether as the result of the changed colloid chemical relations or on account of loss of dilution fluids in the tissues, certain drugs, as morphine and digitalis, have a very much greater effect subsequent to the treatment than they had previously and if large doses have been given and are continued poisoning will be manifest.

After this statement of disadvantages incidental to the treatment I shall enumerate a few points which have helped me in carry-

ing it out. The patients, especially when they are very dropsical, require sympathetic encouragement and support until the effect of their deprivation appears, as at times they suffer considerably from thirst and hunger. The thirst may be relieved by very small portions of ice or by gum chewing. (Tuffnell gave his patients pebbles to mouth.)

Morphine is better than bromide as a sedative and hypnotic, tho neither should be required after the first day. Paraldehyde or the alcohol group are to be preferred following treatment.

The question of catharsis is one of great importance. Salines and saline waters must not be given, many of them contain sodium chloride and however concentrated they enter the stomach they are absorbed in physiologic dilution. The writer has seen well intentioned efforts to carry on the Karell treatment defeated by *saline enemata*. Karell, as I have pointed out, was quite definite in his directions concerning cathartics and recommended those mentioned in the forepart of this paper. Tuffnell also gives specific thought to catharsis and used no salts at all. I have found vegetable cathartic pills, aloin, belladonna and strychnin pills, or aromatic fluid extract of cascara satisfactory. Calomel, Pluto water, Carlsbad or Epsom salts have no place in this treatment of edema.

To summarize, I have described the "Cure de la Lait" or treatment of Karell with its indications and contraindications and offer what I hope will prove the basis for useful hypothesis of its *modus operandi*.

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"SOME REASONS WHY MILK SHOULD BE PASTEURIZED."

BY

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Milk is the most valuable food we possess. It is indispensable for our infants, children and invalids. It is a vital necessity for the efficient development of our race. Milk and its products, such as butter, cream, cheese, ice cream, buttermilk and skim-milk, are among the most important articles used for human food and constitute over 16 per cent. of the food used by civilized man. Milk furnishes all the elements essential for the sustaining of

life and the growth of the body, namely, the protein compounds, fats, carbohydrates and mineral matter.

It is worthy of note, however, that milk alone is not an economical food for adults as it does not contain a sufficient proportion of carbohydrates, but milk, with the addition of cereals or bread, constitutes a perfect mixed diet. All recognized authorities on dietetics and food values are a unit in the statement that milk is the most valuable single article of diet we have.

Even in these times of exorbitant prices for all foods, one recognizes when comparison is made, with other articles of food, the economy of a liberal supply of milk in our diet. For instance:

1 quart of milk (40 ozs.) is equal in food value to 1 lb. of steak.
1 quart of milk (40 ozs.) is equal in food value to 11 eggs.
1 quart of milk (40 ozs.) is equal in food value to 3¾ lbs. of fresh cod fish.
1 quart of milk (40 ozs.) is equal in food value to 1 lb. of loin of pork.
1 quart of milk (40 ozs.) is equal in food value to 2½ lbs. of chicken.

When one considers the cost of these various meats at the present time, one can readily see, from an economic standpoint alone, why our milk supply should be maintained, and when we add to this the fact that in most institutions the cost of cooking and serving food is equal to, or greater than the cost of the food itself, the economy of milk as a food in such institutions is still more apparent.

Obviously then, milk is a food that we cannot afford to do without. It is a food that we must have. Cow's milk is the only reliable substitute we have for mother's milk. Butter fat or animal fat in some form is absolutely essential for the infant and developing child and of the various animal fats, butter fat, and especially as it exists naturally in the whole milk, is most easily assimilated.

Attention has been drawn to the importance of animal fats, and especially butter fats, in connection with recent studies on deficiency diseases and their causes. McCollum of Hopkins, in his Studies of Deficiency Diseases in Infants, in referring to cereal diseases reports an instance of an infants' institution in which, thru a mistake, a number of children were fed barley water only for from four to five weeks. These children developed this cereal disease, the symptoms being inflamed eyes, perforation of the cornea and in many instances resulting in blindness. He further reports that at one time of food shortage in Japan, fifteen hundred children, who lived chiefly on a vegetable diet, contracted this disease. It was found, however, that it could be cured promptly by feeding chicken livers.

In a poor district in Denmark, where the children are fed on mechanically skimmed milk, that is, milk from which all butter fat has been extracted, this cereal disease is not uncommon. It is caused by lack of material which is found in butter and animal fat, but does not occur in vegetable fat or plant seeds. This disease does not occur among children who are kept for the most part on a milk diet. Inasmuch as inflammation of the eyes is one of the chief symptoms, it is quite obvious that the disease is difficult to recognize and might be considered as an infection of the eye and not associated in any way with the diet. Hence the great importance of this observation.

The most successful peoples of the world have been considered to be those subsisting on a mixed diet, in which there was a plentiful supply of meat, but it must not

be forgotten in this connection that the meat-eating people are also the milk-using people, and their success and their better physical development may be due more to the fact of their use of milk than their use of meat.

Dr. McCollum draws attention to the fact that heat does not injuriously affect these constituents in the milk. Consequently pasteurization is not contraindicated.

Dangers of Contamination.—Milk is exposed to more possibilities of contamination than any other food and inasmuch as at a moderately high temperature it affords a culture medium for many germs, including some of the disease-producing germs, it must be apparent that when not efficiently supervised, from producer to consumer, it is responsible for more sickness and disease than all other foods combined. Efficient supervision begins with a healthy herd, then a clean stable, a clean and healthy milker with an awakened conscience of his obligations to his fellow beings. As Dr. North has fully demonstrated, much more depends on the milker than on the stable. Then there is the proper chilling of the milk and the sterilization of all milk utensils, the dangers in transportation with its enormous possibilities for contamination and exposure to high temperature during the summer months, and to these we add the possibilities of contamination after the milk reaches the vendor or dairy man, and last, but not least, the home of the consumer. We may deliver safe milk to the home, but if not properly safeguarded, this may be quite unsafe within twenty-four hours.

The rigid enforcement of the foregoing will secure a clean milk, with a comparatively low bacterial count. The common decency of our civilization should demand that we have milk delivered to us that is as clean as any other article of food. We would not tolerate cow manure, dissolved or otherwise, or any other barnyard contamination in any other food. Why tolerate it in our milk? The demand will create the supply and an enlightened public will create the demand.

We are then confronted with the question —is this a safe milk? It may be, but the chances are nine out of ten that it is not. It is clean, but is not bacteriologically clean. Even this milk is in a large measure responsible for the prevalence of diarrheal diseases in the hot months and for the appalling mortality resulting therefrom.

No amount of inspection could ensure this milk against possible contamination thru the mild typhoid, scarlet fever or diphtheria, or thru the common carrier or the convalescent from some of these communicable diseases. Clear sparkling water in a stream, river or lake may be safe, but it may contain both colon and typhoid germs. Consequently we do not care to take chances in our water supply. Not knowing the source and knowing the great possibilities of contamination, if it has not been filtered or chlorinated, or both, we require it to be boiled before we consider it safe. Why take chances on milk? It may contain bovine tubercular bacilli. It may have passed thru the hands of convalescents from typhoid, scarlet fever, diphtheria or septic sore throat. It may have been bottled by one who is a chronic carrier of some of these disease-producing germs.

This has been amply demonstrated by the findings of the various Royal Commissions appointed to ascertain the role played by milk in the development of bovine tuberculosis in the human. The uniformity of

the findings of all these investigators is inspiring and convincing, their conclusion being that on a conservative estimate, twenty-five per cent. of all cases of tuberculosis occurring in children under sixteen years of age, is of the bovine type. It is quite apparent then that tuberculosis as contracted from cows thru the medium of their milk, exists in children to a degree that cannot be longer disregarded, and demands immediate action. Furthermore, there is the danger of infection of the human form of tuberculosis thru one suffering from this disease handling the milk, either thru his contaminated hands or sneezing or coughing over the vessel containing the milk. Furthermore, there have been hundreds of outbreaks and epidemics of typhoid fever, scarlet fever, diphtheria and septic sore throat, traced directly to the milk supply. Efficient pasteurization would have made these outbreaks practically impossible.

How Can These Dangers Be Eliminated.—With such overwhelming evidence of the transmission of disease thru milk, the problem confronting municipalities is how to most efficiently remove these dangers. The consensus of opinion of those who have been for years carefully studying the relation of milk to disease is that there are only two kinds of milk that should be permitted for human consumption, that is, certified milk or scientifically pasteurized milk.

What we understand by "scientifically pasteurized" milk is milk, all portions of which have been subjected to a temperature of 145 degrees for from twenty to thirty minutes and then promptly cooled to 45 degrees or under and kept at that temperature until deliverd to the consumer.

One hesitates, in the light of present-day knowledge, to even refer to the advisability or inadvisability of pasteurization. No one who has been making a scientific study of the milk problem, and who is, therefore, in the position to give an intelligent opinion, within the past five years at least, would question for a moment the advisability of pasteurization of all milk for infants and children that does not come from herds that have been shown to be free from tuberculosis and that has been procured under conditions necessary for the production of certified milk.

However, I presume it is a matter of history repeating itself. In all advances in science there are always the few who cannot keep pace with the advancement, and they expect others to wait for them and human life be sacrificed in the meantime. It, therefore, seems necessary to repeat over and over again. One is reminded, in this connection, of Lord Cromer's address at the annual Conference of the British Research Defence Society in London in July, 1910, when the question of inoculation of animals was under discussion, in which he said: "It seems unfortunate that we should have to waste time on problems that are so self-evident in order to meet the objections of those who value the life of a guinea-pig higher than that of a baby." He consoled himself, however, by quoting the statement made by Mr. Cobden in the British House of Commons when endeavoring to bring about the repeal of the Corn Law. Mr. Cobden's statement in that connection was: "I have come to the conclusion that the only way to get an idea into the heads of the British Public is to repeat the same thing over and over again in slightly different language." This finds a fitting application in our persistent efforts in an educative

campaign for the necessity of pasteurization.

There is no longer any second opinion among those who have been studying the milk problem for years, in regard to the necessity of pasteurization in order to efficiently safeguard the milk supply of any municipality. However, one meets with objectors occasionally, and even among our pediatricians, who are experts in the diseases of children and the treatment of them, and yet are evidently not experts on the milk problem. One still hears them talking about the destruction of the enzymes and vitamines in milk by pasteurization and that the feeding of infants on pasteurized milk is likely to produce scurvy.

As McCollum and others who have studied this problem carefully have demonstrated, scurvy is for the most part due to a faulty diet but not to lack of vitamines or enzymes, nor to the use of pasteurized milk.

The lack of knowledge in this connection that one meets from those who should know better is nothing short of pathetic. Much of the difficulty, no doubt, experienced in securing the adoption of universal pasteurization of milk is due to a deeply-seated misconception of what efficient or scientific pasteurization really means. This is the result of the various commercial methods or so-called flash methods that have been used for years, that had no reliable value and afforded but a false security, the only object being to prolong the keeping properties of the milk. These methods are now illegal in most municipalities and only the Holding method, or scientific pasteurization being permitted. This, when efficiently carried out, destroys all disease-producing germs and practically ninety-nine per cent. of all other bacteria, and does not affect the taste or in any way interfere with the nutritive value, chemical composition or digestability of the milk. This has been repeatedly confirmed by the most skilled investigators both in Europe and America.

However, we will not have reached the ideal in pasteurization until we have it done in the final containers. This apparently is not practicable in a commercial way thus far. The only place in Canada where this method is used is in connection with the Hospital for Sick Children in Toronto. This institution buys certified milk and then pasteurizes it in the bottles in which it is delivered to the babies. This removes every possible chance of infection.

Effects of Pasteurization on Milk.—Much work has been done in the chemistry of milk by the most eminent chemists and biologic chemists on this continent and in Europe and all of these authorities have made extensive experiments in the action of heat on the enzymes of milk and all agree that the temperature of 140 to 145 degrees for twenty to thirty minutes does not affect these enzymes, some claiming that from one hundred and seventy to one hundred and eighty degrees is necessary to bring about any change. The same is true in regard to the so-called vitamines.

However, as Professor Jordan points out, even if the enzymes were slightly affected, there is not a particle of evidence to show that these enzymes have any special influence on human digestion and metabolism. The enzymes in raw meat and raw potatoes, as far as we know, are just as valuable, and apparently, if the potatoes are cooked with their skins on, the enzymes and vitamines are not destroyed.

In addition to this, there have been innumerable demonstrations of the actual feeding of infants and the noninterference

by pasteurization with the nutritive value or the digestibility of milk, and these demonstrations have been supervised by the most careful observers and the best scientific minds in our country.

However, if for argumentative purposes we grant the possibilities of there being some little change brought about by the process of pasteurization and that some cases of scurvy may possibly be traced to feeding pasteurized milk, a few spoons of orange juice will correct this at any time, but a few spoons of orange juice will not correct an outbreak of scarlet fever, diphtheria, typhoid fever or septic sore throat, which has been traced to the consumption of a nonpasteurized milk supply.

For this reason alone, it seems inconceivable to the intelligent observer, in the interests of public health, in the interests of our efforts to reduce infant mortality, that there can be any further questioning of the advisability of the universal adoption of scientific pasteurization of milk. We can no longer afford to leave a stone unturned to efficiently safeguard in every way this most valuable article of diet.

The sudden and marked increase in the cost of milk during the past year demonstrated in a most forceable way the dangers of jeopardizing our milk supply and the necessity for this milk being rendered absolutely safe. It was observed in all the larger cities on the continent that there was a marked decrease in the consumption of milk, concurrent with the increase of price, and this was soon followed by a very noticeable increase in the infant mortality. Should we not accept this experience as a danger signal?

Recapitulation.—1st. Milk is the most valuable food we possess; is, or should be, the sole diet of all infants and small children and the principal diet of invalids; and is a valuable addition to the diet of all.

2nd. Milk is the most economical food we have, costing in proportion to food value, less than one-half the amount paid for meat, eggs, chicken, fish, etc.

3rd. Ordinary market milk is responsible for more sickness and death than all other foods combined.

4th. Milk is responsible for all cases of bovine tuberculosis which constitute 25 per cent. to 26 per cent. of all the cases of tuberculosis in children under 16 years of age, and is also a source of the transmission of human tuberculosis.

5th. Ordinary market milk is responsible for from 25 per cent. to 40 per cent. of all diarrheal diseases during the hot summer months.

6th. From 500 to 600 outbreaks of typhoid fever, diphtheria, scarlet fever and septic sore throat have been traced directly to the raw milk supply. As many as 500 cases of typhoid fever have been traced to one dairy.

7th. Numerous outbreaks of typhoid fever have been traced to milk supplies—the milk having been handled by chronic carriers who had no clinical symptoms of the disease (this applies in a certain degree to the other communicable diseases).

8th. No amount of inspection, no matter how well organized, could possibly detect these carriers. The same is true of the mild, unrecognized cases of the various communicable diseases.

9th. There is only one method by which these dangers can be eliminated from our milk supply—that is, scientific pasteurization.

10th. Scientific pasteurization is heating milk to a temperature of 145 degrees, holding it at that temperature for twenty to thirty minutes and then immediately chilling to from 40 to 45 degrees F. This will destroy all disease-producing germs and 99 per cent. of all other bacteria in the milk and does not materially affect the chemical composition, the nutritive value or digestibility of the milk.

11th. Much work has been done by biologic chemists on the chemistry of milk and the influence of heat on milk, all of whom agree that the heating of milk to a temperature of from 140 degrees to 145 degrees F. for thirty minutes does not de-

stroy the enzymes or vitamines and, in fact, the milk does not undergo any appreciable chemical change. Valuable evidence corroborating this has been obtained by observing the results of thousands of children fed solely on pasteurized milk.

THE "VITAMINES" OR "ACCESSORY FACTORS" IN RELATION TO DIETARY PROBLEMS ARISING FROM THE WAR.

BY

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The food situation in Europe requires the people in America to curtail their consumption of wheat and beef. Consequently they are faced with the necessity of finding new foodstuffs to replace these staples which have been the principal articles of the national diet for the past generation. For the first time the general public has grasped the fact that nutrition problems rank in importance next to the military efforts of the allied nations. The question of balanced diets, proportions of protein, fat, carbohydrate, calorific energy, "vitamine content," etc., are of prime importance to the practitioner of medicine who is the logic guardian of the public interest in such matters.

The necessity of limiting the domestic consumption of the above articles and conserving fats has led to a diligent search for substitutes. That these should have a vitamine content sufficient to balance the diet or equal to the original goes without saying. Radical changes in the national dietary are almost sure to be accompanied by metabolic disturbances, especially if they are made in the enthusiasm of the moment without due regard to the balancing of the new ration in regard to its accessories. That diseases from various dietary deficiencies have appeared in the enemy countries on this account is quite probable. They have had to procure substitutes without delay for important elements in their ration and many of them, either on account of their origin or method of preparation for the market, are doubtless deficient in their vitamine fraction. The daily press often carries vague rumors of "tinned food disease," "hunger typhus" existent in these countries and their low birth rate and increased civil death rate are indicative of grave widespread nutritional disturbances.

The deficiency of vitamines in the diet will eventually produce the clinical syndromes known as beri-beri, scurvy and possibly, in part, pellagra. This latter condition McCollum holds can also be produced by lack of other components of the diet[1]. The course of this latter condition is in all probability a mild chronic deficiency so that it does not appear so rapidly as in the case of scurvy and beri-beri, therefore, being more resistant to treatment on account of the pathologic changes being well established. Human scurvy is due to the lack of a peculiar vitamine, a view which Chick and Hume[3], [4] support in a recent series of articles. As yet it is hardly conceivable to apply McCollum's thesis[2], that scurvy is due to a pathogenic infection secondary to an intestine choked with putrefying feces, to cases of adult human scurvy; since these respond so readily to antiscorbutics, even in very advanced cases, as to eliminate this etiologic factor. In the case of small herbivorous animals like rabbits and guinea pigs this secondary infection is probably the principal factor in the production of experimental scurvy. The infantile form of scurvy is found amongst the poorer children in the urban populations usually

from October to May. Beri-beri has as yet not made its appearance in this country (except in a few isolated cases) to the extent it has in Asiatic nations.

The distribution of these "vitamines" or "accessory food substances" is fairly wide among the foodstuffs available to the public on this continent. The following table taken from Fitch's "Dietotherapy" II p. 226 gives a fairly accurate survey.

RELATIVE VITAMINE CONTENT OF FOODS.

Antineuritic Properties		Antiscorbutic Properties	
Relatively Rich	Relatively Poor	Relatively Rich	Relatively Poor
Brewer's yeast	Sterilized milk	Fresh vegetables	Dried vegetables
Egg yolk	Sterilized meat	Fresh fruits	Dried fruits
Ox heart	Cabbage	Raw milk (?)	Sterilized milk
Milk	Turnips	Raw meat	Canned meat
Beef and other fresh meat	Carrots and other vegetables of this type	Cereals sprouting	Dried cereals
Fish	Highly milled cereals		Pork fat
Beans	Starch		Starch
Peas	Pork		Molasses
Oats	Molasses		Corn syrup
Barley	Corn syrup		
Wheat			
Corn and other cereals			

From this table a fairly decent selection can be made by the individual who wishes to retain a balance of accessory substances and utilize other foodstuffs for articles withdrawn in whole or part from domestic consumption.

Chick and Hume[3] [4] have made the most important contribution of recent years to our knowledge of the antineuritic and antiscorbutic vitamines. Much of the earlier work on scurvy was published before the existence of "vitamines" was known. They surveyed the earlier work in this field and applied the vitamine hypothesis to it in the light of our present knowledge. They find that the antiscorbutic vitamine has a general distribution thruout animal and plant tissues. They have demonstrated that dried vegetables, seeds and cereals are lacking in their antiscorbutic properties but that these are extremely active when the seeds and grains are moistened and allowed to germinate. Their opinion is that when the tissue is dried the cell is disorganized and that the antiscorbutic principle undergoes coincident destruction, but is created anew by the activity of cell life in the germinating grains. Dried potatoes are not antiscorbutic and contrary to expectation, cow's milk is relatively poor in this accessory. Fresh meats contain this vitamine but large quantities are necessary to protect the organism from the onset of scurvy. Dried foodstuffs of all varieties are also deficient in this respect. Potatoes are the principal article of diet which keep the people of this continent supplied with antiscorbutics while all root crops which are stored with the cells in the moist condition (onions, carrots, beets, turnips, etc.) are also efficient as prophylactics against scurvy.

Domestic cooking of vegetables has practically no effect on the activity of their antiscorbutic properties as these pass over into the juices. Slow drying the foodstuffs even as low as 37° C.[3] will completely destroy the antiscorbutic vitamines, and pasteurized, desiccated and condensed milk and dried milk substitutes are the source of most of our infantile scurvy. Fruit juices produced

by modern factory methods of canning are not rich in antiscorbutics and their activity is lost if chemical preservatives are used; while if the reaction of the preserving medium is alkaline, such foodstuffs will loose their protective value in a short time. In the case of fresh and preserved fruit juices the acidity is the important factor in preserving the antiscorbutic vitamine for long periods. Chick[3] suggests the onion as the ideal antiscorbutic, especially for troops, as it stands the conditions of transport better than other vegetables.

The antineuritic (beri-beri) vitamine is concentrated in certain parts of the plant tissue—the germ and aleurone cells of the pericarp of all cereal grains and seeds. The endosperm is totally deficient in this element. It can remain unchanged for months in the dried condition and has been isolated in a more or less pure state by chemical reagents. Of all the vitamines it is relatively the most resistant to variations in temperature, moisture and storage conditions. The principal source is mentioned above but it is also found in all fresh meats, fresh and dried vegetables and in fresh milk and eggs. Yeast is a substance exceedingly rich in this compound. Ordinary domestic cooking apparently does not affect the stability of this particular vitamine and temperatures around 100° C. do not impair its physiologic properties nor do the ordinary methods of preserving canned fruits and vegetables. Salted, tinned and dried meats are not antineuritic especially after long periods of cold storage. Ordinary commercial cold storage up to five months' duration shows little or no degeneration and pasteurizing processes do not show any depreciation in antineuritic properties by biologic tests on pigeons with experimental beri-beri in the case of milk. Temperatures above 120° C. for 1-2 hours, however, render inactive the beri-beri vitamine. White flour has been found to be lacking in antineuritic properties as it is made almost wholly from the endosperm, but the present war flour, which contains a higher proportion of the aleurone layer and germ, is a decided improvement on its predecessor in respect to its beri-beri vitamine.

There is also an accessory which is present in butter fats and cod liver oils which, as Osborne and Mendel[5] showed, is essential for maintenance of health. Edible vegetable commercial fats and oils and lard are lacking in this compound, whose identity is as yet unknown. It is unaffected by treatment with steam, methods used for hydrolyzing fats and remains unchanged by cold storage conditions for several months. At the present time in Europe, especially in enemy territories where fats of all varieties are far short of ordinary requirements, all types of edible fats have been used for substitutes and even in this case the experiment has met with more or less failure. Their experience has shown that fat cannot entirely be dispensed with, even tho the extra calorific energy is supplied by means of carbohydrate; a fixed amount of fat is essential and it must contain this fat soluble accessory. Drummond and Halliburton[6], by means of biologic tests with rats, demonstrate that the butter substitutes in England vary with respect to their content of this fat soluble accessory. The more expensive forms, which are made from the "oleo oils" or lower melting point fractions of beef fats, possess this particular accessory and are comparable to butter in this respect. Butter substitutes made from vegetable oils were on the contrary deficient in this compound, as well as lard, nut butters prepared from nuts and vegetable oils. The cheaper

forms of butter substitutes in America are usually prepared with vegetable oils as the principal constituent and it would be perhaps advisable to have butter fat up to 10 per cent. incorporated in these butter substitutes to render them equivalent to the growth-promoting properties of the butter fat. Lard cannot be used to secure the biologic effect produced by butter fats and high grade beef fat oleomargarines. The deficiency of this fat soluble accessory does not produce any specific symptoms other than xerophthalmia and general chronic malnutrition.

The group of diseases arising from vitamine deficiency in the diet usually appears only after a considerable period during which the deficient diet is the exclusive source of nourishment. Beri-beri usually takes from two to three months. Scurvy may take longer—four to six months. Long continued monotony of diet is one of the principal causes in predisposing an individual to the onset of deficiency diseases, and in this case the symptoms may appear much earlier than when the diet is varied but deficient in accessories. Where the carbohydrate element is relied on to furnish the bulk of energy, to render good the fat and protein deficiency, the onset of beri-beri and scurvy may be hastened since the function of the antineuritic vitamine is connected in some way with the carbohydrate metabolism, so that any increase in the starchy portion of the diet will deplete more rapidly the reserve quantity of this vitamine which the organism has stored in its tissues from a period when the diet was sufficient to permit of a surplus. Such deficiency diseases that are likely to arise here will probably be the mild chronic forms. Consequently the public health authorities should be suspicious of any epidemic of digestive disturbances accompanied by mild neurotrophic disturbances such as skin lesions, simulating herpes and rashes, while rigid inspection of the ration of such individuals will show whether the trouble originates from a vitamine deficiency. The nervous tissue always deteriorates in these avitaminoses giving rise to symptoms common to other degenerative changes in the nervous system. As a rule the chronic avitaminoses will likely prove more resistant to treatment and leave greater disability than the acute forms met with in the Asiatic countries, since the pathologic changes are usually well established before the patients come under professional notice.

The effect of restricted rations and avitaminoses in the allied and enemy countries is difficult to ascertain. Such reports that are available are very general. Scurvy appeared in Glasgow[7] and the English midland cities[8] in 1916-17 when there was a scarcity of potatoes. Beri-beri was prevalent for a time during the siege of Kut[9] when the white troops were on a ration of white flour. This disappeared when replaced by coarsely milled barley flour and Indian cereal grains. Scurvy broke out among the Indian troops in Mesopotamia[9] since they did not eat the meat and horseflesh ration which protected the white troops from this disease. Substitution of fats deficient in the fat accessory for butter and diminution in the quantity of fat ration has caused outbreaks of xerophthalmia[10] among children in the enemy countries and the increased amount of carbohydrates in the diet to make good the shortage in protein and fats has caused diminution in the growth of young children [10].

The prevention of similar occurrences in America resolves itself into a question of price control. It is an unfortunate coin-

cidence that foods deficient in vitamines—as a rule these contain large amounts of, or are exclusively, carbohydrates—are cheap and abundant. Rising costs of foodstuffs cause the poorer classes—who cannot ration themselves intelligently—to ration themselves according to prices. The increased incidence of pellagra coincident with the rising cost of fresh meats and foodstuffs is an illustration very much to the point in this connection. Consequently unless information about relative values of foodstuffs is made available to the public and a supply of the essential foodstuffs is available at a moderate price, the majority of the laboring element will unconsciously put themselves on a low plane of vitamine intake. A supply of fresh fruit—bananas, oranges and apples—together with a plentiful supply of potatoes, carrots, turnips, etc., must be placed on the market at a price which should prevent undue economy of consumption of these articles. Butter substitutes should be available and the cheap grades should contain 10 per cent. of butter fat to supply the fat accessory if vegetable fats are their base. The increase of the percentage of the flour milled from wheat is a step in the right direction while all substitutes for wheat flour should contain as much of the germ and aleurone layer as the milling methods will permit. Any tendency to increase the carbohydrates at the expense of the fat and proteins, without at the same time increasing the use of vitamine containing foods, should be restrained since this may hasten the probable onset of deficiency diseases.

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METHOD FOR CHANGING AND REFORMING THE INTESTINAL FLORA.

BY

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When Poehl, of St. Petersburg, more than thirty years ago, announced that the putrid stools of infants suffering from diarrhea could be made quickly to disappear by a buttermilk diet, the profession was incredulous; but within a few years the feeding of buttermilk to sick babies became almost a fad in Paris. This led to a bacteriologic study of buttermilk. Grigoroff, working in the laboratory of Professor Massol in Geneva, discovered a vigorous growing acid-forming bacillus to which was later given the name *B. bulgaricus*. Tissier, then first assistant to Metchnikoff, in studying this new organism found that it possessed to a remarkable degree the property of suppressing the growth of putrefactive organisms, a property which he showed to be common to all acid-forming organisms.

Metchnikoff soon announced this important discovery to the world, and the new bacillus was hailed as a panacea for nearly all human ills. Buttermilk germs in tablets or vials were soon being dispensed by druggists and later by milk venders thruout the civilized world, but the results were disap-

pointing. Now and then good results appeared to follow the use of cultures, but on the whole the results fell very far below the expectations which had been raised. In discussing the question with Tissier of the Pasteur Institute a dozen years ago, in reply to one of my questions Tissier remarked, "Professor Metchnikoff eats a pound of meat and lets it rot in his colon and then drinks a pint of sour milk to disinfect it. I am not so foolish; I drink the buttermilk, but I omit the beefsteak."

To change the intestinal flora is not an easy matter. It is necessary to do something more than simply to introduce a few acid-forming bacteria. The soil must be changed. If we continue to put into the alimentary canal material of a sort that encourages the growth of putrefactive organisms, this class of microorganisms will continue to be the dominant flora of the intestine. But even change of soil is not sufficient.

Several measures must be employed in conjunction successfully to change the intestinal flora. These are:

1. A diet that will produce in the intestine a media unfavorable for the growth of putrefactive and pathogenic organisms.
2. Increased activity of the colon.
3. The introduction into the intestine and especially the colon of large quantities of acid-forming or protective bacteria.

The intestinal flora may be favorably influenced by any one of these three measures, but for definite and rapid change of the flora, all three of the methods must be employed simultaneously. We will first consider each of the three distinct methods and then the systematic combined method that produces the best and quickest results.

1. The Low Protein Diet.—It is a matter of common observation that carbohydrates (starches and sugars) ferment, while proteins putrefy. Altho both changes are due to bacterial action, there is a most important difference between the classes of microorganisms involved in the two processes. The organisms that give rise to fermentation produce simple acids—chiefly lactic or acetic—that are harmful only in very large quantities. In the minute quantity in which they can be produced in the intestine they are usually entirely harmless. On the other hand the microbes that give rise to putrefaction produce deadly poisons and toxins, a long list of which have been already mentioned, while there are doubtless many others not yet known. Bacteria, like other plants, require soils favorable for their development. It is evident that the most effective way of suppressing the growth of poison-forming, putrefaction-producing organisms in the intestine is to reduce to a minimum the amount of protein in the diet.

The marked difference in the character of the stools of a vegetable-eating animal, like the sheep, and a carnivorous animal, like the dog, is clear evidence of the influence of a high protein diet in promoting putrefactive changes in the intestine. The same difference is observed between the stools of a flesh-eating man, and those of a flesh abstainer. When meat and eggs are eaten freely, considerable of the proteins escape digestion and find their way into the colon, and there undergo putrefactive changes. If, on the other hand, the diet is reduced to a minimum amount of protein, and the residues that reach the colon are small in quantity, the putrefactive changes are slight and the number of bacteria with their toxins and endotoxins is notably lessened.

By a change of diet it is not only possible to change the bacterial inhabitants of the intestine, but to change the action and the nature and influence of the colon bacillus and its congeners so that they no longer produce pernicious effects, but actually become a means of protection and defense. In other words, the wild bacteria that, in various ways, as already pointed out, find their way into the human intestine and give rise to putrefaction and other bacterial changes whereby poisons in large quantities are produced, may be changed. The researches of Kendall showed beyond question that these poison-forming bacteria cease to produce poisons when they are

adequately supplied with carbohydrates of the kind that they can utilize.

Kendall found that even most virulent disease-producing bacteria, like the diphtheria bacillus, in the presence of sugar cease to produce toxins. The same is found to be true of the colon bacillus and various other bacteria that grow in the human intestine—with one or two comparatively unimportant exceptions.

How to get the required amount of carbohydrates into the colon is the problem. Sugar and cooked starch are so quickly digested and so completely absorbed in the small intestine that it is by no means easy to get this element into the colon. Raw starch digests less quickly, and milk sugar is more slowly absorbed than other sugars. Of course it is possible to inject carbohydrate into the colon by means of clysters.

Practically only two carbohydrates can be made to reach the colon without undergoing digestion and absorption—raw starch and milk sugar. Raw starch digests so slowly that when taken in more than very minute quantities a considerable portion will reach the colon and there be acted upon by amylolytic bacteria which are always present; sugar is produced, supplying to the colon bacillus and other harmful bacteria the material necessary for changing the action of these organisms, so that they become protective instead of destructive thru the harmless acids which they produce.

Sugar of milk in considerable quantities in connection with means for stimulating intestinal activity may also be made to reach the colon because of the great slowness with which it is digested and absorbed in adults. Milk sugar remains four times as long in the alimentary canal as does malt sugar. By means of the "milk regimen," which will be described later, it is possible to introduce lactose or milk sugar into the colon in almost any desired quantity.

When the colon is thus supplied with carbohydrates, fermentation takes the place of putrefaction and the acids produced not only prevent the development of poisons, but also act as normal stimulants to the colon, encouraging frequent and normal emptying of the colon.

To prevent misapprehension it should be here stated that the ordinary "milk diet," so-called, is not an efficient method of introducing lactose into the colon, altho it is probable that the increased quantity of lactose that finds its way into the colon in connection with the milk diet is one of the principal means of securing the beneficial results sometimes secured by milk feeding.

Since the epoch-making experiments of Chittenden, supplemented by those of Folin of Harvard, Hindhede of Copenhagen and other investigators, the sufficiency of a low protein diet to support life and health can no longer be questioned. Folin, in fact, states that ordinary foodstuffs contain a sufficient amount of protein to supply the needs of the body, so that a person taking a variety of fruits, grains and vegetables in his daily bill-of-fare need have no apprehension of injury because of the restriction of the amount of protein eaten, altho flesh foods and even eggs may be excluded. Combe and many others have shown by many observations that by eliminating from the diet all foods rich in protein, putrefactive processes may be controlled and the total number of bacteria produced in the intestine greatly lessened.

This fact has also been very clearly established by the experience of the writer and his colleagues in the Battle Creek Sanitarium, where for more than forty years a low protein dietary has been employed as a prominent feature in the general therapeutic program employed in the treatment of more than one hundred thousand patients, all of whom have been subjected to a low protein dietary. The great benefit derived from the reduction of the amount of protein has in most cases been so pronounced that the patient, as well as the physician, has been thoroly convinced of the value of the low protein regimen.

Results of Recent Experiments.—The views prescribed above, which have been held and advocated by the writer for some years and have been abundantly verified by clinical experience, are fully sustained by a remarkable experimental research, conducted by Drs. Rettger and Hull of Yale University, and reported in the *Jour. of Bact.* (1917), pp. 47-71.

These investigators showed that "lactose, milk and mixed grains (wheat, oats, etc.) are specific articles of diet which exert an influence on the intestinal bacteria. Lactose, when fed in sufficient quantities (2 or

3 gm. daily), brings about a complete transformation of the flora of white rats within two or three days; milk requires a longer time, and does not bring about a complete change. Milk and lactose together form the most practical and effective diet, at least for man. Grain feeds tend to increase the number of aciduric bacteria, but their influence is comparatively small.

"Milk undoubtedly owes its beneficial action to the lactose, which constitutes almost half of the solid matter present. The explanation of this action must lie in the fact that the lactose is absorbed slowly from the intestine. On several occasions it has been found in the feces of rats that had been supplied with it as a part of their diet. The raw grains are also probably acted upon slowly, or at least some of the intermediate carbohydrate products are not immediately absorbed. Bread, on the other hand, which contains cooked starch, does not foster the development of the aciduric bacteria, because it is digested quickly, and no available sugar remains in the intestine long enough to be attacked and utilized by this group of bacteria.

"Meat or other high protein diet increases the indol-producing bacteria and other organisms of the so-called 'putrefactive' type, like *B. coli* and *B. Welchii*.

"The marked influence of a high lactose diet upon the intestinal flora of man, which was demonstrated in these experiments, has been confirmed by other investigators working with typhoid patients, who found that eating milk sugar (250 to 300 gm. daily) brought about a marked change in the intestinal flora where the initial flora has been of a distinctly putrefactive type. The authors state that in both the earlier and present work they were unable to establish *B. bulgaricus* in the intestines of white rats even for short periods of time, altho the bacilli were fed in large numbers. These results are in harmony with those of other investigators."

The above observations show beyond room for doubt the importance of supplying to the colon the carbohydrate necessary for promoting the growth of acid-forming bacteria. The only way in which this can be done is by proper regulation of the diet and increasing peristaltic activity. The regimen must supply forms of carbohydrate which will be slowly absorbed so that some of it may have a chance to reach the colon. Lactose, or milk sugar, is the most slowly absorbed of the sugars. It remains in the intestine four times as long as does dextrose or maltose, that is, the sugars formed in fruit juices and that formed by the digestion of starch. By feeding a portion of the starch in an imperfectly cooked condition, the desired end may be accomplished, since raw or partially cooked starch is digested very slowly and hence may reach the colon before absorption. It has been shown by Distaso and others as well as Rettger that some of the colon bacteria are amylolytic, that is, are able to convert starch into sugar, and so can supply to the colon bacilli and other organisms the sugar they need to change their action into acid-formers, so that they will cease to produce indol, skatol and other toxins, ptomains, ammonia and other poisons which are found in putrid stools.

In the fruit regimen, half a pound of milk sugar is given daily, the amount Rettger found necessary for producing the change of the colon flora. The sugar is given dissolved in plain water, lemonade or fruit juice of some sort, in doses of one ounce at intervals of one or two hours. With the fruit regimen the colon is kept empty and a sufficient amount of starch and fruit sugar reaches the colon to produce the needed acid fermentation. In the after-diet, "brose," or half-cooked cereals, supplies the raw starch needed to feed the sugar-forming and acid-forming bacteria and so secure normal bowel action and arrest of putrefaction in the colon and of the chronic intestinal toxemia which results therefrom.

2. Increased Intestinal Activity.—The multiplication of bacteria in the intestine is more actively encouraged by stasis or stagnation of the intestinal contents than by any other factor aside from an excessive amount of protein in the dietary. A most important means of lessening the multiplication of bacteria in the intestine is acceleration of the food materials along the intestinal tract. Delay of intestinal contents at any point along the twenty-seven feet of small and large intestine is quickly followed by the development of active bacterial changes. While active digestion is taking place, putrefaction and fermentation are restrained. When the several digestive

cycles have been completed, fermentation or putrefaction becomes active—the nature of the process being determined by the dominant character of the food residues. If these are chiefly carbohydrates, fermentation results; if protein, putrefaction.

Normally the stomach becomes empty in about four hours after the beginning of a meal and the small intestine discharges the last remainders of the meal into the large intestine four hours later. In other words, the process of digesting and absorbing a meal normally occupies about eight hours. Three or four hours later the undigested residues of foodstuffs, mixed with excretory substances derived from the liver and intestinal mucous membrane, in a perfectly normal person may be discharged from the body. Under such circumstances the opportunity for putrefactive changes is so slight that the bacteria developed are comparatively few, and the amount of poisons produced is exceedingly small. In carnivorous animals the time required for the transit of foodstuffs thru the alimentary canal is much shorter. Results of experimental researches published by the United States government showed that the time that elapses between the taking of food and the discharge of the unused residues is in the barn-yard fowl only three and one-half hours. In the fruit-eating bat of South America the time is only one hour. The alimentary tube of herbivorous animals is thirty times the length of the animal's body and the time of transit is necessarily considerably longer. Metchnikoff showed many years ago by extended researches that those animals live the longest that have the shortest colons. Some animals, such as the eagle, which live on an exclusively flesh diet, nevertheless live to great age because of the extreme shortness of the intestinal tube, which affords no opportunity for stasis and hence little chance for putrefactive changes.

The evident relation between intestinal stasis and resulting toxemia was the consideration which led Lane to devise the operation of short-circuiting, and the still more radical operation of excision of the colon. So far as these operations serve to hasten the discharge from the body of the undigested, unusable residues of foodstuffs, putrescible mucus and other wastes, they may render essential service in the treatment of intestinal toxemia; but after several years of close observation and extensive experience in dealing with this class of patients the writer is convinced that in a very large proportion of the cases that have been subjected to these mutilating operations much simpler and wholly non-surgical measures may be employed with entire success. Lane's most recent recommendation is that paraffin oil should be tried as a means of securing increased bowel activity before resorting to surgical measures.

It must be clearly understood, however, that by increased frequency of bowel movement is meant, not simply one bowel movement a day but, at least three full bowel evacuations. In many cases it is desirable that as many as four evacuations should be secured. The normal rhythm of bowel movement is three evacuations daily, or a bowel movement after each meal. Briefly stated, my reasons for this belief are these:

In healthy infants the bowels usually move soon after feeding. The same is true of healthy animals and active, healthy boys and girls who are fed upon a natural diet that is sufficiently bulky to produce normal peristalsis.

Among primitive peoples the bowels move after every meal. Three evacuations are generally the habit. This fact was ascertained by a questionnaire sent out to several hundred medical missionaries stationed among people of the most primitive types. Doctor Sheppard, an experienced practitioner of Aintab, Turkey, says: "Among the Turks three bowel movements a day is the universal habit. When a Turk's bowels move less than three times a day he consults a physician." Dr. William Arbuthnot Lane told the writer that he was once consulted by a member of the Turkish Embassy in London for relief of constipation because his bowels moved only once a day, and he stated that he found his vital stamina was very greatly diminished when his bowels moved less than three times a day.

A Bushman said to a missionary doctor whom he consulted for relief: "Doctor, I am horribly constipated; my bowels move only once a day."

The chimpanzees and other big apes in zoological gardens move their bowels four to six times a day.

Hundreds of persons, who have come under the writer's observation and who have been induced to adopt the necessary measures for securing three bowel movements daily, have experienced notable improvement in health and the disappearance of headaches, languor, sleeplessness, loss of appetite, coated tongue, foul breath and a great variety of other symptoms that form the familiar symptoms of intestinal toxemia.

Since the process of digestion and absorption is normally completed in eight hours, no reason whatever can be assigned for the retention of the unusable remainders and waste matters that contribute nothing to the welfare of the body and may become a source of infinite mischief thru putrefactive changes while waiting for delayed evacuation.

Food is the natural laxative. When food is taken into the stomach, peristaltic waves begin passing along the organ from above downward at the rate of three to five waves a minute. The peristaltic waves do not stop at the pylorus but continue along the whole length of the intestine, so that the taking of food stimulates the movements in the colon. According to the observations of Hertz, Case and others, the contents of the colon are pushed forward four times as rapidly during the taking of a meal as when the stomach is empty.

The writer has met a number of unusually healthy persons who attributed their remarkable health and vigor at an advanced age to the fact that all their lives they had had the habit of moving the bowels three times a day.

It is usually quite easy by the methodical use of simple means to acquire the habit of three bowel movements daily and the results of this practice have always been found to be beneficial and in no way harmful. The method is quite simple. It is only necessary to supply the proper amount of bulk and lubrication required in each individual case. For giving to the diet a proper amount of bulk, Nature has provided only a single food substance. This is cellulose. Animal foods of all sorts are practically all completely digestible. Little or no residue is left in the digestion of meat, for the reason that meat represents material that has once passed thru the process of digestion in the digestive organs of an animal and hence is capable of undergoing complete digestion when exposed to the proper digestive juices. Cellulose is the one substance found in foodstuff that is not digestible in the human alimentary canal, altho in certain animals, particularly herbivorous animals, Nature has made provision for the digestion of cellulose.

Cellulose is found in larger or smaller quantities in practically all vegetable foods. In some instances it is found in larger quantities than in others. The cellulose content of our common foods is shown in a table found elsewhere in this work. In fruits and fresh vegetables cellulose is found in a newly formed state in which it is very easily broken up, and it is on this account less valuable as bulk-producing material. It is easily acted upon by bacteria and broken up into gases resembling illuminating gas. The bran of cereals represents an older form of cellulose in which it has been transformed into wood and which is resistant to bacteria. Agar-agar represents a peculiar form of cellulose known as "hemi-cellulose," which is soluble in boiling-water. This also is indigestible. All forms of cellulose are useful in giving bulk to the intestinal contents; but bran and agar-agar, known also as "Japanese isinglass," are most valuable.

For efficient stimulation of the intestine it is necessary to take with the food daily from two-thirds of an ounce to one or two ounces of cellulose. This indigestible material or roughage should not be taken at a single dose but should be taken at each meal in such a way that it will be thoroly mixed with the various other food substances so that it will be equally distributed along the intestine. Care must be taken that the requisite amount of cellulose is taken at every meal without exception. The omission to supply the necessary bulk for one single meal may give rise to stasis, the ill effects of which may last for several days.

Lubrication Necessary.—In addition to increasing the bulk of the food, lubrication is often required. This may be secured by the use of paraffin in some form. The Russian paraffin oil renders the most valuable service in these cases. Examination of the bowels and rectum generally shows, in cases of chronic constipation, a dryness of the mucous membrane. By the use of paraffin oil, which is not a food, undergoes

no change and acts merely as a mechanical lubricant, the mucous surface is so lubricated that the fecal matters do not adhere, but slip readily along, even when redundant development may have given rise to folds and kinks which are more or less obstructive, or when adhesions exist that offer mechanical obstacles to the progress of the alimentary residues along the colon. Half an ounce to an ounce of heavy white Russian oil should be taken just before each meal. There are some inconveniences which accompany the use of paraffin oil that may be overcome. The writer has found the use of paraffin in tablet form most practical and efficient. One or two tablets taken at each meal in connection with a proper amount of bulk-producing material rarely fails to secure normal movement of the bowels three times a day or after each meal. By the application of the two measures above outlined, a low protein diet and some simple means for accelerating the material along the alimentary canal, putrefactive processes in the intestine may be controlled to an enormous degree and the number of bacteria may be greatly reduced.

3. The Displacement of Harmful, Putrefactive Bacteria by Harmless Acid-forming Organisms.—According to Burnet, the idea of supplanting putrefactive bacteria present in intestinal toxemia by beneficent acid-formers originated with Quincke.

"To combat the intestinal putrefaction it is necessary to adopt a diet capable of producing in us that limit of acidity which induces the crisis separating the two phases of putrefaction of meat or milk, and of arresting decomposition in our bodies at the end of the first phase. Therefore, we ought to eat carbohydrates and sugars, and so alter the conditions in our intestine as to favor the lactic ferments." (Burnet).

In extensive experiments conducted under the supervision of the writer in the bacteriologic laboratory of the Battle Creek Sanitarium it has been demonstrated that when boiled or even slightly cooked starch is present to the extent of two per cent. the growth and activity of putrefactive organisms of feces are controlled. Acids are produced in place of ammonia, and fermentation predominates over putrefaction.

The principal battle waged between beneficent and pernicious bacteria in the intestine is, according to Burnet, between the *B. Welchii* on the one hand and *B. bifidus* of Tissier on the other.

Those bacteria that produce the largest amount of acids are most active in resisting the growth of putrefactive organisms.

The *B. acidi paralactici,* the *B. bifidus* and the *B. bulgaricus* cease to grow only in stools containing five per cent. of acid; while *B. Welchii* is inhibited by an acid solution of the strength of .16 per cent.

When on a visit to Europe several years ago (1907), the writer secured cultures of *B. bulgaricus* from the Pasteur Institute. New cultures were speedily made in our laboratory under the supervision of our bacteriologist, Dr. A. W. Nelson. For the purpose of making a crucial test of the ability of the *B. bulgaricus* to suppress putrefaction, a beefsteak was put into a culture of the bacillus. Altho the flesh was slightly tainted when examined, a few days later it was found to be entirely free from taint. This experiment is still in progress. The beefsteak is absolutely free from any putrefactive change. Bacteriologic examination shows no putrefactive bacteria present. The flesh after ten years has the appearance of fresh meat made a little paler than usual by the long continued immersion to which it has been subjected.

This method of preserving meat was practiced by the pioneer women of our western frontier, who often kept their fresh meat for several weeks by immersing it in pans of sour milk. I learned recently from a gentleman who has traveled extensively in the East that a similar practice is also in vogue among the Arabs, who preserve their fresh meat in camel's milk.

The philosophy of this method is exceedingly simple. The *B. bulgaricus* introduced with the food is expected to find its way into the colon and thereby producing lactic acid to develop a condition unfavorable to the growth of putrefactive bacteria, which cannot develop in an acid medium.

Two conditions are requisite for the success of this method:

(1) The *B. bulgaricus* must reach the colon in sufficient numbers to be able to produce a sufficient amount of lactic acid to acidify the colon's contents.

(2) It is necessary that the *B. bulgaricus* shall find in the colon the food necessary for its sustenance and by the aid

of which alone it is able to produce lactic acid, *viz.*, carbohydrate.

Unfortunately, both of these conditions are very difficult to secure. The *B. bulgaricus* is likely to be destroyed by the digestive fluids on its way to the colon, while the sugar which is essential for its development is almost certain to be absorbed in the small intestine, so that the acid-forming bacilli speedily starve to death after reaching the colon, for lack of suitable nourishment.

It is hardly to be expected that any considerable amount of benefit could be derived from the swallowing of two or three little tablets carrying a few millions more or less active specimens of the Bulgarian bacillus. When the bacilli are introduced in this way, it is very rare indeed that they can be recovered from the stools. It is necessary that large quantities of very active cultures should be taken and special measures must be adopted to supply *B. bulgaricus* in the colon with the carbohydrate which it requires for efficient growth.

One way of accomplishing this is by the administration of freshly prepared yogurt buttermilk in connection with the milk regimen. It may also be accomplished by administering fresh cultures of the *B. bulgaricus* in massive quantities.

The *B. bulgaricus* is a vigorous organism and seems to have become widely dispersed. Different strains seem to differ somewhat in vigor and in the flavor of the product. In addition to the original culture obtained from Paris, several active strains have been collected and are used in combination.

Milk fermented by *B. bulgaricus* has been largely used in Bulgaria and in adjacent countries from the most ancient times. One very active strain was received from a friend in Sophia, Bulgaria, a former patient, who kindly sent us several samples with information concerning the native ways of preparing and using yogurt.

Thru the courtesy of a missionary recently returned from Mesopotamia we received a very active strain producing an unusually pleasant flavored buttermilk which was brought from Mt. Ararat. A native tradition maintains that this highly valued product was brought over from the antediluvian world in the ark of Noah.

Another very vigorous strain was sent to us by a medical friend stationed at Darjeeling in the Himalaya Mountains, where it is used under the name of *dahi.*

Still another excellent ferment was sent us by Doctor Matthiasson of Iceland, where it is used in the preparation of "skyr," a fermented milk preparation that is very largely used by the natives, especially for the correction of gastric and intestinal disorders. (*Streptococcus lacticus*).

Tissier and Distaso showed years ago that the *Bacillus bulgaricus* does not establish itself in the human colon. It is for this reason that it is necessary to furnish a constant supply of this friendly germ in the form of buttermilk or otherwise. In the author's experience the Bulgarian germ is highly useful as an aid in changing the intestinal flora, especially in cases of gastritis and colitis.

Other Anti-toxic Ferments.—The *B. bulgaricus* is not the only protective ferment known to bacteriologists. All the lactic acid-producing ferments, of which there are many, may be regarded as more or less protective in character. Most of these, however, like the *B. bulgaricus,* are not native to the human intestine, and to do service must be continuously supplied, since they cannot be made to grow permanently in the intestine without being reinforced by fresh cultures. Of very special interest on this account is the *B. bifidus,* discovered by Tissier, which was shown by him to be a natural protective organism which is planted in the intestine soon after birth to prevent the development of putrefactive and other harmful organisms. The *B. bifidus* produces acetic acid and grows naturally in the colon.

Still another protective organism that may be of some service is *B. glucobacter,* discovered by Wollmann, an assistant of Metchnikoff's. This organism has the property of converting starch into sugar. It thrives in the colon, where it may render essential service by supplying suitable food for the *B. bulgaricus* and the *B. bifidus.* The writer has found the best results from giving in very large quantities an active culture containing all three of these protective organisms. Such a culture given in quantities of a few ounces before each meal and in connection with a suitable dietary has produced most excellent results. To in-

sure a rapid change of the intestinal flora it is necessary, in addition to the administration of cultures of acid-forming organisms, to put the patient upon a dietary that will introduce into the intestine a considerable amount of starch. It has been found experimentally that with such a dietary it is possible to introduce into the colon carbohydrates to the amount of ten or twelve per cent. of the total solids of the feces. Four or five per cent. is an ample quantity to secure results desired.

With reference to protective organisms, Burnet of the Pasteur Institute speaks as follows: "The artificial cultures chosen for their chemical properties are chiefly *B. bifidus, B. acidi paralactici,* and the lactic ferment that has become popular under the name of the 'Bulgarian Bacillus.' They are given either singly or in association, and in the form of clotted milk or in bouillon. The characteristics of the Bulgarian bacillus are briefly the following: it produces 25 grams of lactic acid per liter of milk; not more than 0.50 gram of succinic and acetic acid, traces of formic acid, no alcohol and no acetone. It attacks the protein hardly at all and has no pathogenic power (G. Bertrand and Weisweiler). Altho it does not inhibit the development of the *B. coli* in a culture containing peptone, it at least prevents it from producing phenol, and greatly reduces its indol production.

"The mechanism of the action of the lactic ferments in general is not quite settled. They appear to diminish the number of anaerobes and of the *B. coli.* The diet of sour milk reduces the ethereal sulphate of the urine more than does a diet of sweet milk."

It is of interest in this connection that most savage or primitive peoples make use of sour milk. The savages of Central Africa make use of milk only after converting it into a sort of kumyss by leaving it for some hours in a gourd especially used for the purpose. A portion of the ferment is always left behind in the gourd, which is never washed, so that a high degree of acidity is developed in a few hours.

The half civilized Tartars of Western Asia prepare milk in the same manner, as do also the Turks and Armenians. The natives of Italy use milk from goats instead of that from cows, a custom that will be better appreciated when the fact is known that goats are not subject to that dread disease, tuberculosis, so common among cows. Even the German peasant scalds the milk as soon as it comes from the cow and makes little use of the article except in the sour state in which it is comparatively safe. The Irish peasant is equally fond of sour milk, as also are the natives of Scandinavian countries.

Certain yeasts produce lactic and other acids and have been used with some success in combating intestinal putrefactions. These organisms produce great quantities of gas as well as alcohol and other objectionable substances, and hence cannot be recommended for practical use.

Still another highly useful protective organism is the *B. acidophilus.* This bacillus is native to the body and is present in the stools of healthy nursing infants but is later driven out or overgrown by the "wild" bacteria which are introduced in cow's milk, meat, stale eggs and other infected foodstuffs. This *B. acidophilus* may be restored to the intestine by administering it in large quantities of active culture in connection with *B. bulgaricus* and *B. bifidus.*

The most effective means of changing the intestinal flora is by the employment of the "fruit regimen" or the "milk regimen," or better still the "fruit regimen" followed by the "milk regimen." The technic of these methods is simply a practical application of the principles above outlined. By these simple means the intestinal flora may be radically changed and reformed in a very short period of time, sometimes within a week or even less. The writer has presented elsewhere a full description of these regimens, which should not be confounded with the so-called fruit diet and milk diet.

Beri-Beri.—Researches carried out by the British War Office, according to the *Lancet,* have found that an extract of yeast made under special conditions is extremely rich in anti-beri-beri vitamines. This has been issued to the British troops in Mesopotamia since the autumn of 1916 as a ration under the name of "marmite." Its taste is not unlike that of meat extract. Very little beri-beri has occurred and not a single death since beginning its use.

"BUDDEISED" MILK.

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The importance of a pure milk supply is universally recognized, but the difficulty of obtaining it is not fully appreciated. Various factors are responsible for this—the difficulty of efficient supervision of farms and dairies and the ignorance of many of their owners, the problems of transit, particularly in hot weather, and the custom in many countries and localities of keeping and delivering milk in open vessels instead of in sealed bottles, or selling it from bulk containers. This is the so-called "loose milk."

The ideal system undoubtedly is to produce the milk and deliver it from farm to consumer under strictly hygienic conditions. Failing this, various procedures have been suggested—and more or less practiced—to render milk fit and safe for consumption, such, for example, as the use of preservatives or treatment by heat. Preservatives may be ruled out as being undesirable, sterilization is impracticable since it alters the condition and nutritive qualities of the milk, and pasteurization is not looked upon favorably by many, tho now-a-days it is being increasingly adopted.

Some years ago a method of treating milk was introduced by Budde, a Danish engineer, which was claimed to attain the result desired, without any of the objectionable features of other systems of milk treatment. This method makes use of the well-known germicidal power of hydrogen peroxide. The principle of this process is as follows: The milk is obtained in as cleanly a condition as possible, and, if it has to be kept for any time before treatment, it is efficiently chilled, but preferably it is treated soon after milking. A proper proportion of peroxide of hydrogen is added to the milk and the mixture is heated to 51°-52° C. for at least three hours. A temperature below 48° C. is not efficient and one above 55° C. should be avoided, as this tends to induce changes in the milk. With the aid of this heating, the hydrogen peroxide is completely decomposed into water and oxygen by an enzyme (catalase) present in the milk, and the oxygen at the moment of liberation being in a nascent condition, acts as an efficient germicide. At the end of the process, the whole of the hydrogen peroxide should have been decomposed, provided the right proportion has been added, and no antiseptic remains. A small, but inappreciable addition of water has been made to the milk, while the majority of microorganisms have been destroyed. The amount of hydrogen peroxide required to obtain this result is about 15 c. c. of a three per cent. solution per litre of milk. The milk is treated in bulk, immediately bottled with suitable precautions, and thus supplied to the public. The milk so treated is practically unaltered in appearance and flavor, the cream rises as usual, but all the ordinary non-sporing pathogenic germs are destroyed and the milk will keep sweet for at least 8 or 10 days. The capacity of natural milk to decompose hydrogen peroxide varies, presumably on account of variation in the catalase content of milk from different cows, from different localities, etc. With some of the continental milk, less than 15 c. c. of the 3 per cent. peroxide can be decomposed, and it is necessary in such cases to add something, *e. g.*, small quantities of yeast enzymes, which will decompose the excess of peroxide and render the treated product free from this agent. English milk, however, will generally decompose on an average 17 c. c. of the peroxide per litre, while in America some of our milk will do even better. It is seldom necessary in treating the milk of England or America to add the yeast enzymes, and the milk itself will completely decompose the requisite quantity of hydrogen peroxide. But even should a small amount of the peroxide remain undecomposed, it can hardly be deleterious, for at most the amount will be infinitesimal. I am confident that these small quantities of pure peroxide are quite harmless, since they will be immediately decomposed in the stomach. The enzyme "catalase" has been described by O. Loew[1], while the interaction between various enzymes and hydrogen peroxide has been investigated by Vanderwelde, Waele and Sugg[2]. Practically the only question is whether or not the Budde process alters the nutritive qualities of the milk. Relative to this, I have made no personal investigation, but Lindman[3] states as the result of

an extensive use of "Buddeised" milk in cases of diarrhea and digestive disturbance that it can be used with the greatest benefit in these conditions.

Some years ago, I made a number of bacteriologic experiments with milk treated by the Budde process. I found that all the non-sporing organisms dealt with, pathogenic and non-pathogenic, were destroyed by the process. They included *B. tuberculosis, B. diphtheria, B. typhosus, B. paratyphosus, B. coli, Vibrio cholerae, B. dysenteric, M. pyogenes, aureus* and *B. acidi lactici.* Sporing forms, such as *B. anthracis, B. subtilis* and *penicillium glaucum,* were not destroyed by the process tho appreciably reduced in numbers.

Buddeised milk is practically indistinguishable from fresh, untreated milk in taste, odor, appearance or in the rising of the cream, and has the great advantage that it will keep sweet in hot weather for several days longer than untreated milk.

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Diet.—A matter worthy of more attention is that of diet says the *Archives of Pediatrics.* One hundred years ago even people of rank ate plain food. One favorite article of diet was boiled whole wheat. This required a great deal of chewing. Food that required chewing was essential for the proper development of the jaws and teeth. The Maori race who were the aborigines of New Zealand lived on roots and bark and as it required a great deal of chewing to extract sufficient nourishment from these substances their jaws and teeth were unusually well developed and it was not unusual to see persons 70 years of age with perfect teeth; worn perhaps because of much chewing, but sound. Since they have begun to adopt the pap diet of the present day their teeth begin to show deterioration. If we could again have a virile, and vigorous race we must revert to simpler and more primitive way of living. We must live more in the open air and cease to live on "pap" foods and to indulge in sweets.

Rational Organotherapy

Graves' Disease.—To the May, 1918, issue of the *Practitioner,* Scott has contributed an interesting article on "The Nonsurgical Treatment of Graves' Disease." In this disease, perhaps more than in others, the prominent symptoms according to the author are, in most cases, so striking that the unscientific mind sees the picture only, the morbid surface, and contentedly sees no more. In reality this syndrome displays a wonderful example of deep-seated, widely distributed, functional disturbance, ending in organic structural disease. The cause is not in the thyroid nor in the eye. Studying the early history and the premonitory signs of the cases, one is inevitably led back to the nervous system, and especially to the sympathetic branch of that system.

The writer's contention is that in this disease there is a pluriglandular disturbance, not only as to quantity of secretion, but as to quality also, and that this disturbance is in the great majority of cases caused by bacterial poisons from within. Shock, grief and fright are, in the writer's opinion, only emergencies stirring up partly latent trouble. These glandular disturbances act partly by direct action on certain organs, such as the heart and sympathetic, but chiefly perhaps, by producing discord in the glandular system of the whole body. In many instances one has no opportunity of seeing these cases till the symptoms have been going on for some time, and when secondary damage has been done. We have then to call other glands to our aid. Hyperfunction, if long continued, must lead to hypertrophy and ultimately to atrophy. We see this hypofunction ending in a form of myxedema at the end of a fair number of Graves' disease. This fact should make every physician pause and very carefully consider before he sanctions the operation of thyroidectomy. The complete removal of the gland is, as we know, disastrous, and in the partial removal, which has often shown at first bril-

liant results, little is known of the after-history.

The treatment by the combination of judicious X-rays with glandular products holds out, Scott feels sure, a most hopeful prospect. In medicine, we must be boldly radical, but on surgery wisely conservative.

Ductless Glands and Dermatology.—Cunningham in *New York Medical Journal* (Jan. 19, 1918) discusses this subject and says many cases of acne are victims of minor thyroid deficiency. Metabolism is abnormal. Resistance to infection is lowered. Erythema pernio, or chilblains, is so clearly a circulatory derangement that the involvement of the adrenals is certain. This may be due to toxemia to which, as we have seen, the adrenals are particularly liable. It may be due to thyroid insufficiency reacting upon the adrenals. Let us constantly bear in mind that the whole system of internal secretions is attuned to the key that "the injury of one is the concern of all." Raynaud's disease, a gradual obliteration of the peripheral circulation with a shrinking and shrivelling of the fingers and toes, would fairly come under the designation of chronic pernio. Local syncope alternating with local asphyxia, is common to both. "Vasomotor disturbance" is the lucid explanation given of these antipodal variations.

The cause of psoriasis has eluded the persistent quest of tireless investigators. The one opinion today that is supported by substantial therapeutic results is that of the metabolic origin of the disease. It is maintained that the ingestion of animal nitrogen precipitates the attacks and prevents recession. Diet regulated on this hypothesis does appear to modify materially the progress of the disfiguring eruption. We have seen that the thyroid has marked influence on nitrogenous metabolism. Its applicability therefore to the treatment of psoriasis would seem to be perfectly logical.

The frequent and unaccountable vagaries of psoriasis, which disappears without reason and as inexplicably returns, preclude the attaching of too much importance to any reported successes.

Nevertheless, it is to the thyroid that the empiricist—experimenter—clinician, should turn for the most promising lead in this etiologic hunt.

The internal secretions dominate the vital functions. Distressing, disabling, and even fatal consequences follow in the general economy interference with their normal operations. Is it a far cry from this to the inclusion within the scope of their perverted activities of the many mysterious maladies that assail the skin? The greater includes the less. The envelope of the body cannot escape the deterioration of the whole. In endocrinology will be found the touchstone of dermatology.

Medical Treatment of Graves' Disease with Special Reference to the Use of Corpus Luteum Extract.—It is held today reports Hoppe in *Jour. of Nervous and Mental Disease,* April, 1918, that the corpus luteum is a grandular organ, and that the epithelial cells, *viz.,* the lutein and the paralutein cells, pour their secretion directly into the blood vessel upon which they are imbedded. The corpus luteum, therefore, is a ductless organ and it has a most important function in regulating the sexual life of woman.

Clinically, there is abundant proof that the sexual apparatus and the thyroid are closely asociated. Graves' disease is found almost entirely among women. Puberty is a very favorable time for its development. There is almost always a disturbance of menstruation; during the periods of exacerbation especially, there is often found amenorrhea or deficient menstruation.

The interrelation of the thyroid and ovary is also shown by those mild cases of myxedema, which show a normal thyroid metabolism during the interval between menstrual periods and an active myxedema during the period. It would seem to indicate that the corpus luteum exerted an inhibitory effect on the thyroid in these cases and that the thyroid which was capable of performing its function fairly normally during the intermenstrual period lost its ability to do so during the period of greatest activity of the corpus luteum.

We undoubtedly have in Graves' disease pluriglandular symptoms, but we need not assume from this the existence of pluriglandular disease, for we cannot have a

marked hyperfunction of any one of the ductless glands without disturbing the functions of all or most of them. The use of extract of corpus luteum is based on the theory that Graves' disease and hypothyroidism are equal terms.

The ordinary Forchheimer treatment is often attended with only indifferent success. The combination, however, of the quinine hydrobromate, ext. belladonna with the ext. corpus luteum was found to be rapidly beneficial in nearly all the cases, and the improvement was usually so rapid and so marked in a few days to a week, to convince the writer that rest diet, hygienic measures, all of which he had used for twenty years, could not account for the result, but that the corpus luteum was the active therapeutic agent.

Relation of Carbohydrates to Protein Synthesis.—Janney in *New York Medical Journal* (May 11, 1918), states that the ductless glands are known to exert a profound influence on carbohydrate and protein metabolism. These organs also exert a controlling function in growth and development, processes involving free synthesis of protein. It seems then possible from the evidence collected in this article that the synthetic function of these organs may be connected with the influence exerted by them upon carbohydrate metabolism.

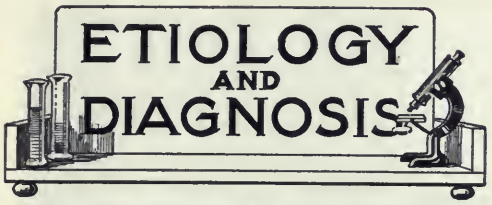
More light would be thrown on the metabolism and pathogenesis of thyroid diseases. The thyroid is known to influence carbohydrate metabolism. Disturbance in the carbohydrate utilization exists in Graves' disease and hypothyroidism. The increasing breakdown of body tissue in Graves' disease might be partly due to a toxic effect and partly to the effect of the dysfunctioning thyroid on carbohydrate metabolism.

The disturbance of protein metabolism in cretinism might also be connected with failure in synthetic utilization of carbohydrate. It is also known that profound disturbances of carbohydrate metabolism are present in other diseases of the endocrine glands, as in Addison's disease, dyspituitarism, and muscular dystrophy. It seems not unlikely that the metabolic changes in these cases might also be explained from the same synthetic viewpoint which has been developed in this article.

Some Phases of Endocrinology.—An understanding of endocrinic function is of paramount importance to one who practices medicine intelligently writes Garretson, *New York Medical Journal* (May 11, 1918). Organotherapy dates back to remote ages. The Chinese treated obesity with preparations made from canine orchitic extracts, and heart disease and epilepsy with dried and powdered frogs and newts. Decoctions of toads, lizards, spiders, etc., have been used therapeutically from time immemorial, and results obtained quite potent, but entirely misunderstood, until recent investigation has shown that the skins of these animals and insects contain an appreciable amount of adrenalin owing to the presence of cutaneous adrenals. Today suprarenal extract is used in certain forms of heart disease and epilepsy with excellent results, and we still today have no other adequate treatment for eunuchoid obesity than the administration of orchitic extracts. In the use of organotherapy, one's armamentarium, therapeutically, is vastly augmented. Conditions heretofore considered hopeless frequently clear up under proper treatment with internal secretions as if by miracle, astounding and gratifying to both patient and doctor. Without doubt the physician who practices medicine today without the wise and discriminating use of organic extracts is as greatly handicapped as a surgeon would be in attempting to perform a laparotomy without a scalpel. The frequent unsatisfactory results experienced by many are due to the fact that few have as yet learned how to interpret glandular dysfunction, and fewer still have learned dosage. Far too large are the doses generally prescribed, and often the patient thus suffers from aggravated symptoms.

When one remembers that *endocrine secretions are not drugs, but enzymes or ferments,* and that analyses reveal that physiologically only very small amounts of these substances are normally existent in the blood (as example, adrenalin one-2,500,000), one may realize that giving five, ten, or fifteen grain doses three times a day of any of these organic extracts is outra-

geous therapy. There are certain types where deficiency of secretion (*e. g.,* myxedema and subthyroidal states) require doses of moderate size, but such doses in maximum should not exceed one or two grains daily, to obtain most satisfactory results. In the states of dysfunction, when one has but to *tickle* the gland, as it were, by stimulation thru its own active principle, most glowing results are obtainable by very small doses.



Diagnosis of Gonorrhea.—Acute gonorrhea is a mixed infection due to gonococci, strepto- and staphylococci, and even tho microscopical examination does not show the presence of the former, if the latter are present they are dangerous. It is true the latter do not transmit gonorrhea, but they can and do infect, especially in the female.

Dowd in *Med. Council* (Feb., 1918) claims that the diagnosis of acute gonorrheal infection can be made quite accurately when the following cardinal evidences are present: discharge at the meatus appearing on an average of three days after coitus, semi-purulent at first but becoming thicker and more profuse as each hour passes; inflamed and pouting lips (meatus); a marked opacity of the urine about 24 to 36 hours after the appearance of discharge; no shreds are visible, no history of a former infection and ardor urinæ is quite marked.

With simple infection, *i. e.*, urethral inflammation due to exacerbation from a local focus, we find conditions entirely different. The discharge is thin, it does not become profuse with the same rapidity as in the former condition, there is practically no redness (inflammation) or pouting of the meatus, the urine is only slightly opaque, even days after the onset, free shreds are much in evidence, there is very little if any ardor urinæ and always a history of a previous infection.

Pyelitis.—The term pyelitis, says Royster in *Virginia Medical Monthly* (March, 1918), when used in pediatrics refers to an infection of the urinary tract of sufficient severity to cause pus to appear in the urine. It is one of the most common affections of infancy and childhood, and should always be sought for in determining the cause of an obscure temperature. Where routine analysis is made in the course of regular diagnostic examination, it is astonishing how often this condition is discovered.

It may be primary, but is most often secondary, and it may be secondary to almost any other infection, being particularly frequent after influenza, tonsillitis and infectious diarrhea, especially that seen during the summer months. So frequently is this the case that if there is a sudden rise in temperature after or during convalescence from any illness, the urine should be examined. In a large per cent. of cases thus studied there will be found an infection of the urinary tract. In some instances several examinations may be necessary before pus is found. In all probability most cases of secondary pyelitis start as an infection of the organism, which is responsible for the primary condition, but in all cases there is a further infection with the colon bacillus, which eventually becomes the prevailing factor, hence treatment should be directed against this organism.

There are three theories as to the source of infection of pyelitis: 1, that it is an ascending infection from the external genitals; 2, that it is a blood stream infection; and, 3, that it is by way of the lymphatics. The fact that pyelitis is more frequent in girls than in boys has made opinion lean toward the theory of ascending infection; over against this, however, is the fact that the pelvis of girl babies is richer in lymphatics than boys, and that these lymphatics transmit the infection (especially the colon) directly from the intestine.

Differential Diagnosis of Vertigo.—Heitger (*Miss. Valley Med. Jour.*, June, 1918), states that just as we maintain our equilibrium from three sources—ocular, kinesthetic and vestibular—so may we have the three kinds of vertigo. In ocular vertigo there are accompanying symptoms which point to the eyes as the source of disturbance, the vertigo disappearing when the eyes are closed. Kinesthetic vertigo is usually associated with slowly progressing disease and on that account time is permitted for compensation. When present it is made worse by closure of the eyes and calls attention to its source in the kinesthetic apparatus.

Vestibular vertigo is rotational in character and is far more unpleasant than either ocular or kinesthetic vertigo. In the past this type of vertigo has been associated with diseases of various organs and for that reason called "renal vertigo," "stomach vertigo," etc.

From its character who would think of examining the ears and yet, strange as it may seem, an analysis of vertigo from this standpoint has placed the diagnosis of vertigo upon a firm scientific basis, bringing order out of chaos.

Vertigo may be caused by (1) Involvement of the ear mechanism by a lesion in the ear or 8th nerve, such as hemorrhage, effusion, various kinds of labyrinthitis, inflammations of the middle ear producing congestion and irritation of the labyrinth, leucemic infiltration, trauma, neuritis, low grade specific meningitis, etc.

(2) Lesions affecting the intracranial pathways, such as hemorrhage, trauma, tumor, abscess, thrombosis, infarction, tubercle and gum-

ma formation, multiple sclerosis, syringomyelia, meningitis of various types, polioencephalitis, etc.

(3) Involvement of the ear mechanism by toxemias from any organ or part of the body. Chemical poisoning from alcohol, lead, salicylates, quinine, etc.; infectious fevers, such as mumps, scarlet fever, typhoid fever, nephritis, gout, lues and focal infections.

(4) Involvement of the ear mechanism by ocular disturbance.

(5) Involvement of the ear mechanism by circulatory disturbances, cardio-renal and cardio-vascular conditions.

where they should be curved upward. Support of the front arch of the foot by making the insole of the shoe convex, to conform to the natural position of the bones in a normal healthy foot, is absolutely essential for foot comfort. The worst ills incident to lack of anterior support are callouses under the metatarsal heads, and hammer toes, with the corns incident to the up-thrown joints.

A second very vicious fault is in women's shoes only. This fault is the high heel, which, acting directly with the lack of anterior support, breaks down the anterior arch of the foot, shortens the cords of the foot and legs,

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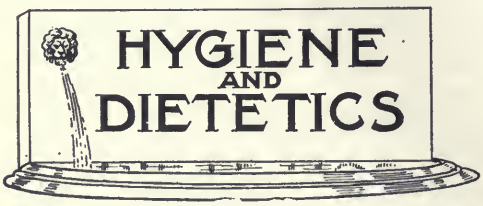
SERVING COCOA TO A DIET SQUAD IN A NEW YORK PUBLIC SCHOOL.



Properly Fitting Footgear.—Greer, discussing footgear in *Pedic Items* (June, 1918), says there are two very grevious specific faults in shoes as at present constructed. The first and most torturing one is the lack of anterior support. Modern shoes are made bowl bottomed,

and physically is really a great source of torture and bodily suffering with women.

The high heel and the bowl-like bottom of the modern woman's shoe is so badly suited to the uses to which it is put that there is certain to be corrective procedure regarding this type of footwear just as soon as the real damage that such shaped shoes do is realized.

In connection with the lack of anterior raise and the high heel comes the fault of loosely fitting, flat-bottomed, interior heel space in the shoe. The bottom of the heel space should be the shape that is made by the normal undeformed heel in soft earth or sand.

Dietetic Considerations in Exophthalmic Goiter.— In the May, 1918, issue of the *Medical Summary*, Bram asserts these patients are as undernourished as the subjects of tuberculosis, and must be carefully and plentifully fed. As a preliminary measure, we must take care to place the digestive functions in the very best of order. The teeth must be gone over by a dentist, after which the patient is instructed to chew the food slowly before swallowing. Gastric insufficiency, usually present in the form of "nervous dyspepsia," should be tactfully combatted by the ordinary means; with this condition, however, that no such substances as strychnine, alcohol and other stimulants be given. It is wiser to treat the gastric condition by careful dieting, with the possible use of supplementary digestive ferments, than by drugs. The bowels must receive due consideration, and if constipation prevail, the best substance to be employed here is sodium phosphate, a teaspoonful or more of which is to be dissolved in a tumblerful of hot water and taken an hour before breakfast, daily. It has been my practice to order patients to take six partial meals rather than three full meals a day. The total of these six partial meals is approximately that of at least four usual-sized meals. It is chiefly by these means that we are able to introduce into the system large quantities of food, and thus overcome the emaciation. Patients are instructed to eat plenty of bread and butter, cottage cheese, stewed fruits, and vegetables. The animal foods are to be taken sparingly. Olive oil is a very useful substance in the interests of body restoration and intestinal cleanliness; an ounce, with or without grape or orange juice three times daily, an hour or more after meals, may be given. Milk, buttermilk, sweet cream and especially sour cream should be taken in quantities as great as can be properly borne and digested. I have never seen any harm result from the ingestion of a cupful or two of sweet cream, just before retiring. The success of this method of dieting can only be attested by the records of my cases, which show an average of an increase of one to four pounds weight per week, until the patient's weight has reached to even beyond the normal figure.

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KITCHEN WORKERS IN THE AMERICAN HOSPITAL, PARIS, PREPARING VEGETABLES FOR THE DINNERS OF THE PATIENTS.

Oatmeal Gruel in Infant Feeding.—Oats, according to a writer in the *Medical Record*, have always held a high reputation as a nutritive food for man and beast. Oats contain a higher percentage of carbohydrates and fat than other grains and, moreover, the fat in oats is of better quality than that in other grains, and

the iron content of oats is very high. Oatmeal gruel is an excellent food for infants, and was first used in this capacity by the French. At the present time, oats are being used extensively for well and sick adults, and especially for well and sick infants and children, in the form of oatmeal gruel. Dr. A. Levinson, in the *Archives of Pediatrics*, gives the results of investigations taken by himself and colleagues as to the value of oats as an infant food. He summarizes as follows: (1) Oats is an important addition to infant food. (2) The most valuable preparation is oatmeal gruel. (3) The 5 per cent. mixture, which contains 1.5671 grams, dry substance and equals 5.4 large calories in 100 c. c., is the most efficacious preparation. (4) Oatmeal gruel can be prepared very simply by washing grits in cold water and boiling for 30 minutes and then straining. (5) Gruel can be given at any age with beneficial results. (6) Its taking increases the appetite of the child. (7) It makes the stool hemogeneous. (8) It often relieves constipation. (9) It has high iron content. The experiments carried out by Levinson were mainly in order to find out if oatmeal gruel had a favorable effect upon the stool of infants. As will be observed above, the conclusions from this point of view were eminently satisfactory.

Current Food Problems.—Alsberg in a lecture on the Current Food Problems published in the *New York Med. Jour.* (Nov. 24, 1917) discussed the economic use of the different grams as follows:—"When the nitrogen yield of the several crops is considered, the small grains are seen to be the crops upon which agricultural efforts must be concentrated in war times. Of these, wheat is the most important because of its relatively high yield of available nitrogen. The small grains might be considered as the primary agricultural products, for from them, in large measures come the meats and dairy produce. The raising of meat and dairy products is a form of conversion of the grains into other types of foods and demanded consideration from the point of view of its economy. The following table shows the returns from feeding grains for the production of these secondary foodstuffs:

Pounds of starch equivalent.	Required to produce 1,000 calories.
2.9	milk
3.0	pork
4.7	veal
5.3	mutton
7.0	eggs
7.0	"baby" beef
9.0	steer beef
15.0	poultry, cornfed
3.3	poultry, fed on corn, distillers' grains and buttermilk

It is evident from this table that the feeding of grains to animals is not economical and that meat production is not an economic form of food production unless the cattle are fed on materials which are not directly available as human foods. At the present time less than seven per cent. of the entire corn crop is eaten directly by man, the remainder being used for the feeding of draught animals and for fattening cattle and hogs. Certain radical economies could be practiced in the conversion of cereals into meat products, among which are the killing of animals at a younger age; placing a rising head tax on all male calves at the age of six months; penalizing by taxation the raising of hogs of over 150 pounds in weight; penalizing the raising of the bacon type in favor of the lard type of hogs; and the protection of all female calves, especially when of good dairy stock. This would free large amounts of feed grain for the increase of milk production, which was seen in the preceding table to be economical."

Yeast in the Treatment of Deficiency Diseases.—Scientific researches and clinical experience have both proven conclusively that yeast is one of the richest of foods, and attention may be called to the fact that the food value of yeast cannot be estimated in the same way as the food value of other foods. It is considerably higher on account of special dietetic properties. Yeast has an extremely high vitamine content. It contains the growth promoting vitamines and what has been termed the antineuritic. Consequently, it is of very great value from the therapeutic point of view. In the treatment of what are known as deficiency diseases, such as scurvy in children the antiscorbutic properties of yeast act almost like a charm. Morris Steark claims that children who are fed too long on cereals develop scurvy or a mild form of that disease derive great benefit from the administration of yeast. In fact it is especially adapted for the feeding of young children not only in cases of scurvy but in stubborn feeding cases. In the treatment of beri-beri yeast has been found to be essential. Cerevisine, pure desiccated yeast in tablet (1 grain) or granular form is the best and most convenient form in which the substance can be used. Recent investigations have shown that Cerevisine possesses all the therapeutic properties of brewer's and dried yeast and that for the treatment of scurvy and other kinds of malnutrition from which young children suffer as a result of injudicious feeding, it has no superior.

War Bread.—Altho in this country there has been as yet no rationing and only suggestions as to the kind of bread that should be eaten, says an editorial writer in the *Medical Record* (Jan. 12, 1918), it is probably merely a question of time before certain rules will be laid down with regard to the consumption of food and to the best means for conserving the same. In Great Britain what is known as war bread has been in use for some months now, and it is interesting and instructive to acquire information regarding its effects on health. The composition of the war bread made in Great Britain differs from that of the ordinary bread manufactured from highly milled flour in that the latter contains only about 70 per cent. of the whole grain, the bran and germ being discarded. The milling regulations of the Food Controller of Great Britain make it compulsory for millers to extract 81 per cent. of the whole wheat grain in the form of flour;

thus the inner layers of the bran or pericarp and some of the germ enter the flour. Dr. Robert Hutchison, writing in the *Practitioner* for December, 1917, points out that chemically the British Government regulation flour is undoubtedly superior to the old white flour. It is richer in protein, fat, mineral matters and vitamines, but slightly poorer in starch. Experiments on the human subject have shown that there is no practical difference between the utilization of energy from "war flour" and the ordinary white flour, provided that the war flour is well milled.

However, the question of bread in Great Britain is still more complicated by the fact that in order to conserve the wheat supplies as much as possible millers have been empowered to add other cereals to the flour up to certain maximum limits. The cereals which have been chiefly employed for this purpose are corn, barley, rice and oats. Of these, corn has come in for the most criticism, mainly no doubt because it is less familiar as an article of food than the others. Objections are made to corn on the grounds of flavor, which may be dismissed as unworthy of notice in wartime. Another objection which carries some weight is that corn is what is popularly spoken of as heating, that is, it tends to cause skin eruptions of an acneiform or urticarial nature. Hutchison says that the effect is apparently not due to any chemical constituent of corn, and he believes that it is mainly a question of mechanical irritation of the stomach by particles derived from the husk of the grain, and that the skin lesions are produced indirectly thru the vasomotor system, much as flushing of the face follows immediately in some people on the taking of alcohol. On the whole, then, Hutchison thinks that there is justification for the conclusion that there is nothing chemically injurious in the flour from which the war bread is made, and that any ill effects from it can be due only to imperfect grinding. Summing up the whole situation, Hutchison is of the opinion that it may be said with confidence that the only possible objection to war bread consists in its physical characteristics, lack of porosity, "doughiness," heaviness, etc., objections which exist to any important degree only in certain localities and in the bread produced by individual bakers, and which in any case can to a large extent be overcome by toasting the bread and by thoro chewing. It follows then that it is only in disorders of the alimentary system that the bread could produce any ill effects. Owing to its nourishing properties, and its chemical purity, it is inconceivable that disease elsewhere could be unfavorably influenced by it. Hutchison believes it to be a delusion that dyspepsia is caused by war bread. The author did not mention two points in which war bread is superior, from the dietetic standpoint, to white flour bread. These are that it does not tend to constipate as does the white flour bread, and that on account of its consistency it requires more thoro mastication, thus promoting the action of the salivary glands and aiding the organs of digestion.

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THE DINING ROOM IN THE AMERICAN HOSPITAL, PARIS, FOR CONVALESCENT SOLDIERS.

Fish As a Food.—One of the great recommendations of fish as a food is its easy digestibility, says Irwell in the *Med. Review of Reviews* (Feb., 1918). Even dyspeptics and convalescents can usually eat it without unpleasant consequences. The rapidity with which any kind of flesh food dissolves in the stomach depends upon the fineness of its fibers. Beef is less easily digested than "lamb" a year or more old, in reality "mutton," because its fibers are longer and harder, and for the same reason "lamb" is less digestible than the breast of a chicken. The color of the meat both before and after cooking, due to the coloring-matter of the tissues or blood, is in no way connected with the question of digestibility. In fish the muscle-fibers are short and arranged in flaky masses which are easily separated from one another, so that fish lends itself to comparatively easy digestion. Of course, the different kinds of fish vary greatly in digestibility, the lean kinds being more quickly disposed of than the fat; and salt fish, owing to the hardening of its fiber during salting, remains longer in the stomach than fresh fish. Cod is probably the least digestible of the white fish because its muscle fibers are large and coarse, but any one in good health, except those few who have some individual idiosyncrasy, can digest fresh cod without difficulty. Seven ounces of any white fish are by most persons digested in two hours and a half, but the same quantity of tender beef takes three and a quarter hours for its digestion. And not only is fish easily digested in the stomach, but it is completely absorbed by the intestine, being in this respect on a par with meat; and fully ninety-five per cent. of its solids are appropriated, consequently the waste which must to a great extent be excreted by the kidneys is comparatively small.

So great are the genuine merits of fish as a food that there is no occasion to exaggerate them by ascribing to fish mythical qualities, such as that it is a special brain nutrient because it contains a large amount of phosphorus. Fish does not contain as large a proportion of that element as many other kinds of food, and whatever phosphorus the brain requires can be obtained from an ordinary mixed diet. But altho not a special brain food, fish is an excellent food for brain workers, especially for those who are leading a sedentary life, as very many brain workers do. It contains somewhat less nitrogenous material than meat, and that is an important fact in the stirring times thru which we are now passing. Nitrogen is the essential element of most explosives, and any excess of it in the human system may conduce to sudden discharge of the nerve centers. Such excess is unquestionably productive of chronic nephritis.

No one who is familiar with the valuable nutritive qualities of fish can help regretting that they are not more widely recognized, and all dietitians will applaud every endeavor to bring a knowledge of them to the notice of the community generally. With so much shortage of meat and such high prices, the benefits to be derived from eating fish ought to be widely heralded.

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ENGLISH FIELD KITCHENS FOR PREPARING FOOD FOR SOLDIERS.

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Independence.—The transcendent importance of Independence Day was marked by its international recognition. The majestic utterance of President Wilson: "What we seek is the reign of law, based upon the consent of the governed and sustained by the organized opinion of mankind" is a gem of succinct, forceful, virile expression. The reign of law is essential for international amity. It is essential for peace on earth and good will towards men.

Political laws, social laws, economic laws, physical laws, moral laws are not isolated phenomena, but are interdependent and mutually self-supporting. It seems most remarkable that conditions of war should be responsible for a keener recognition of law. Herein lie the great constructive principles which will serve to make the present colossal struggle a monument to the rebirth of the highest ideals, fostered and developed by the very blood that is shed. Indeed the truth of Tennyson's lines shines clearly forth.

> "Men may rise on stepping stones
> Of their dead selves to higher things."

The growth of interest in the physical fitness of human beings, the establishment of protective influences for women and children, the campaign against contagious diseases, the recognition of the importance of medical inspection of school children, the attack upon venereal diseases, the revitalization of our educational systems and the rehabilitation of disabled soldiers and sailors are merely special phases of the development of the organized influence of mankind. Health is essential for independence.

Salvaging manpower has two sides to it: that most commonly appreciated is the reconstruction after injury or disease. The most significant form, however, lies in the preventive measures which lessen the likelihood of disease or disability. *Carry On* is a new publication, edited in the office of the Surgeon-General of the United States Army. The purpose of the new publication is expressed in the dedicatory message of Surgeon-General Gorgas: "The Medical Department of the Army will 'carry on' in the medical and training treatment of the disabled soldier until he is cured or as nearly cured as his disabilities permit. We shall try to do our part in his restoration to health efficiently, with the belief that the wounded and sick soldier shall have the opportunity to return to civil life capable of pursuing a career of usefulness. This will enable him to enjoy the freedom and happiness afforded by world wide democracy for which he has given his all." The initial number is an inspiration and a challenge to the American public. The acorn that adorns the cover is appropriate, symbolizing power, strength, and civic justice. The idea of power and justice is diametrically opposed to that of charity, enervating sentimentality, and gushing sympathy which

creates dependency among those who should be independent.

The possibilities of vocational reeducation are well illustrated in *Bulletin No. 15* of the Federal Board of Vocational Education, in which Douglas C. McMurtrie describes, "The Evolution of National Systems of Vocational Re-Education for Disabled Soldiers and Sailors." Maudlin cheers, social lionization, well intended but ill-judged hospitality cannot make a self-supporting, independent, virile worker out of the handicapped soldier or sailor. In the words of Dr. Biesalski: "1. No charity, but work for the war disabled. 2. Disabled soldiers must be returned to their homes and to their old conditions; as far as possible, to their old work. 3. The disabled soldiers must be distributed among the mass of the people as tho nothing had happened. 4. There is no such thing as being crippled, while there exists the iron will to overcome the handicap."

The idea of the pension as a means of satisfying a national obligation is antiquated. Old soldiers' homes are now being regarded as evidences of failure to live up to the highest national responsibilities. They are evidences of demoralization, countenanced by a failure to recognize industrial self-support as the highest evidence of government responsibility fulfilled. Waste of men will not result when the public mind awakens as to the part it must play in re-establishing war cripples. Artificial limbs, reeducation, new vocational training and placement in employment represent the new responsibilities of the public.

Federal control of rehabilitation will result in the reeducation of public opinion in its attitude toward the handicapped, and will devise most effectively the machinery essential for the coordination of the medical and educational interests requisite for rehabilitation. The experience of France, England, Germany, Austria, Italy and Canada point out valuable lessons which must be learned in order that the American work may be undertaken in the most successful manner. The fighting men of the nation, warring under the flag of independence, having left their homes in the full vigor of youth with freedom of action and vigorous powers, are to be returned when the last trumpet call is sounded to those same homes again capable of industrial activity and independent action. Independence has a new meaning for nations, but no less so for individuals. War against slavery is to bring forth a greater freedom, power and independence to the nations who recognize national strength in the vitality and ability of the individual citizen.

Venereal Prophylaxis.—The introduction of a bill into Congress creating a Division of Venereal Diseases in the Public Health Service is undoubtedly a step in the right direction. It is doubtful, however, whether during the period of the war the function of venereal control should be in any way removed from the jurisdiction of the Army Medical Service. It is exceedingly questionable whether the provisions of an act of national scope would be practically successful in achieving the ends sought in Section three of the proposed law which reads as follows: "That the Public Health Service, under such rules and regulations as the Secretary of the Treasury shall prescribe, shall, in addition to the duties, powers, and authority now vested in it by law, have

power and authority: (a) to study, investigate, and conduct research work into the cause, prevention, and treatment of venereal diseases; (b) to construct, acquire, purchase, lease, or otherwise obtain internment hospitals, and to equip, manage, conduct, and operate the same; (c) to administer and apply medical treatment to persons afflicted with venereal disease while in said internment hospitals, and to issue orders of discharge therefrom upon cure; (d) to cause the arrest and prosecution of immoral persons afflicted with venereal disease who go or attempt to go from one political division into another, and to cause the arrest and prosecution of persons who aid, assist, or connive at the same; (e) to receive at such internment hospitals and to have authority and custody thereof for the purpose of examination or medical observation or treatment of all immoral persons afflicted with, or thought to be afflicted with, venereal disease."

For the time being, the problem of venereal prophylaxis in the Army and Navy is of far greater importance than the care and custody of infected individuals who may attempt to go from one political division into another. The numerous ethical problems bound up in a discussion of venereal diseases cannot be permitted to interfere with the maintenance of efficient fighting forces. Military authorities are charged with the responsibility of achieving victories. Failure to accomplish results would not be forgiven because of the statement of a commanding officer that for ethical reasons he could not prevent the infection of a considerable portion of the troops upon whom he relied in a specific action.

The ethics of war and the ethics of peace are not the same. Otto May, late Honorary Secretary of the British National Council for Combating Venereal Diseases, resigned his office because the National Council decided to "refrain from recommending the provision of prophylactic outfits as part of its policy." To use his words, "preventive medicine, takes no direct account of conduct; its aim is to prevent disease." Dr. May points out in his recent discussion on "The Prevention of Venereal Diseases," that the campaign against venereal diseases will never be brought to an approximately successful end so long as the assistance of artificial prophylaxis is deliberately declined on the ground that it is ethically wrong.

There is much force in the opinion that compelling the use of prophylactic packets is no more unethical than making mandatory the reporting of exposure to venereal infection and receiving a mandatory early treatment, failure to report and receive treatment resulting in adequate penalties. The institution of early treatment is for the purpose of protecting an individual from the consequences of his sexual irregularity. If this be ethically right, the institution of the prophylactic treatment previous to exposure, instead of after it, cannot be deemed ethically wrong. Here, again, is an evidence of national blindness or cowardice in refusing to see the falsity of the position maintained largely for the purpose of avoiding clerical disapprobation. In either instance, the government aims to protect its soldiers from becoming ineffective units in the fighting forces.

Thruout England there are a large number of institutions available for the free diagnosis and treatment of venereal diseases under the local government boards. Every camp, barrack and depot is provided with a suitable place for obtaining early

treatment in the "ablution room" so as to minimize the risk of venereal disease.

Philosophers might discuss the fine distinction between administering prophylactic treatment before or after exposure, but the average mind will be unable to discern a difference. One would ridicule a suggestion to administer vaccination only after direct exposure to smallpox, or the injection of a typhoid-paratyphoid vaccine only after contact with sources of infection of this character.

In the English Army anti-typhoid inoculations are not compulsory. Those who desire to protect themselves may secure the inoculations. No government makes the use of a venereal prophylactic outfit mandatory. The habits of the individual make such treatment necessary as a protection of his own health and that of his colleagues in the interests of national welfare. The government may offer a protective packet to those who desire to utilize it, and it may pass regulations that will compel their use by those who voluntarily endanger their health and risk their vigor while endangering the potential power of their military organization. No government demands or compels the exposure to venereal diseases against which prophylaxis is afforded.

Venereal diseases cannot be regarded as punishment for immorality, any more than insolation or heat exhaustion is a penalty divinely imposed for working in the heat of summer. Sanitation is not an antidote for moral sinning, any more than disease is its just and certain punishment. The ancient argument against vaccination was that it interfered with the plans of God for strafing communities for their iniquities.

Prophylaxis is not a guarantee against venereal infection. It is, however, a rational measure for reducing to a minimum the infection among those who persist in their immorality. It is a duty of medical officers to protect their charges against their own frailties and indiscretions. Under military discipline venereal prophylaxis is far more effective in preserving the health of troops than any method of early treatment inaugurated to satisfy the demands of unreasoning moralists.

It is sound governmental policy to take every step possible to prevent illicit intercourse. Despite every protective educational and recreational facility afforded by governments, a considerable proportion of men will refuse to abide by instructions to be moral. Punitive measures may discourage some men, but penalties applied will not restore to usefulness those already diseased. The most significant battle going on within the military and naval establishments of all countries is that against gonorrhea and syphilis. In this campaign every agency must be employed. Under these circumstances, from the standpoint of preventive medicine and military and naval fitness, venereal prophylaxis should not be rejected. Early treatment in the English sense is simply a verbal equivalent of prophylaxis after exposure.

Repopulation and the Birth Rate.—The existence of a declining birth rate in the United States has been recognized, but its significance has received inadequate attention. The unfortunate decrease in the birth rate of France has made its effects manifest in the present conflict in which manpower is such an essential, regardless of the courage, perseverance and idealism of the existent population. With most declining birth rates, the reduction is tragically

selective in that the reduction is most constant and noteworthy among those best fitted socially and economically to safeguard their children. Louis I. Dublin pointed out in an address given before the American Association for the Advancement of Science that England has been undergoing a similar reduction in the birth rate, dropping in 40 years from 35.5 per thousand population to 24 per thousand. Fortunately, concomitant reductions in the mortality rate enabled England to possess a population increase at the rate of one per cent. per annum before the war. Argument as to the main elements responsible for this state of affairs is no longer required. The conscious limitation of the fertility of the large mass of the population is the main factor responsible for the declining birth rate.

This element of conscious control obtains in the United States where the figures of population increase are somewhat shrouded by reason of the factor of immigration and the high birth rate among the foreign born. From available data, it is probable that the population increase rate in the United States is similar to that found in Great Britain before the war. The obvious distinction must be made, however, that the English population was made up mainly of children arising from English stock, whereas in the United States the increase of population has been due to a high birth rate for the children of the foreign born. To quote Dublin, "In the New England States the proportion of the native white stock decreased from 52.3 per cent. of the total white population in 1890 to 40.3 per cent. in 1910. In the Middle Atlantic States the native white stock decreased from 51.8 per cent. in 1890 to 44.8 per cent. in 1910." Our foreign born population, now for the first time being emotionally welded into Americans, has been gradually increased, while the traditional racial stocks which gave rise to the foundations of our government are threatened with marked depopulation, a condition menacing the future of the country.

Appreciating the fact that an average of four children per family is requisite for the reproduction of the parents in mature life, it is a sad commentary upon our educational machinery that the graduates of Harvard, Yale, Smith, Vassar, Bryn Mawr, and other institutions of learning have failed to reproduce themselves where collegiate intermarriage has occurred. The average college graduate, male or female, has not lived up to the high ideal of parenthood in the interest of the state.

The tremendous movement for birth control, or the conscious limitation of conception as opposed to criminal abortive procedures, possesses the merit of pointing out the overproduction of offspring among the social and economic groups least able to cope with large families and among whom infant mortality rates are unnecessarily high. From the standpoint of national welfare, agitation for birth increase among the intellectual groups and those most successful in social and economic life is of paramount importance. Many of the problems confronting the government today may be attributed to the failure of the old racial stocks to perpetuate themselves, and to a refusal or inability of those who have profited most by the protecting influences of this government to reproduce their types.

While organizations are now flourishing in foreign countries to consider practical methods for securing repopulation, little thought is being devoted to this subject in America. If childbearing constitutes a service to the state, the state should seek

to promote this desideratum by every legitimate means. The day has passed when young children may be regarded as assets. They are distinctly liabilities until they have arrived at an age when they may legally enter into the industrial life of the world as units, entitled to pursue a career leading to self-support and independence. For this reason state aid is merited by families fulfilling their functions in the bearing and rearing of children. Systems of taxation, for example, should provide for a reasonable increase of exemption for every child under 16 years of age, particularly in the income groups under $5,000 per year. The present federal exemption of $200 per child is entirely inadequate in proportion to the value of children to the state. Single men or families without children should make a larger financial return to the state, and are better able to do so as a result of their failure to make their legitimate vital contribution to national resources. The discrimination of landlords against families with children should be forbidden by law, and rentals should be under control as to prevent the exploitation which is now occurring and inuring to the hardship of many families whose loyalty and patriotism are being penalized thru childbearing service to the state. The exemption of married men with dependents from the first class of draftees is indicative of a national realization of a public service paralleling military service. It certainly is true that bearing, fostering and rearing potential citizens is essential to national success.

The rate increase in population is dependent upon the interaction between the birth rate and the mortality rate. The public health movement has gone far toward reducing the mortality rate, particularly during the period of life covered by infancy and childhood. The numerous agencies, private and public, interested in prenatal care, maternity and infant care have fully demonstrated that the saving of infant lives may be accomplished by a definite, systematic, conscientious policy. According to the statistical report on the infant mortality of cities of the United States, compiled by the New York Milk Committee, there is a wide variation in the accomplishments with reference to infant mortality. The 1917 infant mortality rate of Omaha, Neb., 59.2 contrasts sharply with that of Nashville, Tenn., 182.2, as does Brockton, Mass., 63.9, with Peoria, Ill., 157.2, or Alameda, Cal., 40.7, with Norristown, Penn., 167.7. The difference between these high and low mortality rates represents wastage of human lives, the responsibility for which should be fixed upon health officers and citizens of their respective communities. The infant death rate should be below 50, but there are only five cities in the United States among those reporting that have achieved this position of honor.

The problems of repopulation demand the reduction of infant mortality, but during 1918 national effort is being devoted to baby conservation. Eugenically, schemes for promoting and encouraging birth increase require more consideration than ever before, while the numerous phases of the movement toward birth control demand careful scrutiny and reinterpretation in the light of national needs. Emphasis must be placed upon ideals of service that will give rise to a larger number of children among those stocks that have fallen behind in racial representation. The limitation of offspring, essential as it may be among defi-

nite groups of communities, is too negative for the higher development of the human family. Mighty France with its methods of family limitation was insufficient to cope with the myriads of a foe with a high birth rate. An ever increasing population of sound, physical, mental and moral stock is the mightiest asset for a democratic nation whose ideals are grounded in justice and reach up toward humanity. The rebirth of nations will depend upon their repopulation from the reddest, soundest and most vital blood streams that make for national life and spirit.

The Growing Importance of Vital Registration.—Nearly twenty per cent. of the 175,000 pensioners in England are suffering from functional nervous diseases and the greater part of these have not been actually wounded, according to F. H. Sexton (*Mental Hygiene,* April, 1918). The same authority states that over ten per cent. of the 25,000 men who had been returned to Canada up to October 1, 1917, were classified as mental cases. Obviously, the factor of war neuroses and mental affection is of pronounced importance to military authorities, but hardly less so to the civilian group whence they sprang and to which they return. The condition of mental instability and allied disorders represent a serious problem near the fighting line and require a considerable and extensive hospital and vocational machinery for their partial regeneration before discharge from the Army or their return to positions of reasonable service.

To secure the elimination of possible subjects of war neuroses, is by no means a simple matter altho efforts at psychologic examination seek to prevent the encumbrance of military forces by individuals of inferior mental calibre. In the tremendous project of placing the United States upon a war basis as rapidly as possible, it is not improbable that a large number of men have been accepted who, under normal conditions, would have been unable to reach a position giving them a place among the regular military forces. Weakness of mind was the cause of rejection of 14.8 men per thousand among the applicants for enlistment in the Regular Army from January 1, 1912 to December 31, 1915. This is indicative of a low rate of rejection during a period when psychologic tests were not being applied and when enlistments were arising from a selected volunteering group of the community. In all likelihood the percentage of mental defectives drawn to the examining boards by reason of the draft comprises a larger percentage of the civil population within the draft ages. It is certain that more than 12,000 men have been rejected from the new National Army because of nervous and mental disorders, one-third of whom were feeble-minded.

The lack of a system of registration for individuals afflicted with various diseases has been the occasion for a vast amount of unnecessary labor in detecting and excluding a varied group of men from military and naval duties. Hastings, in an address before the Mental Hygiene Section of the National Conference on Social Work, May 16, 1918, emphasized the growing need for registration of the feeble-minded. It is patent that without a knowledge of the exact number of feeble-minded in America it is impossible to frame a rational and complete program based upon indubitable facts. The census of the mentally immature would provide the information essential to deter-

mine the types of institutions requisite for meeting this specific problem and aid in deciding their location, size, organization and methods of administration. Thus far, no provision has been made in any state for an adequate and continuous registration of the feeble-minded, which must be basic if the idea of segregation is to be crystallized into practice. A State Commission has been created in New York with a primary function of preparing and keeping a record of all feeble-minded persons in the state and providing accommodations for all such as require care and treatment in suitable institutions. The State of Missouri has had placed before its Children's Code Commission a recommendation that the names of suspected feeble-minded children be reported to a specially created state bureau.

With the registration of the feeble-minded, the compulsory notification of the tuberculous and venereally infected, and the correlation of the large amount of data available as a result of medical inspection of children in schools and institutions, it would be possible to have a valuable registration of the physical and mental condition of the growing population. The conditions of health of individuals are today matters of importance to the public welfare. The maintenance of public records concerning the physical, mental and moral status of individuals would be of as great service to cities and states as is the development and supervision of finger-print systems for the identification of criminals, or the identification of large armies of men in various walks of life.

A few years ago the idea of registration for contagious diseases was opposed as an infringement upon individual rights. When the suggestion first was made that compulsory notification of tuberculous persons should be practiced, it was deemed undesirable and in violation of the traditional ethical relations existent between physician and patients. Today its value is beyond question. A further step in registration is now being taken in connection with venereal diseases which are reportable, and, in many states or cities, subjected to careful supervision and control.

The principle of registration is of the utmost importance in every field of public health work beginning with the certificate of birth and only ending with the certificates of death and burial. Halls of record, offices of superintendents of schools, bureaus of health departments, headquarters of penal institutions, the juvenile courts, the charitable and correctional institutions are weighed down with a tremendous mass of overlapping information regarding specific groups of the community. It would appear to be a new step in the right direction to effect some form of statistical clearing house or bureau designed to collate, analyze and file continuous records containing the essential, vital facts relative to individuals in definite communities.

Large municipalities might be charged with the responsibility for their own populations, leaving the rural areas under the supervision of the state. The inauguration of such a system would be attended with only moderate difficulty, but its potential value would repay the efforts, time and expense involved. Articulating the work at ports of immigration with the machinery of the states would not be difficult. Thus, in time, there would be developed an important system of vital registration which could be of service to city, state, or nation, in formulating policies and programs of innumerable types. Community control of

any social defect must depend upon identification and registration as a pre-requisite to instruction, legislation, reconstruction, or supervision.

Registration of the feeble-minded is a matter of national concern, particularly in its eugenic aspects. From the standpoint of the general welfare of the ever-living population, registration is equally important for all types of physical or mental disease that tend to impair social health and efficiency. The accumulation of facts and figures incident to building up the Army and Navy, the campaign for the saving of children, the issuance of working certificates, the promotion of industrial health organizations, afford a splendid opportunity for taking strides in this new direction. It would be a service to the country to register the vital statistics of individuals more useful than to mass data concerning the population with reference to its age, marital condition, average rate of wages and similar data, already given consideration thru the United States Census Bureau.

Registration has passed the days for academic discussion. Its needs and advantages are known. Its possibilities and achievements have received insufficient recognition. Difficulties, unnecessary details, heavy costs and similar obstacles immediately present themselves, but the working out of a plan would prove that the apparent objections are not beyond answer. The fundamental principle is sound, and its development will be a problem of intelligent interpretation of desired figures and the application of adequate administrative methods. The future will find coordinated bureaus for registration taking their place among the essential agencies for protecting and conserving national health.

Popular Health Bulletins.—Ten years ago, the summer health literature was devoted mainly to presenting the physical care of infants. The fears of the populace concerning "the second summer" have largely subsided owing to the numerous educational measures and the elaborate machinery for protecting and conserving infant welfare. The literature of health departments of cities and states still presents rules and regulations for saving babies. Mississippi, for example, in its *Health Bulletin* of April and May has spread broadcast an excellent pamphlet prepared by Drs. Holt and Shaw, for the American Medical Association. This simple bulletin is practical, carefully and authoritatively written, and represents a thoroly modern state bulletin.

The "Save the Baby Campaign" depends, however, upon more than personal care of children by parents, and numerous states in their warm weather bulletins are offering a vast amount of important information tending to establish an aggressive public opinion in favor of social reforms necessary for the protection of the health of infants and children. The California State Board of Health's *Children's Year Bulletin* of June, is virtually a health magazine discussing such subjects as the value of birth registration, the teeth of children under six, children's health centers, the children's diet in war time, tuberculosis, pre-natal care, vaccination, milk laws, venereal disease control, egg substitutes and their values, and similar topics of the utmost value to the growing population of the country.

Public Health of June, published by the Michigan State Board of Health, presents a valuable discussion on playgrounds and their value, the sanitary control of bathing beaches and summer resorts sanitation. The *Ohio Public Health Journal* of May offers a symposium on typhoid fever, which is invaluable for quickening public sentiment in favor of the sanitary regulations

and developments necessary to reduce the incidence of this disease. The hot weather number of the *Health News,* the monthly bulletin of the New York State Department of Health, embraces discussions of vacation dangers, mosquitoes, malaria, flies, the sanitary control of summer resorts, care of food in hot weather, and other pertinent subject matter.

Bulletins of various other states might be cited as evidence of the fact that the general public has been educated up to a point where its needs cannot be satisfied by a mere presentation of small folders describing correct methods for feeding, bathing and clothing infants.

The broad subject of health preservation has emerged from the dark recesses of official corners and now faces the public from every coign of advantage. The health officer has taken over a function that has long struggled for expression—teaching health, its values and the methods of retaining and attaining it. Most gratifying is the improvement in pedagogic technic. There is manifest a wider understanding of the psychology of teaching, and in consequence, more rational presentation of subject matter to the general public. There is a marked distinction between publicity and education. The publicity value of health topics has long been recognized, and the efforts to secure wide publicity have been duly appreciated. The preparation of material for health education no longer depends upon publicity value, but is now weighed in terms of its educational worth. The constructive, positive, optimistic, logic, succinct, simply written articles that appear with the authority of Commissioners of Health thruout a large part of this country reflect a modern and intelligent conception of the value of educational publications in decreasing morbidity and mortality rates.

The effects of a campaign to banish flies are shown by a decrease of diarrhea, typhoid fever and tuberculosis. The campaign to reduce accidents by automobiles will result in better playground facilities and increased vitality. Instruction in the prevention of tuberculosis redounds to the advantage of communities thru the decrease of contagious diseases, a higher state of nutrition for children, better housing, greater cleanliness, and an increase in communal prosperity. These interrelations of public health problems point out the value of general bulletins covering numerous subjects, as soon as the general public is capable of appreciating the singleness of the public health program. For years, stress was placed upon heat, or milk, or flies, or bacteria, or tight corsets, or the use of red flannel, or fumigation, and the ors might be multiplied by hundreds. Today, the specific factor is less predominant even in the most modern campaigns, such as those in behalf of mental hygiene, or the conservation of vision, or the control of specific infections. It is essential, at times, to stress single factors in the causation of disease, but if this be overemphasized, other equally important items are ignored or relegated to unwarrantedly subordinate positions. The movement to present facts in their relation to the broader problems grows more effective each year.

Special monographs for public reading still possess a place in official literature, and indeed there are times when definite information regarding specific symptoms may be of the utmost value, particularly, in the face of a menacing epidemic. As a general principle, however, the tendency toward a varied health literature under public auspices is to be commended. No form of expenditure can bring greater ultimate returns than funds devoted to informing laymen how to be healthy and live in a healthful manner.

The general note now being struck by the more advanced states in the Union is clear and prophetic; and when the entire country joins in a health chorus, there will be a decided improvement in human affairs for, after all, health is the basis of sound human relationships. Health is now recognized as something more than the absence of disease. It is the unity of body, mind and soul—a positive union of physical power, mental vigor and moral soundness. Modern health literature seeks to promote health in its physical, mental and moral aspects and relationships.

The Problem of the Women.—In one respect the censorship of foreign correspondence, which has been considerably relaxed of late, has continued to be as severe

and uninforming as ever. This vigilance on the part of the censor is due not so much to the fear of betraying a military secret as to extreme sensitiveness about a certain problem which in one respect at least is proving exceedingly baffling and which must be approached, if it is approached at all, with the greatest care: the post-war status of the women. It is a singular fact that, of all the problems of after-the-war reconstruction, this one of the women, perhaps the most vital from a social and racial standpoint, is the least discussed and least understood. We have had plans for the rehabilitation of the wounded, the readaptation of the returned soldier, the reconstitution of commercial relations, the revamping of all the disorganized activities of peace, yet nothing has yet been authoritatively said of the reclamation of the women. Tho in many respects it may be true that the war has thrust progress back at least a century, in one regard it has thrust it forward at least a century, and a problem whose gravity seemed once indefinitely postponed is pressing us for a solution at this moment.

Even before the war, the emancipation of woman was going forward inevitably but slowly. She was gradually usurping the privileged places of man in commerce, industry and the professions. With the independence she acquired in this way, she was beginning to think more and more of her duty to herself and considerably less of her duty to the race. The problem was even then a threatening one, but now it has become more acute than ever. For every thousand women who gave up the ideals of wifehood and motherhood for a career before the war, one hundred thousand have since the war began severed the bonds that have confined them to their historic place in the home. Millions of European women are now engaged in munitions factories, on the farms, in all the activities that were once man's province. Thev are drawing excellent pay, they have more money at their command than they have ever had before, they are comfortable, they are independent. This has been going on for four years now, and it is not likely that they will go back willingly to the limitations of their old life.

Certainly this is a serious situation. It menaces the very fundamentals of our social life. The whole fabric of our civilization is woven on the principle that the living generation must make sacrifices for the good of the future, but, whenever in the past there was a question of sacrifice, it was the woman who was expected to make it. And she has always responded. It was she who bore and reared children, who sacrificed herself willingly to the demands of home and family, who made a speciality of virtue because virtue was a necessity in the breeding of a sound race; and humbly she allowed man to cultivate the more worldly and less confining qualities, permitting him a moral and social latitude which she did not dare imitate, much as she might have wanted to, for fear that she might do so to the detriment of the race with whose future she was charged. And so man's boastfulness of the superiority of his sex was really a monument to woman's unlimited patience, her poorly rewarded self-sacrifice.

But this has been altered now. The women of Europe, whether they willed it or not, have been taken out of their homes, away from their accustomed pursuits, and they have attained a degree of freedom which they will not easily surrender. What little news we have from abroad tends toward this opinion. They have broken away from the confinement of domestic slavery. They can very easily pay for the drudgery that was once their lot, and they are doing so. The rearing of families has been largely suspended, and, with the increased time and means at their command, the women have come to believe that they have a duty toward themselves which they have long neglected. And there seems little doubt that they are highly contented with their new freedom. A London bookseller's report asserted that women were buying more books than they ever had before. They were reading. They were educating themselves. And the education they were getting was not the sort to fit them better for domestic pursuits.

What is the Answer?—Will women go back willingly to the necessary but confining functions which were theirs before these new conditions came about? Will woman resume the domestic duties for which she is now able to pay? Will she give up the freedom and the prosperity she is enjoying?

If this had been a short war, it might have been easy to persuade her to return to the home and its manifold duties; but it is four years now since she has taken her place as an independent social entity, with long-deferred obligations to herself which she is by now determined to fulfil. The change will be exceedingly difficult now, and it will be difficult not only because she will not want to return to her old duties but because it is being made increasingly worth her while to remain where she is. Her employers have discovered that she is valuable to them. The long-vaunted superiority of men over women in industry has been proved a legend. The women in the factories of Europe, entrusted with the most delicate tasks, have proved themselves not only man's equal but, in the opinion of not a few, man's superior. And the result has been that they are drawing men's pay and are enjoying unprecedented prosperity. It is this question of dollars and cents which will prove the stumbling block in trying to effect a solution of the problem. What with her high wages, what with separation allowances and liberal government contributions of various kinds, the women of Europe have attained financial independence. Will they consent hereafter to be supported on a husband's salary no greater, if as great as, one they can command themselves? Will they be willing to surrender their handsome wages to assume dependence and domestic duties which must seem to them now excessively burdensome and enslaving? Will they give up the freedom they are now enjoying in return for marital bliss and the unsparing demands of children and family? Will they want to marry at all?

Of course, among the upper classes the problem is not a serious one, as marriage makes no heavy demands upon the women. But among the masses the situation is distinctly disquieting, and it is high time that the matter be given the serious consideration of those who are concerning themselves with post-war problems. Needless to say, the race is hardly in peril. Men and women will marry, they will rear families, they will fulfil their duties to the race; but henceforth marriage will have to be made more attractive to the women of the lower classes than it has been. The limitations will have to be removed, the burdensome role that is assigned to the woman will have to be lightened, and the present scheme of things will have to be so altered that a woman will not be called upon to surrender her individuality, her freedom, and her duties to herself to the extent that she has had to do so in the past. That is the problem we must face. It is the problem we must solve, if we want to avoid the menace of the disorganization of the family. And it's not going to be an easy matter.

Our Young Doctors Abroad.—In many respects surgery and medical science have gone ahead about fifty years as a result of the war, and that is cause for special gratification. But in one notable respect our doctors abroad have gone back about fifty years, and, shocking tho it may seem, we feel that that is cause for special gratification too.

The tendency of medicine and surgery in recent years has been toward specialization. The general practitioner has come to be regarded as more or less of an anachronism. As a consequence, the practice of medicine has become more efficient, more scientific, more methodical and businesslike, and it was inevitable that the relationship between physician and patient should become largely that between diffident strangers, one of whom has temporary need of the other. In other words, the practice of medicine has become so thoroly professionalized that, tho retaining its original humaneness, it has lost much of its humanity. It seemed to many, who recognized the fact with deep regret, that the day of the general practitioner had passed—the good old family doctor who actually was one of the family, who ministered not only to the physical but to the spiritual needs of his patients, who occupied an essential place in their every-day lives, and who, having assisted at the début of a new member of the family, was ever after that the honored guest at christening, confirmation, marriage, burial, and all the hundred and one celebrations that marked the progress of his or her life. Progress has exacted its price, and the genial intimacy, the confiding fellowship that once existed between doctor and patient seemed to be fast disappearing.

So marked indeed has been the tendency

toward specialization, so general the inclination to reject the old-fashioned standard of the family doctor, that a student who could not look forward to the selection of a specialty was likely to regard his future with the keenest pessimism. Specialization meant success, both scientific and financial. It brought prestige, it made for individuality and distinction, and it often carried with it the gratifying promise of an aloof social position. These favors the aspiring student sought, and if, despite his wishes, he was compelled by circumstances to resign himself to general practice, he did so with many misgivings and much grumbling.

But if the war has taught our young doctor anything, it has taught him that the favors that come with specialization are in a large sense illusory; that the favors enjoyed by the old-fashioned general practitioner of a generation and two ago were infinitely more human, more genial, more gratifying. The men of the Medical Reserve Corps on the other side are living in many respects like the old family doctor in relation to their fellow men. They have abandoned the detachment, the impersonal diffidence that has come to be one of the marks of the profession. They have been thrown in contact with a vigorous mass of young men in their best years vigorously pursuing a high purpose, a purpose which they share themselves. They have seen them suffering and dying, they have suffered and died beside them in more than one instance, and there is nothing like suffering to unite men in lasting comradeship. And this new intimacy has awakened in them a sense of fellowship, a sense of responsibility that is more than mere responsibility for the physical well-being of the men in their care. Theirs is no longer the attitude of doctor to patient: it is the attitude of man to man. And the ties they are forming are ties which they will not readily relinquish. They have shared too much together and have lived thru too critical an epoch in their lives and in the life of their country ever to go back again to the dignified detachment which unfortunately was one of the affectations of the young practitioner before the war. His experience at the front is bringing him closer to his work, but it is also bringing him closer to his fellowmen, and it requires no temerity to venture the prediction that hereafter there is little likelihood that his advance in his calling will come about at the cost of his withdrawal from social responsibility.

In this respect, then, it is gratifying to think that the war has carried our young doctors back to the ideal of fifty years ago, and many of them, who once regarded the prospect of a general practice with many qualms and misgivings, will recognize in it now an opportunity to enlarge and humanize their interest in the community in which they find themselves. The associations which they are forming on the other side will be perpetuated here. They are entering too deep into the lives of the men in their care to sever the personal and intimate relations that are resulting, and, when they return after the war, they will find themselves very much in the position of the family doctor of the old school. A patient's politics, his hopes and fears, his inner life will not be a matter of indifference; and it is more than likely that the doctor will find himself once more a frequent guest at the dinner table, in the family council, part and parcel of the spiritual life of his patients. And he will have his opportunity to become once more an influence for good in the progress of the community, a man whose opinion on matters outside of medcine will be sought, whose counsel will be invited in the crises of the family's life. These are the rewards awaiting the returning doctor, and no doubt there are many candid specialists who will acknowledge that they are rewards which balance, perhaps even outweigh, those which have been conferred on them.

The Late Major Mitchel.—Now that the first shock of the tragic death of the late Mayor of New York City is subsiding, many admirers of that intrepid and forward-looking leader are moved to ask themselves, with due deference to the circumstances of his death while in the service of his country, whether, in permitting him to select the one branch of our fighting force which seemed suitable to his temperament and his love of action, the greatest use was made of the talents which he unquestionably possessed. John Purroy Mitchel was a born fighter, but he was preeminently and before all else a leader of men, and the dis-

tinguishing mark of his character was his extraordinary ability to swing the wide current of opinion and public will in the direction of progress. He knew how to handle men, how to convince them, to unite them so that their combined efforts might make for an unconquerable force in the life of the community.

He choose the flying service because he preferred to take the measure of his contribution by the degree of personal danger involved, and his choice was typical and creditable. But, without reflecting discredit on him or on the authorities who admiringly yielded, it is said reluctantly, to a choice so entirely in keeping with his character, one cannot escape the reflection that, tho his talent as a fighter was justly estimated, his value as a leader, as an organizer and a moral force was overlooked. The hugeness of the country's undertaking requires every man's best energy, but requires it in its proper place, the place where it can do its work most effectively, keeping in view not the individual achievement but the national aim. And, considering Major Mitchel's value as a national force, it is regrettable that he should have been permitted to subject himself to dangers which, in his special case, were not commensurate with the rewards attending them.

The flying service is the very young man's service. The "aces" who have distinguished themselves in this branch are, almost without exception, men in their early teens, nearer twenty than thirty. That is easy to understand, for they have the flexibility of muscle and of will which the service requires. These are qualities at their keenest in youth, qualities which, with advancing age are stiffened and directed into other channels. In their choice of aviators, the authorities have always leaned toward youth, which possesses not only quickness of eye but the quickness of will converting vision into decision in the briefest space. At thirty-nine, a man's aptitude in that direction has diminished. His talent is for graver decisions, for prolonged responsibilities. His muscles have toughened, have lost much of their flexibility, have hardened and consequently slowed down. Major Mitchel was thirty-nine. His talent for persuasion worked so well over the authorities that they permitted him to elect a service which made the maximum use of his fighting ability but the minimum use of his executive talent. His death is none the less glorious, but one is moved to reflect that greater wisdom would have been shown in this instance in curbing his irrepressible energy and confining his abilities to vital work in which they could have expressed themselves with less danger and greater results.

Courage and "Cooties."—Courage is one of the commonest attributes of man. This knowledge is one of the discoveries and pleasant surprises of the war. It is one of the outstanding impressions one invariably carries away from the front. But it required a special and more difficult kind of courage for those sixty-six heroes who submitted themselves to the coquetry of the "cootie," the now familar trench louse, and the resultant trench fever. For these men allowed themselves to be bound hand and foot, and exposed themselves voluntarily to a disease which might bring death or at best six months of suffering and confinement—bound hand and foot figuratively only, of course, but effectively in that they could not fight back and were completely at the mercy of the disease. The fighter's courage is in no small part due to the fact that he can fight back and has, in his esteem, an even chance or better. But these sixty-six men could not have that consolation, and they submitted bravely nevertheless. It was a most creditable example of courage, and there is no doubt that they will get their reward in due time. In a larger sense, however, they already have the reward for which they submitted themselves so readily —a contribution to scientific discovery which ranks with the discovery of the source of yellow fever as one of the epoch-making advances in medicine and which will save their brothers in arms an incalculable amount of suffering henceforth. The mystery of trench fever was solved thru their sacrifice—happily not a fatal sacrifice. Innumerable experiments with animals failed of any result. It was impossible to find any animal susceptible to the disease. Human volunteers were necessary and they were not difficult to find. And presently it became known that trench fever was transmitted by "cooties." At once the fight upon the "cootie" was taken up vigorously,

just as it was taken up against the mosquito in the elimination of yellow fever. And many a weary fighter, lying down for a well deserved night's rest, will gratefully remember the service of the Intrepid Sixty-Six; for he will be able to look forward to slumber undisturbed by the pestiferous and ubiquitous little beast who hitherto had made sleep only a spell of naps, broken intermittently by exasperating and exhausting "cootie" hunts, and which, unknown to him, was incapacitating himself and his comrades for service in such numbers as to cause the gravest anxiety to their officers. Happily, trench fever now promises to become little more than a memory.

Mobilizing the Whole Medical Profession.—Great indeed will be the satisfaction felt by medical men the country over to learn that plans are being arranged whereby every American physician in active practice will be enlisted in the national service. For a long time the sentiment has been growing in medical circles that the entire profession should be placed on an organized basis. Only in this way does it seem possible to supply sufficient medical men for the armies being raised and at the same time meet the essential medical and sanitary needs of the country at large. Surgeon-General Gorgas has recently stated that already 20,000 physicians have gone into military service, and many more are sure to be required right away. This has necessarily increased the burden carried by the medical men left in civilian practice, with every prospect that it will grow heavier and heavier as the months go by. But serious as this problem promises to be, the real gravity of the situation comes from the large number of communities that will be deprived of any medical service or sanitary surveillance whatsoever. The menace of this state of affairs is readily apparent and unless active steps are soon taken to correct the situation as far as possible under the circumstances, many medical activities of the utmost importance will have to stop in many sections, such as sanitary direction, dispensary service, medical school inspection, and so on. The result will be a notable increase in sanitary neglect and indifference, with the immediate consequences thereof, and sooner or later an increase in the mortality rate, especially of infants and young children.

Numerous other more or less serious results that are bound to accrue from a lack of medical care and guidance will suggest themselves to every thoughtful person.

The proposal to enlist the entire medical profession offers the only sound and effective means of correcting the situation that has developed. There may be some slight opposition to the proposition, but we believe this will wholly disappear as soon as it is seen that the plan to be adopted is to be directed and carried out by the Government itself thru the Army Medical Department. That there has been some apprehension on this score has been shown by the number of letters we have received expressing quite a good deal of apprehension concerning the administrative features of the plan. The sentiment has been unanimous, that if the direction and execution of the details of the project are to be under the charge of the Army Medical Department no fears will be entertained and the most cordial support and cooperation will be given to the Surgeon-General and his associates.

While, as we understand it, the proposal to enlist the profession as a whole, has not been worked out in its exact details as yet, the fundamental plan is to classify all physicians according to their mental and physical qualifications, the character and size of their practices, their hospital experience, and finally, special considerations. In other words, all the essential facts concerning every medical man who is able to practice will be elicited, and this information will allow the proper authorities to make a fair and equitable allotment of service to each and every available physician. Thus a very considerable number of general practitioners will be advised to continue in charge of their respective practices, but incidentally requested to undertake a certain number of hours' work each week for the Government. These may be devoted to examination of recruits, or the disabled; special treatment, consultations, etc. Another group consisting of specialists will likewise be called on for part time service. From the younger men, who are not as well established in their communities, selections will be made not only to supply medical men to meet our growing military require-

ments but also for such other medical service as may be necessary to protect the civilian population from lack of medical attention and guidance.

Obviously great care will be called for on the part of the authorities to avoid doing great injury to many practitioners. That this care will be used in classifying the profession and designating the service each physician will be given to perform may be confidently expected. Every legitimate interest of medical men who are filling important and essential places in their communities will be safeguarded as far as the exigencies of war and the urgent needs of the country will permit. We earnestly believe the profession, therefore, may impose implicit trust in the fairness with which this plan to enlist every physician in national service will be worked out, since, as seems certain now, the administration of the scheme is to be in the hands of the Army Medical Department.

On the other hand, equal assurance may be given to those in authority, that they may count on the loyal cooperation of every American physician. The opportunity for each one to do his part according to his ability and the circumstances under which he is placed, will be heartily welcomed. We know hundreds of medical men who have bemoaned the conditions that have kept them from military service. A keen sense of their obligations to their communities and those dependent upon them, has forced them to remain at their posts. This new plan, however, will give them the chance they longed for, and the gain to the profession as well as to the country cannot be overestimated.

An Important Announcement to American Medicine Readers.—It is with a great deal of satisfaction that we are able to announce that arrangements have been concluded whereby AMERICAN MEDICINE has taken over *The Medical Adviser,* and beginning with the July issue will carry out all current subscription and other contracts to their completion. *The Medical Adviser,* during the five years it has been published, has built up an excellent following, made up of practicing physicians from all over the country, but chiefly of medical men in Greater New York and its vicinity.

To Dr. Albert C. Geyser, who has been the editor of the *Adviser* during the latter and most successful period of its publication, great credit is due for developing a journal of exceptional value to its readers. Infinite care has been used, not only to supply material of maximum utility to the practitioner, but to present it in ways that have enabled him to follow and apply it with greatest ease and convenience. *The Medical Adviser,* in other words, has catered to the practical, every-day needs of busy doctors, and the aid it has given in making them more efficient and capable accounts for the popularity it has won. Like many other medical journals conducted with no thought of private or individual profit, *The Medical Adviser* has found it impossible to continue to maintain its ideals and standards in the face of the progressive increase in cost of paper, printing and postage. Some action was imperative; the arrangement with AMERICAN MEDICINE is the outcome.

To have allowed the excellent work of Dr. Geyser and his able associates to be terminated would have been a calamity. Consequently in absorbing *The Medical Adviser,* we have arranged for Dr. Geyser to join the editorial staff of AMERICAN MEDICINE and conduct a special department of Physical Therapy. The growing importance of this branch of therapeutics is generally recognized and we feel sure that this new department will be welcomed by our readers.

General Gorgas Is Needed.—Under the regulations of the Army, Surgeon-General Gorgas will reach the age of retirement in the early Fall. In view of the calibre of the man and his great administrative talents, it will be a grave mistake, in the absence of any physical disqualification, to dispense with his services. Probably no other medical man in America is so well fitted to carry on the all-important work of the Army Medical Department as General Gorgas. The advantages of having such a man at the head of our national medical activities have been abundantly demonstrated during his tenure of office. To supplant him at this critical period of the war with an untried and inexperienced man will be nothing less than a calamity. General Gorgas is a national asset, and the country cannot afford to lose him on technical grounds.

SOME PSYCHOLOGIC AND TOXICOLOGIC FACTORS INVOLVED IN THE HABIT-FORMING ACTION OF ALCOHOL.

BY

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Past experience demonstrates that the personality of man may cultivate a habit for anything that gives a sense of well-being, freedom from worry, or relaxation from mental stress. In this paper alcoholism will be viewed as a habit-formation. In order to make clear my conception of some of the factors that influence this habit-formation I shall take into consideration both the psychologic attributes involved, and the toxic action of alcoholic beverages on the higher cerebral centers. These two contributing causes I choose to keep paramount, with the idea of being able in this manner to draw a finer line of demarcation between the psychic influences of a habit-formation and the toxic actions of alcoholic beverages. I shall attempt to adhere strictly to the postulate of psychophysical parallelism.

Alcohol belongs to the same chemical group as ether. Its dominant action on man, when taken internally, always has been, and always will be, that of a narcotic. Its narcotic effects on the system are peculiar in that it has a definite selective affinity for the cells of the cerebral cortex. Alcohol first attacks the intellect, then the emotional and motor centers, and lastly the equilibrium. It is a true narcotic and stands midway between the highly volatile anesthetics, such as ether, with their prompt actions, and the slower acting non-volatile hypnotics.

Conscientious investigators employing various mental and physical tests on alcoholic habitués are oftentimes confronted with perplexing facts that apparently disprove their tedious labors. Under those conditions in which such psychologic complexities as embarrassment and anxiety cause degrees of hesitancy and self-consciousness, alcohol may seem to sharpen the intellect, but in reality it only narcotizes the functions controlling these complex psychologic states.

Or, take an auditory test as example: I place a watch at a certain distance from my right ear and listen. I cannot hear its tick. I then take a few glasses of wine, and behold, in a short time I am able to hear the tick of the watch not only from the original distance, but from three times that far. What has happened? Before taking the wine sound-waves entered my left ear as well as my right which had a tendency to distract my attention. The sight of the watch, and the thought-associations accompanying the test, also to a degree distracted

my attention. After taking the wine and waiting for its action, while I still heard with my left ear, and undoubtedly the test still caused thought-associations in my consciousness, nevertheless my impressions from the outside world became fewer, and the mental activities within my consciousness became less, so that my acuity became much diminished, altho it would have been difficult to convince me of the fact. My impressions from the outer world having become fewer and my inner mental activities having been diminished, my consciousness could now direct its entire attentive attribute to the auditory test under consideration with the resulting apparent impression that the wine had actually stimulated my sense of hearing.

What really took place was a feeble but definite narcotization of certain brain structures which allowed others to receive the resultant surplus energy of my remaining consciousness thus liberated; exactly as we see more distinctly some particular object in a picture after our consciousness has been narrowed down to perceiving one spot instead of the picture as a whole.

The usual mental tests for quickness of action or keenness of the senses oftentimes lead to the mistaken idea that alcohol really has stimulated certain activities. The auditory test in the foregoing paragraph is one of the strongholds for those who still believe that alcohol is a stimulant.

In experimentation along this line too much reliance must not be placed on the acuteness of the senses if the primary narcotizing effect of alcohol is to be observed. On the other hand, if the effect of alcoholic beverages on the powers of reasoning, judgment, moral stamina, and other acts involving many associational activities is carefully studied it will almost invariably be observed that the result is depressing and not stimulating. Of course, sufficient time must be allowed, from the time the alcohol is consumed to the commencement of the tests, for its absorption and toxic effect. The amount of alcohol taken should likewise compare favorably with the amount the person undergoing the test is accustomed to drinking.

When experiments are made impartially and scientifically it will be invariably demonstrated that the powers of volition are especially influenced by the drug, and this is the real reason why alcohol is so habit-forming. If it did not dull the powers of resistance it would be a far less dangerous substance to take either as a beverage or as medicine. What can you or I do when an important part of our brain has been "doped"? Our powers of self-control become diminished and under those circumstances is it a wonder that we are apt to keep on drinking until we get drunk? Getting drunk, however, is in itself not a habit-formation; it is simply the toxic effect of a powerful protoplasmic poison which we have voluntarily ingested. We need not repeat the act again unless we deliberately choose to do so. A true habit-formation is something quite different and is created somewhat as follows:

In our daily lives we commonly consider an action regularly repeated as a habit. When we perform an act for the first time it leaves in our memory consciousness an affective accompaniment. Authorities in psychology inform us that if the act is favorable to life it usually possesses pleasant affective accompaniments. This is not always so, as we shall see later. However, assuming that an act has left in our mind pleasant remembrances, we need not repeat it unless we so desire; altho we admit that

because of the very fact that the experience left pleasant affective impressions in our memory consciousness, the threshold stimulus required for its repetition has thereby been considerably lowered.

My will to do or not to do a thing may have the same motive from day to day and week to week, but I cannot store it up to use over and over again. The impulse to repeat the act may spring up involuntarily in my consciousness, but the carrying out of the impulse involves the suppression of the opposite impulse, and I cannot again repeat the act unless I will to do it over again. If I deliberately do this, a repetition of the experience leads first to an increase in the clearness of it, but later tends to diminish it, so that even a volitional act may with frequent repetitions change in character so that it gradually loses its conscious accompaniment. When repetition of an act has accomplished this result it can no longer be recognized as a voluntary act, but becomes an acquired automatism practically devoid of volitional attributes—in other words—a habit. No habit is ever formed involuntarily.

The above is, roughly speaking, the mental routine of acquiring most habit-formations including those regulating our daily lives. Walking, swimming, skating, etc., are all acquired habits just as is the intemperate drinking of alcoholic beverages. At the beginning of a habit-formation its conscious accompaniments are in the foreground, and as these gradually become lost most of the volitional attributes likewise become lost and the act becomes automatic. Perhaps not one in fifty drinkers are thinking of what they are doing when they place the glass to their lips—if they did they would stop sooner than they sometimes do.

Some of our acquired habits are beneficial and others detrimental to our existence; some should be cultivated and others should be annihilated; and yet, a habit, be it what it may, is only then really dangerous when it becomes our master. A person may be able to drink alcohol daily, and in so doing run no risk of becoming a slave to alcohol. It is only then when alcohol becomes master of the personality that the habit becomes dangerous, and in speaking of the drink-habit it is this pathologic view that is usually meant.

Why should the drinking of alcoholic beverages be habit-forming and not the drinking of soda or milk? What, if anything, makes alcohol different than any other substance in this respect? By indirectly questioning several hundred addicts to the intemperate use of alcoholic beverages as to why they took up the alcoholic instead of some other habit, I hoped to obtain a general answer to the above questions. The results of this inquiry were disappointing. Instead of learning from the several addicts why alcohol rather than drugs, cigarettes, or chewing-gum was resorted to, what I obtained were mostly clues as to the psychologic causes of the habit-formation. From the above and other experiments along the same line, I have come to the conclusion that the effects of alcohol on the system, and the psychologic activities involved in creating a habit, are themselves the most reliable answer to these questions.

In the formation of the drink-habit the same mental factors play an important role as in the formation of any other habit, but in the addiction to alcohol these normal psychologic factors are tremendously influenced by the toxic action of alcohol itself, in that it narcotizes certain brain structures and interferes with their normal functions

in a very definite manner. A few glasses of wine may, and generally do, give a person a new mental optimism. The stomach receives it, the blood absorbs it, and it is carried to the brain where the resultant action is a change of mental behavior; if carried to excess it becomes drunkenness which is nothing more or less than a temporary poisoning of certain brain structures. If drunkenness is considered as a temporary mental aberration its degree corresponds directly to the distorted state of the brain function. Under these circumstances the mind can no longer be considered as sound, for the controlling ideas are no longer able to inhibit opposite ideas and there is great danger of chance intrusions entering consciousness to the detriment of the individual. This mental condition we call a state of heightened suggestibility, and is one of the most evil effects that alcohol produces on cerebral functioning. This state of artificially created hyper-suggestibility is akin to hypnotism, altho its causes and controlling factors differ widely. In drunkenness the person's field of consciousness has been greatly diminished by the toxic action of alcohol, and in hypnotism the same mental state has been produced by the suggestions of the operator. In drunkenness the subject is controlled by the sight, smell, taste, and desire for alcohol, just as the hypnotized subject is controlled by the verbal or written suggestions of the operator. In both, the chances of entrance for opposite ideas into consciousness have been greatly diminished or entirely suppressed. The subject is unable to resist the alcohol in the one instance, and the operator in the other.

The intemperate man finds in alcohol a desire and temptation that he cannot overcome alone and unaided. Once alcohol has become master of the personality, the threshold stimulus required for its subsequent indulgence has become greatly lowered, and as repeated actions have accumulative influence a man may easily become a chronic alcoholic. He may take a definite amount daily and so keep his brain and corresponding mental activities constantly narcotized to a certain degree, or he may become a periodic drinker who will let alcohol entirely alone until that apparently "irresistible impulse" for alcohol comes and conquers his weakened volitional powers.

Many who have given the behavior of periodic drinkers some study seem to leave the phenomena unexplained, but it seems to me that this class of alcoholics follow the laws of nature more closely than do the steady tipplers. The regularly repeated act of getting drunk has a definite emotional value. Rhythmic acts are more agreeable than those that are broken and irregular. A certain kind of regularity is the natural demand for the organism. Every bodily function is regular and many are rhythmic. Undoubtedly this is the physiologic basis for our appreciation of psychologic rhythm, whether an act be natural or acquired.

Much could yet be added to the subject, and in fact an analysis of the many attributes that accompany a habit-formation could be carried on indefinitely. However, when we are informed that man only cultivates a habit voluntarily when it is not detrimental to his existence or welfare, we at once come at variance with some of the accepted generalities of modern psychology. Surely the drink-habit does not aid man's existence nor does it in the least aid the normal functioning of his mind or body. Neither could it be rightfully stated that man is forced to take to drink involuntarily. Nobody ever acquired the habit of taking alcoholic beverages to excess without voli-

tional consent, altho it is admitted that while under the toxic influence of the drug the person has temporarily lost most powers of self-control; nevertheless, after the toxic effects of the alcohol have worn off, the act needs a deliberate volitional impulse behind it for its repetition, unless indeed that stage has been reached where many previous occurrences have already undermined the volitional powers of the personality to the extent that most of the conscious accompaniments of the act have entirely been lost.

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A RATIONAL TREATMENT FOR SIMPLE GOITER.

BY

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There have been many forms of treatment recommended for the control of the simple form of thyroid hypertrophy; and this in itself is an indication that the individual recommendations have been lacking in some respect. We still meet numbers of goiterous individuals who have tried electricity, osteopathy and many forms of medicine, so evidently a "specific treatment" has yet to be discovered.

There is a method, however, that really offers quite a uniform degree of success and it differs from the previously recommended procedures not so much in its novelty as in its comprehensiveness. In other words, heretofore we have not done as much for the cases of goiter, which come under our care, as we should have done. Our treatment has been incomplete.

The limitations of space forbid a thoro discussion of the etiology and pathology of simple goiter; nor can we take up for consideration the various lines of treatment that have been passed on to the profession with greater or less enthusiasm in an extremely voluminous literature.

We must be reminded of two facts upon which we can base our conclusions as to treatment: that endocrine hypertrophy ordinarily is the result of two physiologic processes—either there is a toxemia present which is irritating the gland, or there is a deficiency of the products of the gland (an inadequate supply or an unusually great demand) and its hypertrophy is the result of a laudable attempt to supplement the production of its contribution to the welfare of the organism of which it is a part—its internal secretion.

Ordinarily the result of toxemia is not merely hypertrophy but hypersecretion, tho this is not a rule. The profession is about agreed that hyperthyroidism and the form of goiter accompanying it are very commonly the result of foci of infection somewhere in the body. Here the goiter is by no means "simple," nor is the symptomatology—nor, for that matter, is the treatment!

With our present knowledge of the several varieties of goiter we have come to agree with McCarrison that intestinal infections, often the result of the food or, more likely, the water supply, may be a common cause of goiter, and that the control of these infections by attention to the alimentary tract and the use of intestinal antiseptics like thymol and the "friendly germs," is a rational and resultful step in the routine treatment.

Naturally if we can manage to pin down the actual cause of the goiter, the treatment would be inadequate without a thoro-going attempt to eradicate it. The prevalence of oral and dental infections accompanying simple goiter has been demonstrated with accuracy and proved by extensive statistics.

Such infections should be sought and controlled.

The fact that goiter is essentially a disease of girls and women and that many times its onset is related in some way to the establishment of the menstrual function or is objectively connected with factors related to the ovarian endocrine function, calls for careful study of these functions and attempts to control dyscrinism as early and as effectively as possible. Many a case of thyroid enlargement has resulted from dysovarism; and efforts to regulate the thyroid while ignoring the ovaries often result in failure. This explains the frequent benefit which comes from combining ovarian or luteal therapy with thyroid gland, and *vice versa*.

The best known remedy for goiter is considered to be iodine in some form. I have used it in several ways, including the most common form, the iodide of potash and per inunction. Undoubtedly iodine is one of our most valuable remedies; but for some reason the clinical results of applying the current text-book or medical journal recommendations, or those of the manufacturers of "goiter tablets," are not particularly encouraging. However, I believe that the successful medical treatment of simple goiter would not be complete without some form of iodine.

If the thyroid hypertrophy clearly is the result of an attempt on the part of the organism to augment a deficient supply of thyroid "stuff," *i. e.*, if there are evidences of hypothyroidism, obviously the most rational thing to do is artificially to supplement the supply by thyroid gland feeding; and this is the reason that thyroid therapy in certain forms of goiter is sometimes so successful.

To my mind the most satisfactory routine treatment of simple goiter should consist of a combination of these measures. One cannot always be assured of the accuracy of one's surmises as to the etiology of a given case of goiter. The infective origin may be clear and yet the successful control of the infection does not necessarily cause a reduction in the size of the goiter. The presumption that there is a sufficiently well-defined hypothyroidism present and that the goiter is nothing but a compensatory hypertrophy, may lead to thyroid feeding and some eventual benefits; but only a partial success. The same applies to the administration of iodine in its various forms.

I am taking the liberty of submitting an outline for a routine treatment which is suggested as a means of "regulating" the individual with goiter. I believe that this procedure is more successful than any of its component parts alone:

First, determine the character of the thyroid enlargement, study the other endocrine glands and most carefully eliminate all possibility of overlooking hyperthyroidism. This is best accomplished by a very brief period of experimental thyroid gland feeding. For three or four days the patient, while under careful supervision, receives increasing doses of desiccated thyroid gland. On the first day three-quarter grain doses are given; on the second day three half-grain doses; on the third five or six half-grain doses, and, if necessary, on the fourth day three or even four one-grain doses. Occasionally one notices that the pulse, temperature and temperament are affected sufficiently on the second or third day of this test to convince one that the patient is not definitely hypothyroid because of the discovered susceptibility to the thyroid that has been ad-

ministered. If, on the other hand, a goiter case can take four grains of U. S. P. thyroids (or 20 grains of the tabloids which are dosed on the basis of "fresh gland substance") with no evidence of thyroidism, it is safe to presume that the goiter is not accompanied by increased endocrine function of the gland.

Having ruled out the chance of an early or insignificant hyperthyroidism and, in the meantime, having searched carefully for dental, gingival, oral tonsillar or sinus infections and also for foci of absorption elsewhere in the body (especially in the colonic angles), we can start aggressive treatment. At the outset, and during the routine just described, I recommend a series of cleansing enemata at night and after evacuation I have the patient inject four ounces of plain cottonseed or olive oil. This is repeated three nights in succession and is continued once a week thereafter, during the treatment.

Generous quantities of the "friendly germs" are prescribed each day. I order a supply of dextrose (or glucose) and have the patient prepare 3½ points of a 2% solution (half an ounce to the quart), warm to blood heat and add a tube of one of the standard cultures of the B. Bulgaricus. It is then placed in a fireless cooker for 24 hours, cooled and the patient is directed to drink 1½ quarts each day between meals. This opalescent fluid is not unpalatable and may be flavored to taste. The remaining glassful is used as a "starter" for the next day's batch.

If it seems advisable intestinal antiseptics may be prescribed as circumstances indicate. McCarrison expresses great faith in thymol. At present thymol is not convenient, so one can use the sulphocarbolates, bismuth salicylate or other similarly acting drugs—to effect.

In practically all cases of hypothyroidism and in most cases of goiter there is a condition of reduced metabolism and demineralization, or insufficient blood alkalinity. This is discovered by laboratory tests and is controlled by the daily administration of alkalies or, better still, of the combined salts similar to those present in the blood. From 20 to 100 grains may be given each day, in divided doses (for instance with the culture) an hour before meals. The initial large dosage is soon reduced to about 30 grains a day.

Finally there is the positive medication, for all the preceding suggestions are really negative treatment and in the nature of the clearing of the decks prior to the engagement.

I suggest that a maximum of 1½ grains of U. S. P. thyroid gland be given daily for several months. It is useless to expect radical results in a few weeks; and larger doses for a shorter period certainly are not so efficacious. Ordinarily I prescribe ¼ grain t. i. d., and with it I give the iodide of iron in doses of ¼ to ½ a grain combined with nucleinic acid and the mineral salts just referred to. This seems to act considerably better than thyroid, iodides or other single remedies, and, when supplemented by inunction of varying amounts of yellow iodide of mercury ointment each night, one can depend upon good results if they are at all attainable.

In my opinion there is no place for surgery in the treatment of simple goiter. If the goiter does not respond to several months of the above routine treatment, it may be safely taken from the above classification and called an adenoma, the treatment for which is surgical. However,

these more serious thyroid tumors constitute a very small minority of goiters, and properly may be treated as suggested, before surgery is resorted to.

412 West Sixth Street.

THE VALUE OF A RECTAL EXAMINATION.

BY

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The object of this paper is to point out cases in which the symptoms are apparently not due to rectal disease, but in which a rectal examination is essential to arrive at a correct diagnosis. The purpose of a physical examination of a patient is to discover the cause and extent of his discomfort and suffering. In making such an examination it is imperative to consider every important organ of the body. The examination should include a consideration of the lungs, heart, liver, stomach, kidney, abdomen and intestinal tract, and finally the *rectum*. The general practitioner who fails in his physical examination to include the rectum will often overlook important conditions which would enable him to make a correct diagnosis. It is only necessary to recall the close connection of the rectum with the perineum, the vagina and the cervix uteri, as well as its constant contact with the body of the uterus, the left tube or ovary, the bladder, prostate, urethra, penis, etc., to realize that these statements are well founded upon a solid anatomical and physiologic basis. As a result of this close proximity, we frequently find in women a reflex pain in the bladder, mouth of the urethra, womb, back, thighs, ovaries, vagina and perineum. In the male we often find reflex pain in the bladder, penis, urethra, scrotum and prostate.

The relation of the rectum to the peritoneum is so close that abdominal pain may at times be but a reflex condition traceable to the rectum as its source of irritation. This fact is often overlooked. Many patients who complain of ailments referable to the genitourinary organs, the lower abdomen, or the back, may in reality suffer from some disease of the rectum that requires local treatment. Unless a thoro rectal examination is made, the course of treatment instituted in these cases will only tend to the perpetuation of the symptoms rather than to their amelioration.

Goodsall and Miles in their book on "Diseases of the Anus and Rectum" remark: "The fact that the pudic nerve supplies the compressor urethra, that the third and fourth sacral nerves give off branches to the prostate, bladder, vagina and that these nerves are associated with others arising from the lumbar enlargement of the cord, for instance, the lumbar, great and small sciatic, readily explain upon anatomical grounds alone the pain in the loins, over the crest of the ilium and sacrum down the back of the thighs and calves. It also accounts for the occasional attack of retention of urine sometimes observed as a reflex accompaniment of anal fissure and fistulae when situated in the middle line posteriorly."

By the same process of reasoning we can understand how symptoms referable to the rectum may be the expression of disease of the neighboring viscera, such as the uterus, bladder, vagina and prostate; consequently the possible coexistence of these diseases should not be overlooked. Reflex disturbances in neighboring organs or distant parts of the body frequently accompany rectal diseases. It is not unusual for patients to complain of pain in the region of the uterus, tubes, ovaries, bladder, prostate, urethra and testicles. Again the pain may be re-

flected up the back to the hips or down the leg or heel and is not infrequently mistaken for sciatica. Perhaps the most common reflex disturbance caused by anal fissure, irritable ulcer or hemorrhoids is irritability of the bladder and urethra, inducing a frequent desire to urinate. This is due to an irritable condition of the sphincter and levator ani muscles. This condition has frequently been mistaken for genitourinary disease, and treated accordingly, without results.

Disorders of the rectum are frequently mistaken for uterine disease. This is a grave error, inasmuch as mutilating operations may be, and have been performed on the innocent genital organs when the disease actually lay within the rectum. Hemorrhoids produce a bearing down sensation easily mistaken for the bearing down pain caused by uterine displacement. A cancer of the rectum high up has not infrequently been mistaken for chronic disease of the ovaries and tubes. Constipation is not only a symptom, but also a frequent cause of rectal ailments. A patient suffering from fissure, for example, delays defecation as long as possible to avoid the pain accompanying the act of defecation. Fecal impactions should not be ignored or overlooked as a cause of constipation. On the other hand, a person afflicted with stricture exerts himself to the utmost to empty the bowels, but fails to do so because of the obstruction. Constipation is sometimes induced by hypertrophy of the sphincter, or levator ani muscles, or of Houston's valves. The first symptom of cancer in the majority of cases is found to be constipation, either alone or alternating with diarrhea accompanied by digestive disturbances usually of a gaseous nature. This stage may exist for several months during which time various circulatory symptoms make their appearance, misleading the patient as well as the physician. The patient complains of constipation, digestive disturbances and being bloated after eating. The flatulent distention of the abdomen (large intestine) as a result of the accumulation of fecal matter and flatus is very distressing to the patient. Anemia, loss of weight and drowsiness are complained of.

Diarrhea is a symptom met with in many diseases of the rectum. It is always present in stricture, advanced cases of cancer, ulcerations, multiple polyps, prolapse, colitis, proctitis and sometimes in fecal impactation and tuberculosis. Time and again do I treat patients for the relief of some rectal affection of which diarrhea or frequent stools is the only symptom presented by the patient. They give a history of weeks or months of unsuccessful medication, but are subsequently relieved by local treatment alone. All this emphasizes the importance of making a careful rectal examination in every instance of gastrointestinal disturbance and letting the findings decide the proper treatment. Symptoms of autointoxication sooner or later manifest themselves in rectal affections and neurologists contend that a number of functional nervous disorders result from fecal toxemia.

There are three potent reasons why rectal examinations are so often omitted. *First*—the common belief that rectal ailments must manifest local symptoms, characterized by pain and hemorrhage during defecation, discharge of pus and mucus, protusion from the bowels, pruritus ani, etc.; *second*—a lack of knowledge of the many and varied reflex disturbances to which rectal ailments give rise; *third*—because patients, from a false sense of modesty, hesitate to complain

of affections occurring in this part of the body. Pain is not of great diagnostic value in rectal affections, as it may be present or may not. It may vary from a slight discomfort to the most intense suffering. We may find large hemorrhoids or polypi and the patient still not suffer pain, or the pain if present, is comparatively insignificant. It is quite common for me to treat rectal diseases in which no history of hemorrhage can be elicited.

We may have extensive hemorrhoids which do not bleed, but simply cause sensations of heat and fulness in the rectum, and most marked reflex disturbances. Of course hemorrhage of the rectum is one of the most frequent and dangerous symptoms of rectal disease. It may be slight, only a drop or two streaking the feces and may entirely escape the notice of the patient. Frequent and profuse discharge of mucus and pus and casts of the bowel are indicative of polyps, abscess, fistula, proctitis and malignant disease. The tenesmus attending the continuous irritation of these discharges is quite frequently spoken of by the patient as diarrhea, on account of the frequent stools. Without a rectal examination such cases would be erroneously treated for diarrhea, to the great detriment of the patient and frequent chagrin of the physician.

Study of the topographical anatomy and pathology of the rectum will acquaint us with the reflex disturbances of rectal affections and assist us in making a correct diagnosis. The suffering public can easily be educated to the fact that to speak of rectal ailments is no more shameful than to speak of diseases of the chest or any other part of the body. Sixteen years ago, while a student in Vienna, I asked Professors Kaposi and Neusser and other celebrities of the University, how it happened that their patients allowed themselves to be stripped to the skin and willingly exposed every organ for examination by the physician. "It is because we trained them so" was the answer I received. That is, I believe, the secret why the German physicians are such efficient diagnosticians.

In the past there was some excuse for a mistaken diagnosis, when the disease was in the rectum and sigmoid flexura. Today, by means of modern instruments and a better knowledge of anatomy and pathology, diseases in the region of the rectum can be located with ease and accurately diagnosticated. A careful examination should be made in each case, nothing being taken for granted, even when the diagnosis has already been made by the patient or his physician. We have to educate our patients to combat the feeling of false modesty in referring to manifestations of disease in the rectum or anus. It is true that most patients hesitate to speak of rectal ailments, because a rectal examination is repugnant to them, yet that is no excuse for an erroneous diagnosis.

In making an examination, it is desirable to expose the parts as little as possible and to be very gentle in the introduction of the finger or instruments into the bowel. My plea is, that in seeking to arrive at a diagnosis the physician must not forget that the rectum is accountable for a great deal of distress simulating that which we are told is produced by the diseases of the ovaries, uterus, liver, stomach and other organs.

Antiseptic Foot Powder.—

Eucalyptol	40 mins.
Salicylic acid	4 drs.
Zinc stearate	3 drs.
Boric acid	5 ozs.
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Mix intimately and use as a dusting powder.—*The Practical Druggist.*

PROCTITIS.

BY

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Proctitis, or inflammation of the rectal mucosa, occurs much more commonly than is supposed and requires careful diagnosis and prompt treatment. The anatomy and physiology of the rectum and sigmoid render these organs very susceptible to catarrhal changes. The crypts in the mucous membrane are potential pockets for the lodgment of infectious material. The venous circulation, being in the opposite direction to the fecal current, is always sluggish. It is also in this part of the alimentary tract that the fluids are absorbed from the food debris. Here toxins pass into the lymphatics and enter the circulation. As the fecal mass hardens, it excoriates and sometimes actually tears the mucous membrane as it is expelled. These chemical and mechanical irritations, frequently repeated, result in catarrhal proctitis. As the rectum, sigmoid and colon have the same structure and function, the same catarrhal disturbances spread to all parts. However, it is often hard to explain just why the disease is so localized in the case at hand. The onset of these catarrhal changes is sometimes insidious and it may be impossible to define accurately the beginning pathologic changes, because of the difference in individuals in temperament and habits. The prominent symptoms of inflammation in any part of the colon are referred to the rectum, and we may add, the inflammation is seldom confined to any one locality. So-called catarrhal inflammation of the intestinal mucous membranes (those which cannot be accounted for by any of the now known bacteria) is very common, especially in the cities where modern methods of living subject individuals to over-eating of stimulating and highly seasoned foods, lack of outdoor exercise and the maintenance of high nervous tension. Our individual powers of resistance vary so much that some seem to maintain good health in spite of these adverse conditions, while others are indisposed by the slightest exposure or indiscretion; even a change of drinking water in certain individuals will light up a catarrh of the colon or rectum. These inflammations may begin at either the cecum or rectum and spread the whole length of the colon.

Acute Proctitis.—Acute catarrh of the rectum, like that involving any other mucous membrane, comes on suddenly and may usually be traced to a definite exciting cause. The onset is characterized by a chill and an elevation of temperature. There is a sensation of fulness, of weight, heat and burning in the rectum, or in severe cases, actual pain, which radiates to the sacrum, the other pelvic organs or down the thighs. Irritation of the trigomen vesicae causes frequent micturition with tenesmus and sometimes retention of urine. The rectum feels full, the anal sphincters are contracted and there is a constant and ineffectual desire to empty the bowels. The feces, usually liquid, are forcibly ejected thru the small opening. This constant straining produces prolapse of the mucous membrane, especially in children. The patient is always more comfortable lying down than when up and about. During the first twenty-four hours, the discharge from the rectum is liquid fecal matter; later, the engorged mucous membrane bleeds and the discharges are tinged with blood and contain mucus. In very severe cases, the mucous membrane will ulcerate and pieces slough off, accompanied

with considerable discharge of clear blood. The discharges from this time on contain mucus and blood mixed with feces. An early and persistent symptom is the constant rectal tenesmus. The patient has frequent, urgent desire to go to stool, but each time voids only a few ounces of liquid material accompanied with much straining and pain. The anus is red and painful, the sphincter irritable and spasmodic, and the introduction of the examining finger or the speculum is so painful as to require an anesthetic. To the touch in the early stages, the parts feel dry, feverish and swollen; later, after secretion has begun, the surface is moist and slimy, but so swollen as to seem close together. Specular examination at this stage reveals the bright red, dry and edematous mucous membrane, but, later, we find ulcerations which may be limited to one or two small points or there may be many foci, some of which may be quite deep and involve the whole thickness of the mucous membrane, even perforating the bowel. When ulceration occurs above the peritoneal fold, it may cause peritonitis; when below that line, an abscess may result. Chronic or recurring proctitis may in this way cause a stricture.

Etiology.—Irritants directly attacking the mucous membrane, such as pinworms or lumbricoids, highly seasoned foods or hard substances in the fecal mass, as fish bones or hulls of cereals, are common causes of either the acute or chronic types. Constipation and fecal impaction of the rectal pouch alternated with periods of liquid feces often induce a sudden inflammation of the sigmoid and rectum, or the rectal disturbances may be an extension of colitis resulting from the passage of the irritating discharges from above. Seasonal changes of food or water, particularly during the summer, or sitting on a cold wet seat is often an exciting cause. In all of these conditions, sudden and violent changes are important factors. Proctitis may also result from the use of strong purgatives, irritating suppositories or as an extension of inflammation from hemorrhoids, prolapse or eczema about the anus, or from disease of the neighboring organs as the bladder, prostate, vagina or uterus. In a few instances, new growths within the rectum as polypi, adenoma, villous growths, papilloma or intussusception occasion periodic exacerbations or keep up the chronic proctitis.

Treatment.—The treatment of proctitis varies considerably with the exciting cause and, therefore, before instituting any treatment a thoro examination must be made. The parts being irritated and inflamed, the examination is very painful, unless an anesthetic, general or local, is administered. In many instances where for various reasons chloroform should not be given at the time of the examination, the patient may be relieved of most, if not all, of the pain by the application of a 2% solution of novocain. A general anesthetic has much in its favor, because, when the patient is asleep, the sphincter may be thoroly dilated, thus relieving the tenesmus and greatly facilitating subsequent examination or treatment and at the same time, any other trouble or cause of the proctitis may be removed, thereby accomplishing two things at one sitting.

The first indication for treatment naturally is to remove the cause. Impacted feces or foreign bodies must be removed carefully so as not to injure the mucous membrane. The anal sphincters should be dilated to permit easy and free emptying of the rectum. Decomposed irritating, infectious intestinal contents should be removed with a

saline cathartic, which should be exhibited in sufficient quantity to produce a free flushing with watery stools. After the bowel has been thoroly emptied, it should be irrigated two or three times during the day with normal salt solution of 110 degrees F. For this treatment the patient should be placed in the lateral prone position, with the hips elevated; the irrigator reservoir held one and one-half to two feet above the anus. The irrigator tip should have a large return flow to allow free exit of debris. The solution is admitted to the bowel slowly. Douching in this manner washes out a large amount of infectious material, such as secretions, fecal accumulations and hordes of microorganisms; dissolves mucus and pus, flushing them out as shreds; contracts the vascular structures, thereby stimulating circulation, relieving the local congestion and depleting the tissues.

Following the douche about two drams of astringent antiseptics are injected and the patient is instructed to retain it; 1-5000 silver nitrate is the most reliable. If the pain and tenesmus are not relieved, a ½ grain opium suppository may be inserted. These flushings are to be continued as long as there is any discharge of mucus or pus. Enemas cannot be substituted for the irrigation, as they increase the tenesmus. If the symptoms continue after the third day under this treatment, ulcers will be found on the rectal wall which must be treated locally. The patient is placed in the knee chest position, thus obtaining atmospheric dilatation, a speculum is introduced and the whole rectum inspected. When the ulcer is found it is wiped free of mucus or debris and painted with pure ichthyol or 5% nitrate of silver.

Diet.—The diet should be carefully arranged so as to be absorbable and non-irritating and of such a variety as will insure soft or semi-solid evacuations. It is also advisable to maintain a largely absorbable dietary that the bowels may move infrequently thus sparing local movements of the parts. Milk is excluded, because it produces constipation and forms hard curds in the stool. Fibrous vegetables, such as cabbage, kraut, celery and green corn are also forbidden, because they irritate the bowel. In their stead, should be given gruels of oatmeal, rice, barley, egg albumen, gelatin, meat broths, the proprietary prepared foods and peptones. Water should be given freely and at night a full glass of flaxseed tea. This latter acts as a mild laxative and also soothes the bowel. The patient should be kept in bed until all pus and blood have disappeared from the stools, because when the patient is up and about his duties the pendent position of the vessels, together with the thinness of their walls and the associated congestion and inflammation, produces a venous stasis, which seriously impedes or prevents regenerative changes.

Prognosis.—Proctitis in either the acute or chronic form is always a serious matter, deserving of the physician's most careful attention, because the inflammation itself may debilitate, and especially because complications which may invalid the patient are prone to occur. Each case is a law unto itself. The acute inflammation under rest and treatment subsides and the patient recovers in a week or ten days. If not properly handled the condition may become chronic. If the mucous membrane only is involved, a complete recovery results, even tho ulceration has occurred; but there is always danger of perirectal abscess, fistula or stricture of the rectum. Sometimes

lymphangitis or phlebitis may protract convalescence.

Chronic Proctitis.—The acute proctitis, if neglected, merges into the chronic hypertrophied form and later ends as the atrophic condition. The hypertrophied proctitis is the less common type. It may begin as a sequel of the acute proctitis, altho it frequently results from diseased conditions of the organs outside of the bowel, such as pressure upon the sigmoid by abdominal tumors, a movable kidney, a displaced uterus or by adhesive bands of pelvic cellulitis. The inflammatory changes are not confined to the rectum, but extend also to the sigmoid and colon.

Symptoms.—When this condition supervenes, the acute catarrh, the sharp pains, tenesmus and diarrhea of the early days subside to a less severe but chronic form. When it is due to extra-intestinal disturbance, the symptoms begin insidiously and our patient has been ill a long while, by the time he presents himself complaining of flatulence, colic and tenesmus, a white coated tooth marked tongue, irregular and unsatisfactory bowel movements, with periods of soft or semi-fluid stools mixed with muco-pus which alternates with other periods, of constipated hard round ball-like stools, streaked with muco-pus. During the diarrheal periods, colicky tenesmic pains are sometimes followed with an evacuation of thick, glairy mucus or muco-pus containing blood. This secretion of mucus may be so free that it persistently oozes thru the sphincter and keeps the anus constantly moist and necessitating the wearing of a napkin besides inducing erythema and pruritus. This mucus loss is very exhausting. After each stool there is a feeling of incomplete evacuation and the patient soon becomes neurasthenic. On examination the mucous membrane is edematous and covered with shreds of muco-pus. The swollen membrane seems to fill the whole rectum and when a speculum is introduced its openings are filled with congested mucosa.

Treatment.—The treatment of this affliction is long and tedious. Where some other pelvic or abdominal organ is obviously at fault, that must of course first be corrected; until the cause of the disturbance has been definitely found our prognosis must be guarded. When satisfied that the proctitis is due to disturbances within the bowel our treatment is as outlined under acute proctitis.

Atrophic Proctitis.—Atrophic changes in the rectum are much more common than the hypertrophic, are very chronic in character and do not extend above the sigmoid. Syphilis is an underlying factor in most if not all of these cases and is to be considered when beginning our treatment.

Symptoms.—These patients are severely constipated and have grown accustomed to drastic cathartics. They also usually overeat and under-exercise. The stools are dry, hard and lumpy and streaked with mucus, blood or pus. Following each bowel movement there is a sensation of heat or burning in the sacrum and rectum and sometimes in the left groin. The sphincters are irritable and spasmodically contracted to such an extent that the introduction of the examining finger or the speculum is very painful. The mucous membrane at the anal outlet is scratched and abraded, but these small wounds heal readily and are not to be mistaken for anal fissures. There is generally an anal pruritis and as the skin of the entire body is dry and harsh from the systemic intoxication, the pruritis is often general. The tongue is coated a dirty yel-

low and the breath is foul. The appetite is poor, the patient loses weight and becomes melancholic. Hemorrhoids are almost always found and may be mistaken for the cause of the whole trouble, only to find if they are removed that the other symptoms continue and the sufferer is not relieved. On examination the rectal mucous membrane is found bright red, rough, dry, shiny and inelastic, not swollen and edematous as is the hypertrophied form. Spots of granulation or ulceration are seen, some with inspissated feces attached. The examining finger as it passes the sphincters enters the ampulla which is balloned out until the finger can hardly reach its walls. Here we find hard, dry masses of impacted feces upon the ulcerated surface. Spastic contractures are frequently observed during examination or treatment of the proctitis and deserve attention. They occur more frequently in nervous patients altho they may be met in any case where the anal canal is inflamed, ulcerated or fissured. Singularly if the ulceration is limited to the ampulla there is no spastic contracture, probably because of the poor sensory nerve supply in this region. Above the ampulla, in the upper rectum and in the sigmoid we encounter spastic contractures sometimes so severe that the sigmoidoscope cannot be passed.

Treatment.—Syphilis must be sought for, including a thoro blood examination, in every case and if found treated by means of inunctions, hypodermic or intravenous medication rather than by giving mercury by mouth as the latter method keeps up a teasing peristalsis and diarrhea.

Medication by mouth for the proctitis is not satisfactory except that by diligence we may prevent irritating and infectious material from passing thru the bowel, and by the judicious use of tonics such as syrup of iodide of iron, hypophosphites, malt and cod-liver oil we will help build up the individual. When tonics are used they must be continued for long periods. Outside exercise and regular habits are of much value in helping any tonic treatment. The diet must be carefully selected to obtain a soft non-irritating stool. Coffee, tea, alcohol and tobacco are all excluded and potatoes, sugars and starches used in moderation because of their tendency to produce intestinal fermentation. Drastic cathartics and water enemas must be discontinued and the lower bowel kept empty with oil lavage. The upper bowel may need occasional stimulation with alkaline salts or cascars.

Local Treatment.—The local treatment must be carried out with close attention to details and as the treatments are to be continued for quite a while the maneuvers are to be delicately performed to prevent possible trauma or abrasion of the anus. Each day the rectum and sigmoid are thoroly inspected thro the sigmoidoscope and any adherent strips of mucus or pieces of inspissated feces removed with a cotton swab. Beneath these debris masses will be found granular or ulcerated spots of membrane which are to be brushed with 2% argyrol, and if erosion has occurred the depression should be filled with calomel powder. If the disease extends up into the sigmoid and small ulcerated areas are found which cannot be properly reached with the brush the patient is placed in the knee chest position, a long (10 inch) sigmoidoscope is introduced and one ounce of 2% argyrol solution is introduced high up in the flexure. The speculum is withdrawn and the patient let down on his side. Peristalsis soon spreads the solution over the whole surface of the sigmoid and rectum. After this cleansing treatment the whole rectal mucosa

is freely sprayed with pure petroleum oil containing ½ of 1% menthol. These treatments are given daily at first and then at longer intervals as improvement occurs. After the patient has passed from my immediate attention I advise him to inject into the bowel each night three ounces of petroleum oil to be retained over night.

This course of treatment soothes the bowel and lubricates the descending fecal bolus so that it is more easily voided. Altho the treatment is tedious, yet it affords him such prompt and positive relief that he readily submits.

30 North Michigan Ave.

SYPHILIS AND CARDIAC DISEASE.

BY

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Syphilis as a cause of cardiac disease has been known since the days of Anstruc and Morgagni, but it was not until 1856 that Ricord definitely described its lesions. It does not seem that much attention was paid to this phase of lues so ably delineated by the great French syphilologist, because ten years later when Lancereaux went over practically the same ground, his work was hailed as an original contribution to our knowledge of the two morbid entities. The observations of Fagge, Mracek and the pathologist, Kundrat summed up all that we knew for the forty years following, until the discovery of the *spirocheta pallida* by Schaudinn and Hoffmann in 1905. Thus it will be seen that altho syphilis has been known for hundreds—I may say—thousands of years, it has only been within a comparatively recent period that the intimate relation frequently existing between the infectious dyscrasia, syphilis, and the pathologic processes grouped under the embracing term of heart disease, has become known.

Until quite recently the only cardiac lesion of syphilitic origin recognized to any extent as such, has been gumma. One reason for the non-discovery of syphilitic cardiac disease was because of the fact that as a rule these lesions do not appear until late in the disease and until the discovery of the Wassermann reaction, it can be readily understood how the relation could be overlooked. Even today, our knowledge of this expression of syphilis is learned chiefly thru autopsies. Indeed, some text-books still assert that cardiac syphilis is rare, but with this statement I take issue.

Syphilis attacks the pericardium, the myocardium and the endocardium. Usually it presents itself, as would be expected, in young and middle aged individuals who give no previous history of rheumatism or of some of the exanthemata. It is often only by indirect evidence that the cardiac disease can be traced to lues. For it must be distinctly remembered that the symptomatology of cardiac syphilis cannot be distinguished from the cardiac dystrophies arising from other causes. The diagnosis therefore depends upon two factors—the recognition of the cardiac lesion and the presence of syphilis. The patient may, and not infrequently does, present himself to the physician quite ignorant of the fact that he has syphilis. Again, the heart may be found to be involved in a patient who is suffering from syphilis in some other part of the body. Satterthwaite found about five per cent. of his cardiacs were syphilitic, and his opinion is that 10 per cent. is nearer to the correct percentage. With his opinion I agree. Yet it is ex-

tremely difficult to state the absolute frequency of cardiac syphilis. But as a rule the skilful clinician can diagnose the condition with reasonable certainty. The general vascular changes which syphilis gives rise to are also accompanied with evidences of functional as well as organic disease of the heart. Cardiac syphilis can therefore be assumed with almost absolute certainty where we find arteriosclerosis, coronary sclerosis, or sclerosis of the ascending aorta. We now know that aortic aneurysm is in nearly every instance of syphilitic origin and where the beginning of the arch is affected, which is almost invariably the case, there are always secondary changes in the coronary arteries which produce the symptom complex of angina pectoris. This involvement of the coronary arteries, however, is a separate entity from the periarteritis and endarteritis of the smaller vessels in the heart muscle. In passing I might say, that this predisposition of syphilitics to coronary disease has been pointed out by Rhomberg and with his dictum I am in accord. It will thus be seen that these collateral evidences are always strongly suggestive of luetic disease.

That there is a close relation between tabes and other forms of spinal and cerebral syphilis is perhaps not sufficiently recognized. The cardiac symptoms, as a rule, come on after the appearance of the nervous symptoms. As a rule the nervous symptoms predominate and the cardiac lesion is often found only by accident or when the chest is examined. The cases of sudden death in tabes are undoubtedly frequently due to dilatation resulting from myocardial degeneration, coronary thrombosis, or rupture of an aneurysm.

It is well to note in cardiac syphilis that subjective symptoms play an important part. These are palpitation, oppression, vague pains in the cardiac region accompanied with anxiety. In other words, all degrees of symptoms up to angina pectoris, which may be the first and for a long time the only symptom. Many cases of cardiac syphilis manifest psychic symptoms, such as depression, bordering sometimes on melancholia, a sense of impending death and a fear of paralysis or dementia.

To Warthin of Ann Arbor we are indebted for much of our present knowledge of cardiac syphilis. He has demonstrated conclusively that the *spirocheta pallida* causes both parenchymatous and interstitial inflammation of the organ. The pericardium and the endocardium may be involved alone, or simultaneously with the myocardium. The parenchymatous inflammation ends in fatty degeneration, simple atrophy, necrosis or pale degeneration. The interstitial inflammatory changes lead to edema, vascular and perivascular infiltration, myocarditis or gummata. As a rule the parenchymatous inflammation is distinct from the interstitial; but where there is much interstitial inflammation the parenchyma is in most instances also involved. Parenchymatous inflammation indicates a virulent type of the disease, whereas the interstitial is indicative of a mild and prolonged process, including vascular and perivascular changes.

Strange as it may seem, the *spirocheta pallida* may be found in abundance in the cardiac tissues and yet be absent in other parts of the body. The organisms exist, as it were, in a latent state and may give rise to no pathologic disturbance, evidenced either by macroscopical or microscopical appearance. Since it is well known that myocardial degeneration occurs not infrequently without any assignable cause, it

would seem plausible from the foregoing facts that syphilis plays a role in causing this condition that is more important than is usually supposed. In autopsies on children dying from congenital syphilis many evidences of cardiac syphilis are frequently found. Yet, strange to say, clinical signs are often wanting during life.

The pathologic types revealed at autopsy are always reflected clinically. A proper understanding of them is therefore of value in diagnosis and prognosis.

Chronic interstitial myocarditis begins with a perivascular infiltration in which small nodes of granulation tissue appear, later undergoing cicatricial changes, which may even go on to caseation or calcification. After a variable length of time the muscle fibres atrophy and are replaced by fibrous tissue, and this neoplastic tissue may become hyaline or myxomatous. This fibrosis, it must be understood, does not necessarily imply a complete involvement—some areas escape, notably the auricles and the papillary muscles, while the left ventricle suffers more than the right.

Another and quite common type is that of an obliterating endarteritis of the coronary arteries. If only a terminal twig is blocked an anemic infarct may result which is followed by local necrosis. But where the obliteration is progressive in a number of vessels simultaneously, degeneration of the cardiac musculature and interstitial inflammation naturally takes place. The cardiac wall may become so weakened thereby that a cardiac aneurysm results with the consequent danger of thrombosis into the left ventricle—which in fact, almost inevitably occurs. Gummatous myocarditis is sometimes met with, but it is quite possible for a gumma of the heart to exist entirely without symptoms. As previously mentioned, in cardiac syphilis the vessels play a prominent part, manifest either as an endarteritis or a periateritis. Of the two, endarteritis is more frequently met with in acquired syphilis and periarteritis in the congenital form of the disease. It must not be overlooked however, that the most severe myocardial disease may show no changes in the arteries whatsoever.

Chronic interstitial myocarditis usually progresses insidiously and is frequently not recognized until the heart is in exceedingly bad shape. When death occurs it is always with startling suddenness. The same is true of cardiac gumma. Osler doubtless had this in mind when he said: "The frequency with which cardiac syphilis terminates the life of the patients by sudden death is remarkable."

The treatment of cardiac syphilis requires more individualizing than the treatment of some of the other manifestations of the disease. Unlike the results of treatment of cardiopathies arising from other causes, such as rheumatism or the exanthemata, the treatment of cardiac syphilis in many instances offers a better chance of cure. But always with this proviso: if the heart is permanently injured beneficial results will not occur beyond the amount of injury. In other words, the scars will always remain—they cannot be obliterated. As in almost all cardiac diseases, rest is absolutely essential, and those cases requiring specific treatment do best who remain in the recumbent position. Should the cardiac involvement be discovered while its luetic cause is active—which unfortunately does not always happen—heart stimulants, such as digitalis, strophanthus, caffein, adonis vernalis, etc., as a rule give only moderate results. In the later stages, after fibrosis has occurred to a marked degree, cure is,

of course, impossible, but digitalis and similar drugs may be given with more advantage, and to a limited extent may prolong life and make the patient more or less comfortable. It has been observed clinically that these drugs often act with more potent effect if combined with potassium iodide. The last named drug is of no value if the fibrosis is extensive. It acts most powerfully where gumma are present and where the deposits or exudates are recent. If given as a matter of routine, it should be after the patient has received the benefit of previous mercurial and salvarsan treatment.

As will be inferred, salvarsan occupies a most important place in the treatment of cardiac syphilis, but it should always be preceded by a course of mercury. Brooks and Carrol have observed in badly damaged hearts "more than seldom" symptoms of circulatory collapse when it was administered. Personally I have not observed this but it is undoubtedly a contingency which must be reckoned with. It is not, in my opinion however, as dangerous as many suppose it to be. Salvarsan should not be given under any circumstances, or at least until a decided improvement had taken place under the influence of mercury, in severe, uncompensated lesions, accompanied with dyspnea and pulse irregularity, emphysema and chronic bronchitis and aortic or cardiac aneurysm. It is also well to remember that in giving salvarsan the first injection is apt to be the most dangerous.

In giving mercury the intravenous route after the manner of Nixon, *i. e.,* a definite amount of some mercurial salt such as the bichloride or the benzoate in watery solution —so that .6 c. c. equals 0.006 gm. of the drug as the initiatory dose—suspended in 10 c. c. of warm normal salt solution, and the blood allowed to flow into the syringe before injecting, is the method I prefer to all others when possible. These injections being given every third day. Next to injections intravenously I prefer inunctions, and then, insoluble solutions, such as the salicylate, grey oil, or Lambkin's cream injected intramuscularly. No dependence can be placed on treatment by mouth, but if for some reason none of these modes of administration can be employed and the drug must perforce be given *per os* I prefer that ancient but still honorable preparation known as Zittmann's decoction.

All cases of cardiac syphilis should receive persistent treatment for at least a year after the symptoms are arrested. It is well to note in this connection that many of these cases while cured from a clinical standpoint still show a positive Wassermann. This may persist indefinitely. For it is well known that in some instances it is practically impossible to change a positive Wassermann to a negative. In such cases the nidus of the *spirocheta* may be persistent in the spleen, or in the liver, or in the cord, or may be in the myocardium itself. A peculiar fact to be noted in a not inconsiderable number of these cardiosyphilitics is that after apparent recovery they may suddenly die. So constant is this occurrence that it must be included in giving a prognosis.

In conclusion it will be seen that syphilis of the heart occurs more frequently than is usually supposed. Also, if taken in time recovery is more frequent than in cardiopathies arising from other causes. For that reason every syphilitic should be carefully examined for heart lesions arising therefrom and the treatment guided accordingly.

1632 Ave. A.

A PLEA FOR PROPHYLAXIS AGAINST THE CHANCRE, IN CASES OF TRAUMA, HERPES PREPUTIALIS, VERRUCA, ETC.[1]

BY

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New York City.

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On going over the histories of syphilitic patients, I have been surprised to find that a great many of them have been subject to periodic attacks of herpes preputialis. This has been so much more common in syphilitics than gonorrheics that it made me wonder if their syphilitic inoculation was not merely an incident but a result, and if these patients were more predisposed to *spirocheta pallida* infection because of their herpetic lesions. In my clinical and dispensary work, I have repeatedly been able to elicit a history of herpetic attacks in syphilitic patients. In fact so often has this occurred that I have made a special point of calling the attention of students to this possible etiologic factor.

The following case well exemplifies the foregoing:

Case I.—Patient Mr. S., age 45 years, has been under treatment for the past two years for syphilis. Remembers distinctly having had an attack of herpes preputialis, and also of having had intercourse before the lesions were healed. Four weeks later he developed a chancre. In the usual time after the appearance of the initial lesion he developed secondary symptoms. During the past two years, while under treatment for syphilis, has had an attack of herpes preputialis every eight or ten weeks.

The next case gives the following history:

Case II.—Mr. P. C., sometime in Nov., 1914, noticed what he called a number of water blisters on his penis. Within 14 days one of them became hard and developed into a typical initial lesion. Admits having had a number of attacks of herpes prior to this one. January, 1915, had a well defined macula syphiloderm. August 16, 1917, had another attack of herpes.

Case III.—Mr. L. P., for the past two and one-half years has had syphilis for which he has received about 120 injections. Says that for the past three years he has been subject to herpes preputialis. Does not remember whether the chancre followed an attack of herpes, but in view of the fact that, in a great number of cases, I have been as certain as one can be that the chancre followed an attack of herpes, it is more than probable that such was the case in this instance. May 24, 1912, while under treatment and observation for syphilis, developed an attack of herpes which lasted six weeks. After a number of days the central herpetic lesion became infected and took on the character of an ulcer, being circular in outline and specific appearance.

Under the heading of abrasions due to trauma, one might group another series of cases which lend themselves readily to syphilitic infection. The following is an example of the above:

Case IV.—Mr. G., an English prize-fighter, lives with an actress. She decided to visit her people in England. After several months' absence abroad, she returned. Mr. G. had a very vigorous intercourse on the night of her arrival, and tore his prepuce. This healed after several days but ten days later he noticed a sore at the site of the tear. Within a week this sore became indurated, and developed into a typical initial lesion. I had a difficult time convincing him that he had more than a tear. He subsequently developed adenopathy and secondary symptoms. With much difficulty his partner was induced to consent to examination. Many confirmatory signs of syphilis were demonstrated on her.

In handling these tears of the prepuce it is important to explain to the patient that a tear by itself means nothing; but that, if

[1] Read at the New York Physicians' Association November, 1917.

the partner has syphilis, the chances of infection are greatly increased. In other words it is inadvisable for the medical attendant to dismiss him with the statement that the tear means nothing. Unless the patient is married, and lives a virtuous life, such an assurance on the part of the physician is to say the least very hazardous.

The following is also a case showing the great danger of infection while the patient has an abrasion or tear of the penis.

Case V.—Mr. S. L., age 30 years, born U. S. A. April 16, 1915, came to my office with the following history. He has always suffered with dandruff of the scalp, but the past four days has in addition noticed crusts and complained of itching of the scalp. Also has a generalized itch over the body; remembers scratching himself on these pruritic spots, and also remembers cutting himself on the penis five weeks ago. Whether his cut on the penis resulted from a hair, or whether from a scratch of the finger nail, he is unable to state. He knows that shortly after this cut appeared on his penis, he had intercourse and that the cut never healed. Examination at the site of the cut, near the frenum, discloses a lesion with a crust on it. On taking off the crust, I found a moderately indurated ulcer, oozing a bloody serous discharge. A general macula syphiloderm, in addition to his eczema was present. The diagnosis was subsequently confirmed by a four plus Wassermann and the development of mucous patches. Having had his eczema for so many years it was quite difficult to convince him that at the site of his cut he had been infected with an initial lesion.

If this patient had been warned that it was not advisable to have intercourse while there was an abrasion on his penis, it is quite probable that he would not have been infected.

I have in mind another case somewhat similar to the above, except that this patient was more predisposed to an infection, since he had a long and tight prepuce, while the previous patient, being a Hebrew had none. Another difference was that this patient, having been previously under observation, had been warned of the possibility of syphilitic infection. Unfortunately he did not avail himself of the prophylactic treatment advocated. In this way he helped to prove my contention that his condition, a long and tight prepuce, is particularly apt to be infected with syphilis, especially if there is a tendency to rip the same during intercourse.

Case VI.—Mr. V. S., 22 years old, single, Italian. Past history. On Oct. 14, 1914, called at my office with acute gonorrhea. After ten weeks' treatment he was discharged cured. As he had a very long and tight prepuce, which was apt to tear the same each time he had intercourse, and as he was much given to promiscuity in his sexual indulgence, I felt that sooner or later he would be apt to develop a chancre at the site of a tear. I therefore advised circumcision. This he consented to have done. All arrangements were made when he changed his mind and decided not to be circumcised, because of religious scruples.

Subsequent history.—July 13, 1915, he called at the office, stating that 54 days ago he had had intercourse, and during the act felt a sharp tearing pain at the frenum. On examination of the penis he saw slight bleeding and a tear at the frenum. In a few days the tear healed. The past three days he had noticed slight pain and an ulcer at the frenum. Examination disclosed a small hard sore at the site of the tear. Both inguinal glands hard and enlarged. A tentative diagnosis of primary syphilis, with satellite inguinal involvement was made. This was subsequently confirmed by the course of the disease. On the date of this visit, July 13, 1915, he was quite anxious to have a circumcision performed. I told him that, so far as getting syphilis was concerned, he had made his decision too late, for he already had it.

In the etiology of the chancre, warts of the penis are a very important factor, as the following case will show:

Case VII.—Mr. H. H., age 28, called at the office Dec. 24, 1912, with the following

history:—For many years he had had warts on his penis which would come and go. At the site of one of these warts he had noticed a sore for the past two weeks. This he said was located on the head of his penis, and was slightly painful. Examination showed a hard sore in one angle of the meatus with considerable infiltration. It appears as tho it were a verruca, with an ulcerative lesion at its apex. In addition he had very large and hard inguinal glands. From the appearance, induration and hard satellite involvement, a tenative diagnosis was made of a chancre of the meatus at the junction of the mucous membrane of the meatus and the skin of the penis, on the base of an old verruca. This diagnosis was subsequently verified by *spirocheta pallida* findings and by the early appearance of secondaries. There is absolutely no doubt in my mind that this innocent wart was the contributing factor in his inoculation with syphilis. In fact during the early period of observation it was most difficult to convince this patient that he was suffering from anything more serious than an infected wart.

The following case is also of interest, only it is not so easy to place the direct relationship between the warts and his syphilis as in the above case.

Case VIII.—Mr. C. R., sometime during May, 1913, noticed warts on his penis. September 28, 1913, he came to the office with a small initial lesion, the size of a pea, in the region of the frenum, the same being surrounded by a group of warts, also condyloma of the penis, scrotum and between the toes.

In all probability this patient was also infected at the site of a wart, because his crop of warts antedated his initial lesion by four months, and also because the lesion was surrounded by a group of warts. This surmise, however, is only plausible, and not absolute. The relationship between the warts and the chancre is uncertain, but in view of the fact that he had had warts for some time, it is quite plausible to suppose that he was inoculated at the site of the verruca.

Sufferers from balanitis form another type of patients predisposed to syphilitic infection. The balanitis may be primary, due to a tendency of the preputial fold to become readily inflamed or infected because of local lowered resistance; or secondary, because of discharge from the urethra draining into the preputial fold. The following is a good example of the latter type:

Case IX.—Mr. J. G. M., age 22, past history. One year ago gonorrhea and balanitis, for which he received but six weeks' treatment. September 29, 1914, still suffering from what he calls "gleet," and a discharge under the foreskin. This has been present ever since the original infection. On that date he called at the office complaining of a sore on the upper fold of the prepuce at the site of the previously mentioned balanitis. Examination shows a typical initial lesion, inguinal adenopathy, and a macula eruption.

In the above, and also in the succeeding case, I am obliged to rely on the statements of the patients. One must, therefore, take these statements for what they may be worth. One must, nevertheless, give these statements serious thought; because, by doing so, we may possibly greatly diminish the prevalence of syphilis. The possibility of a subsequent syphilitic infection renders it imperative that we clear up these cases of urethritis with balanitis. We also must explain to the patients the possibility of future syphilitic infection at these seats of lowered resistance. We know by analogy from other diseases that not infrequently one infection predisposes to another, both by causing general and local devitalization. Especially would this be the case, if a slumbering infection were left behind to cause further damage at the point already injured. So I take the liberty of repeating that the latent balanitis in the case above reported was the seat of lowered resistance, and the *spirocheta pallida* attacked the same.

The following is also a case of gonorrhea plus balanitis, ending in a chancre. Before reporting this case in the present series, I hesitated for a considerable time; and at the last, was about to withdraw it from this paper because I knew that the likelihood of an infection again occurring in a similar manner was not remote. I have finally decided to report the case, because it helps, to a certain extent, to prove my contention that patients with balanitis are apt to become infected with syphilis if they are exposed.

Case X.—Mr. R. C., 22 years old, had gonorrhea and balanitis 7 years ago. He was treated at that time by a very busy quack who, the patient says, used a dirty and bloody dressing, which the doctor had taken from a woman who had just left the office. The doctor foolishly told the patient that the woman who had just left the office was syphilitic. He says that the doctor applied this same dressing to his penis, while he was suffering from gonorrhea and balanitis. He also says that the doctor told him that he was suffering from nothing more then gonorrhea and balanitis, and did not have syphilis. The patient also says that four weeks later he developed a chancre which he has always ascribed to this dressing.

In the case above reported, I unfortunately have no absolute proof. I must rely upon the statement of the patient. I place this case on record for what it is worth, and consider such mode of infection a possibility. On the other hand one must also consider the possibility that the patient may have been infected with gonorrhea, balanitis and syphilis at one and the same time; and that the chancre, having a longer incubation period, appeared four weeks later. This case is being treated at present for gumma of the spine.

The next case to be reported is probably the most interesting of all, in that it brings out the point that doctors are not careful enough in regard to interdicting intercourse for a sufficient post-operative period following surgical intervention on the penis. The following is a good example:

Case XI.—K. G., Armenian, came to the Post Graduate Hospital, June 28, 1915, with the following history:—Six weeks ago had a meatotomy performed at some other clinic because of chronic gonorrhea. One week after the operation had intercourse. Between two and three weeks later developed a sore in the meatus at the site of the meatotomy incision. Examination on this date (June 28, 1915) shows a typical hard lesion in the meatus, with accompanying hard inguinal glands. Lesion also shows distinct ulceration in its center. Diagnosis of initial lesion at the site of the meatotomy wound was made. The next day the laboratory reported typical *spirocheta pallida* found in the scrapings of the lesion. July 2nd, well developed macula present.

This case shows how important it is to tell patients not to have intercourse for some time after an operation. Some may advance the argument that all patients are told not to have intercourse while they are suffering from and undergoing treatment for gonorrhea. That may be so, but they are usually told not to have intercourse, because they will infect their mate. If, however, you impress upon them that they may infect themselves with syphilis, especially when an open wound is present, this will be more apt to deter the patient from having intercourse than the telling him what will happen to his mate.

Another case, showing that the area of trauma on the penis is the favorite point of entrance of the *spirocheta pallida,* is the following:

Case XII.—G. G., colored, age 20 years, came to the P. G. clinic during 1914, with a history as follows:—From the age of ten years was addicted to masturbation. Practised the act every day and not infrequently more often. About four weeks before his

visit to the clinic, he abused himself three times in one day, using considerable manual force each time, so much so that his penis became abraded and irritated. Had never had sexual intercourse up to this time. After this abrasion had been present about one week he had sexual intercourse and within 14 days developed a lesion at the site of the abrasion. Examination showed a hard chancre, with its accompanying glandular involvement. The patient has been under treatment for syphilis for the past three years. The patient feels sure that he had not masturbated and caused irritation of his penis, and if he had not had subsequent intercourse "with that dirty black woman," he would never have been infected. In all probability both these points are correct etiologic factors, even tho these statements were made by an ignorant colored boy.

Conclusion.—1. The tendency of the times is preventive medicine; and accordingly I desire to make a plea for the diminution of the frequency of chancre of the penis.

2. I feel that this can be accomplished by starting a propaganda among physicians to remove any or all conditions about or on the penis which are likely to prove points of entry for specific infection. Be these abnormalities warts, inflammations, herpes, cuts, abrasions, or operative incisions, all should be cleared up before the patient is allowed to have intercourse. In this way the likelihood of *spirocheta pallida* infection is greatly diminished by getting rid of the seat of lowered resistance.

3. Wherever there is frequent tearing of the prepuce or frenum during intercourse, advise the application of 30 per cent. calomel ointment, the same to be thoroly rubbed in for twenty minutes. Insist upon sexual abstinence until the tear is thoroly healed. If possible a subsequent circumcision to be performed.

4. Warts and herpes are not only apt to cause abrasions, tears, etc., during the act of intercourse, because of their mechanical presence, but they also predispose to the collection of smegma and secondary infection. They thus denude the skin and mucous membrane of the penis and prepuce, and thereby cause small ulcers, which open the field for *spirocheta pallida* invasion.

5. It may seem to be a very minor point to us medical men, and it certainly is not a new one, that abrasions, warts, balanitis, herpes, etc. are very apt to be the sites of infection of *spirocheta pallida*. But, from a prophylactic standpoint, have we done anything to educate the layman and impress him with its importance. The modern idea of medicine is prophylactic whenever it is possible. Then why not here, where possibly we can reduce the incidence of one of the worst scourges that has ever afflicted the human race. I am sure that the number of cases of syphilis could be appreciably diminished were the above advocated measures generally practised.

6. For many years I have been absolutely convinced that a very large percentage of males who are syphilitic have been subject to herpes preputialis prior to their syphilis. In case I there is an absolute history of an attack of herpes prior to syphilitic inoculation. Case II gives a similar history. Case III gives a history of being subject to herpes for three years. Evidence in this case is not absolute, but suspicious. I take the liberty of calling the attention of the profession to my observation that a large number of syphilitics have been subject to herpes preputialis prior to their infection with syphilis. Therefore, I make a plea that the doctor who comes across a case of herpes progenitalis, either in a routine examination or where the patient consults for that particular condition, advise abstinence from sexual intercourse for at least 14 days after the lesion has healed. Of course this applies only to individuals who have promiscuous intercourse.

7. Warts and also balanitis are to be treated medically or surgically—depending on what conditions are present.

8. A prepuce which tears readily during intercourse should be circumcised.

Final Summary.—After any local operation, and during the presence of any irritation, tear, new growth, herpes, etc. intercourse should be interdicted until 14 days have elapsed, thus making sure that there is no abrasion, however minute or microscopic.

40 E. 41st St.

Furunculosis.—Sodium salicylate in 5-grain doses every two hours has been successfully employed in the treatment of furunculosis.—*Amer. Jour. Clinical Medicine.*

SPECIAL ARTICLE

A DOCTOR ADVERTISES.

Unusual campaign of publicity inaugurated by a Brooklyn Physician, with satisfactory results.

It is quite unusual for a legitimate doctor to advertise. The fakes and the quacks may resort to various forms of publicity, but the honest-to-goodness dyed-in-the-wool doctor—the doctor who values his reputation—is restrained by the ethics of the profession from using printer's ink.

The merchant anxious to develop his business takes counsel with the printer and presently appears an announcement that draws the crowds.

But the doctorman in need of clients, what can he do? Or if the neighborhood expands and with the increased population comes competition, what resort has the old timer? In short what can a doctor do to promote himself and protect his interests?

A well-known physician holding the degrees M. D., F. A. C. S., residing at Brooklyn, N. Y., has found that advertising of the right sort is entirely proper and quite necessary at certain times.

In this special and interesting occasion he is willing to testify that "it pays to advertise."

For 20 years, this physician in the zeal of professional services kept up his good work without a vacation. Called upon constantly by a rapidly growing clientele he forgot self, like all doctors who lead active professional lives. Overwork and strain, however, exact a heavy penalty, some men being carried off in the very prime of life. Dr. E——, however, finally broke down under the pressure, unable even by force of his tremendous will power to continue further. He was sick a year. When he came back restored in health, he found himself like Rip Van Winkle, facing changed conditions. Some competing physicians seeing an opportunity for revenge or impelled by motives of gain spread the rumor that the doctor was suffering from a serious malady and would never return. Later the report was circulated that he was dead.

A year is a long time and when Dr. E—— returned he found himself without patients. It took him some years to restore his practice and live down the unwarranted rumors regarding himself. And only a small per cent. of the money due for services was ever collected.

A Pleasure Trip

Anxious to conserve his health, Dr. E—— about a year ago decided to apply the ounce of prevention and make a trip with his wife and family. He chose his 50th birthday as the occasion and arranged for a nine months' journey.

Warned by previous experience, he adapted a dignified form of publicity, fully in keeping with the ethical procedure, yet consistent with the rules of good advertising.

The first announcement, on a high grade card, told the story direct to the point.

Doctor E—— begs to announce that he will be absent from the city from January 26, 1917 to October 1, 1917, for the purpose of recreation, travel and study.

His office will be kept open during his entire absence and it will be in charge of Doctor W—— who has been associated with Doctor E—— during the past three and a half years. Bills Due Dr. E—— may be paid to Dr. W——.

Doctor W—— will be in the office from 9 to 10 A. M., 1 to 3 P. M. and 7 to 8 P. M.

The second announcement outlined the trip and spoke confidentially and intimately of the proposed vacation. The personal tone and the marked enthusiasm served to impress the recipients all, of course, who were more or less well acquainted with the doctor, and in some cases with the doctor's wife, who is more than a local celebrity.

To My Patients and Friends:

I am going to take you into my confidence and tell you about a plan which I have hoped for many years to carry out. I promised myself many years ago that when I reached my fiftieth birthday I would take a real vacation with my wife and daughters. That time has come, and with your cooperation I will begin this long planned vacation during the latter part of January, 1917.

We plan to go first to southern California, where we shall remain until May. During this visit in California we are to motor thru all of the delightful places in that wonderful country from Santa Barbara to San Diego. We shall

then visit the national parks and other points of interest as we journey up the coast to Seattle, Washington. From there we will take that world-renowned "inside trip" by steamer to Alaska. On the return trip we expect to explore the Canadian Rockies, the National Glacier Park, and the Yellowstone National Park. In some one of these wonderful national reservations it is our intention to camp for a month, and so get as close to Nature as possible.

After all this unusual sight seeing, while my wife and daughters are visiting friends and relatives in Chicago, I shall spend one month at the Mayo Surgical Clinic at Rochester, Minn.

The trip home will be by the Great Lakes, the St. Lawrence River, with its Thousand Islands, Lake Champlain, Lake George, and our own beautiful Hudson River. We expect to get back to New York by September 15, 1917.

This trip, as you will realize, is one of recreation, travel and study; and I feel that after twenty-five very trying years in the practice of medicine and surgery, during which, owing to the nature of my profession, I have been called upon to work day and night, holidays and Sundays, I am entitled to all that such a trip with my family will bring to me.

Statistics show that physicians' lives are shorter by far that those of men in other professions, and that the busiest physicians rarely live to be over fifty. This may be considered the carrying out of a doctrine I have long preached, that prevention is better than cure, and that to ward off a breakdown is wiser and cheaper than to repair damages after the breakdown has occurred.

Yours sincerely,
M. H. E——, M. D., F. A. C. S.

A DELICATE TOUCH.

The following dunning letter sent out to all of Dr. E——'s delinquent patients showed a delicate but persuasive touch.

Dear Madam:

I am enclosing a letter which will give you an outline of a vacation I have planned. During this vacation I want to be as free as possible from business and professional cares. I do not want to worry over bill collecting or other financial troubles.

You can, by paying your bill promptly, greatly assist me, and I feel sure that after knowing my reasons for asking your help you will meet my request.

The amount of your bill on November 1, 1916, was $10. I would like to have it paid by December 10, sooner, if possible.

With all good wishes, I am,
Yours very truly,
M. H. E——.

With this letter was enclosed an announcement of the trip.

The doctor on his journeys found time to drop a line at frequent intervals and a number of his patients received souvenir post cards from various points. These too were friendly in tone and served nicely as "reminders."

A RESUME OF THE TRIP.

After his return, Dr. E——, with the true instinct of a professional advertising man "followed up" his previous correspondence with a most interesting resumé of the trip.

The announcement told in detail of the various places visited and the many experiences encountered. The cliff and cave dwellings of prehistoric people were explored, Indian villages investigated, and the tourists made wonderful excursions to the Grand Canyon, to Sunny California, etc. The Doctor took the opportunity on this trip to visit the famous Mayo Surgical Clinic at Rochester, Minn.

BROOKLYN, N. Y., October 1st, 1917.

To My Patients and Friends:

Last November I wrote to tell you of a wonderful trip I contemplated taking with my family, a trip that I had planned and worked for during the previous fifteen years.

In January, accompanied by my wife and three daughters, I left Brooklyn on this never-to-be-forgotten journey, and I am happy to say that we carried out all of our plans for the trip and that our experiences exceeded our expectations.

With absolutely no mishap we traveled approximately eighteen thousand miles—ten thousand by train, fifty-five hundred by automobile, and twenty-five hundred by steamer.

Since our return to Brooklyn, in September, many of my patients have urged me to give them a synopsis of our travels, and this I shall try to do briefly here.

Our first stop was a short one in Chicago, where we had a most delightful visit with relatives. From there we went to Santa Fe, New Mexico, that old Spanish-Mexican city which we found full of interest for us. We drove to the cliff and cave dwellings of prehistoric peoples, and wandered about the strange little rooms of the thousand-room communal house now being excavated by the American Archæological Society. We saw the crude weapons, tools and kitchen utensils, and climbed the cliff-walls by the "hand-holds" and "foot-holds" of these people who walked the earth in the the time of the Caesars.

From Santa Fe, also, we made trips to Tesuque and San Ildefonso, Indian villages, where dwell the dusky descendants it may be, of the cliff and cave people, and where even the little bowls of holy meal beside the adobe fireplaces were like those we had seen among the excavations.

We spent one day in the Palace of the Governors where three different nations have held sway in this country. It is now the home of

the Historical and Archæological Societies of New Mexico, a wonderful museum, and the headquarters of the Santa Fe-Taos Art Colony, and contains a rare collection of antiques, historical relics, art and handicraft.

We left Santa Fe with regret, but found new interest in the Arizona Desert and "Navajo Land," making our next stop at Albuquerque and Adamana.

Adamana is a cowboy village, verily "in the middle of nowhere"; but it contains a cosy hotel where service and cooking are beyond criticism, and from which we were able to drive to the Petrified Forests and Painted Desert. The forests are one of those puzzles of nature about which scientists marvel and disagree, but for the "simple tourist" it is enough just to gaze at these forest-monsters lying, root, trunk and branch upon the ground, and to know that somehow or other the centuries have turned their sap and pulp and fibre to stone as many-hued as the rainbow. We found well defined tree-characteristics—bark, scars and knot-holes, and we gladly bore away small bits of the beautiful tree-agate permitted by our government.

We had only a glimpse of the Painted Desert, but it was a glimpse that revolutionized our previous ideas of it, for it was not a dull flat plain, but a country of gently rolling hills shimmering in a glory of rose and lilac and green.

Some day we hope to travel thru it by pack-train, for it is a world in itself, and is said to contain antiquities antedating those of Egypt by 8,000 years.

From Adamana and the limitless desert the California Limited bore us to the Grand Canyon of Arizona, where we spent three days packed full of adventure. You have read and heard so much about the Grand Canyon that I will not take your time with description. Suffice it to say that we "made" the most difficult trail of the three trails at the Grand Canyon, the trail which Irving Cobb refers to as "a marvel of corkscrew convolutions, gimleting its way down this red abdominal wound of a canyon to the very gizzard of the world"; and that we descended these convolutions on mule back over an alternately frozen and thawing trail, giving a day to the descent, and, after a night's rest at Hermit Camp at the foot of the trail, another day to climb back again to the surface of the world.

From this place of awful grandeur, and of ice and snow, we sped on to the Land of Flowers—sunny California. There we made Long Beach our headquarters, keeping house for three months in a rose-covered bungalow, with luscious ripe oranges to be had for the picking, and lilies, geraniums, Shasta daisies and other blossoming beauties in our garden beds. Do you wonder that the scent of flowers and fruit-blossoms and the songs of meadow-larks and mocking birds were doubly precious after we had read the home letters telling of the snow and bitter cold winds in Brooklyn?

From Long Beach we made trips all thru Southern California, over its hundreds of miles of dustless roads, to the picturesque beach towns, the romantic and crumbling old Spanish Missions, and thru the orange, olive and walnut groves. We drove also to many cities, spending from one to three days—to Tia Juana, Mexico, to San Diego, Coronado, Ocean Side, Riverside, Redlands, San Bernadino, Los Angeles, Pasadena, Hollywood, etc., and we spent two delightful weeks in beautiful Santa Barbara, "where the mountains meet the sea," and where my daughters and I climbed La Cumbre, the highest peak in the Santa Ynez Mountains.

Another period of three weeks was spent most happily in a picturesque spot at the foot of Mt. Wilson, in the Sierra Madre Mountains, the summer home of my good brother-in-law, F. D. Wetherell. While here my daughters and I made the ascent of Mt. Wilson (6,000 feet above sea level), by moonlight, an experience long to be remembered.

The month of June we spent camping in the Yosemite, and we found that "earthly paradise" more heavenly than usual because of the heavy snows of the winter which had so increased the rush of water in the rivers and falls. Here, too, we did much mountain climbing, and were invigorated by our close contact with Mother Nature at her loveliest.

The end of June found us traveling toward San Francisco, where, after three days of sight-seeing, we journeyed up the Sacramento Valley to Portland, Oregon. Here roses bloomed against a background of snow-covered mountains, for Portland's horizon line is crowned by these eternally white beauties—Mt. Hood, Mt. Adams and Mt. St. Helens—and here we took the world-famous Columbia Highway Drive. A few days in Portland and in Tacoma (with a climb up Mt. Rainier), and in Seattle, and then we sailed from the latter port to Victoria, B. C., the quaintest, most charming of old English towns where we spent days of delight at the sumptuous Empress Hotel, near the Parliament Buildings, drove thru charming suburbs, and picnicked on the shores of Oak Bay and Puget Sound, among fields of yellow broom head high.

From Victoria we crossed Puget Sound to Vancouver, and from there the next day sailed for Alaska on one of the splendid Princess Steamers of the Canadian-Pacific Railway. Here, as elsewhere, we were blessed with exceptionally fine weather, delightful traveling companions, and a trip free from accident or trouble of any sort. Days and nights (for day lasts practically all night in Alaskan waters), we were out on deck drinking in the beauty of those wonderful fiords with their precipitous banks, their snowy crowns, their icy cascades, their age-old glaciers, their countless wooded islands. We came into intimate contact with icebergs, those blue jewels of the northern seas, and with glaciers; we visited Indian villages, grave totems, canneries, gold mines and fox farms, and rejoiced at the length of every landing our good ship made.

We reached Skagway at 11 P. M. on July 19th, and Mrs. E—— did a bit of needlework on deck at that hour and read the Alaskan newspapers. From Skagway next morning we took the White Pass and Yukon route over the old trail

tramped over in '98 by 76,000 gold-seekers; and saw the bleaching bones, the rotten bridges, the deserted, desolate towns that now mark the way. At high noon we reached Lake Bennett, and from that time on the big windows of our observation car framed glorious pictures of jade-green water and vari-colored mountains.

At Caribou that night we took a steamer for Taku Landing, from which place we next day journeyed by rail to glorious Lake Atlin up in the Yukon Territory, one of the most magnificent beauty-spots on this hemisphere. In this, as in many other wild, far-away places, it seemed wonderful to find one of the handsome hotels of the railway companies, where every possible comfort and luxury was afforded us. Several days were spent in seeing Lake Atlin and motoring about the surrounding country, where motors are a novelty, and Alaskan dogs, the "huskies," are the customary motor-power. Then we were off again down the Inside Passage from Skagway on the steamship "Princess Alice." Our stops at Juneau, Ketchikan, Wrangell, Port Arthur, Alert Bay, etc., were as full of new interest as if we had not spent hours exploring them on the up-trip, and we were genuinely sorry when our Alaskan trip the most restful and delightful portion of our entire journey was at an end.

We had two days in Vancouver, and from there toured the Canadian Rockies, visiting Glacier, Field, Lake Louise and Banff, and finding much joy in all of these inspiring spots. Lake Louise is an imcomparable little gem, and Banff, with its cascading Bow River, its surrounding mountains and glaciers, and its fine hotel, was a delight in every way. From Banff we went to Revelstoke, from which little city we made the trip to Arrow and Kootenay Lakes, a chain of lakes whose cool breezes and glorious scenery reminded us not a little of our Alaskan landscape. Reaching Kootenay Landing, two days later, we went back to Spokane, Washington. Here we drove all about the thriving city, its parks and boulevards, and thru a part of "The Inland Empire," of which Spokane is the proud center. From Spokane across Washington, a corner of Idaho, and a part of Montana (thru "Bad Lands," now rechristened "Pyramid Park," because of the peculiar formation of the barren hills), and we reached Yellowstone Park, where we made the ordinary five-day automobile tour of this marvelous, frightful, beautiful place, with its boiling cauldrons and fountains, its sculptured "terraces," its irised pools, and colored canyons and its magnificent waterfalls.

When we left the Yellowstone it was to turn our faces eastward toward St. Paul and Minneapolis. In Minneapolis I left my family and went to Rochester to the Mayo Clinic. Mrs. E—— and our daughters, after their visit in Minneapolis, spent between two and three weeks at Diamond Lake, Michigan, where they were joined by the Chicago relatives in a complete family reunion of Mrs. E——'s kinspeople, the Rittenhouse family. Here I joined them later, and from there we returned to New York and home.

Now after all these months given over to recreation and study, and the renewal of health and strength, I have come back rested, mentally and physically, and ready to take up my professional work with new inspiration and vigor. I am sure that I will be able to serve my patients better, because I have had this genuine respite from the arduous duties of the past twenty-five years.

Yours sincerely,

M. H. E.

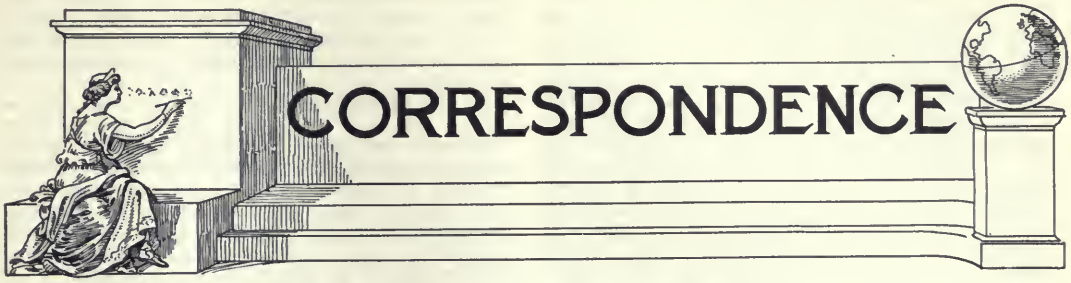
THE RESULTS.

The trip proved wonderfully invigorating to the Doctor and he returned refreshed in mind and body. The "advertising campaign" served its purpose. The direct appeal in the letters touched the spot. A large per cent. of some 600 various and diversified patients owing about $7,500.00 responded readily and *much of this money was collected before the doctor started* on his journey.

The associate doctor in the office helped retain most of the practice, and when Dr. E—— returned he took up the work practically where he had left off—thanks to a well directed and intelligent advertising campaign.

Traumatic Periosteoma.—Rocher (*Bull. et Mém. Soc. de Chirurgie*) reports nine cases of this lesion, which is sometimes seen in a small way after a contusion of the shin bone. These are due to the congenital impact of bullets on the bones and are not to be confounded with exuberant callus after fracture or bony formations in the muscles and tendons. They do not undergo involution and persist as osteomas, which may require excision.

The Alkaloid of the Peony.—Holste (*El Siglo Médico*) examined the seeds of the peony for the presence of an alleged alkaloidal base. This occurs as an amorphous, yellowish powder, very hygroscopic, and soluble in water. In laboratory animals tested it increased intestinal peristalsis, produced uterine contractions and constriction of the renal arteries, increased the coagulability of the blood, etc. The alkaloid would appear to be indicated in hemorrhages, especially of the uterus, lungs and kidneys.



"TUBERCULOSIS vs. PHTHISIS."

To the Editor,

AMERICAN MEDICINE, New York City.

If you will grant the space, I will attempt to answer some of the leading questions contained in 104 inquiries concerning my article in AMERICAN MEDICINE entitled "Tuberculosis vs. Phthisis." These letters came from all parts of the United States and two from Mexico.

I will also take this opportunity to express my sincere appreciation of the many kind words of encouragement expressed in the great majority of the letters. To some few, who missed the point, I would suggest that they again peruse the article and try to tread between the lines and to base their findings more upon the laws of physiology and less upon those of pathology.

What is Phthisis? Phthisis is a picture portraying a certain disease. The signs and symptoms making up this picture are the results of two principal factors vs. soil and seed.

An acre of wheat, during its various stages, presents a certain picture and will differ from the picture of an acre of potatoes, because in one instance wheat was the seed while in the other potatoes was the seed, the soil being approximatly the same. These pictures will vary according to the suitability of the soil (anemia) and the germinating power of the seed (virulence).

The bacillus of Koch in the human body compares to the seed in the earth. It has been abundantly proven that this bacillus cannot thrive in a blood culture, nor anywhere where normal blood is in abundance (congested areas). Congestion must not be mistaken for stasis. As the wheat or the potato requires for its sustenance certain elements in the soil, so does the Koch bacillus require an anemic area, hence we find the picture of phthisis in the skin, bones, glands and lungs.

Why is pulmonary phthisis so much more fatal than skin, bone or gland phthisis? This question is a composite one, made up of a great number of questions, all having a similar tendency. The lung structure as an organ is much more vital than any one of the others. Skin, bones and glands can be removed (destroyed) with impunity, but not so with lung tissue. It is of course not the mere loss of the lung tissue, but the effect of this loss of lung function on the general system. The toxic material elaborated by the bacilli enters the circulation much more rapidly thru the lung tissue than any one of the others.

What is the cause of anemia in a vascular structure such as the lungs? Anemia of the lungs is usually found in the upper or the apex of the lung. Nature abhores anything that is useless (functionless). When the upper part of the lung is not used, circulation becomes limited, in fact a form of semi-atrophy occurs, hence the anemia. In autopsies, the lower portion of the lungs is frequently found filled with black areas (dust and dirt) but no bacilli are found in these regions, because these regions were active and the blood circulated freely, but at the margin of the upper third with the lower two-thirds the bacilli and tubercles were plentiful. The apex is the clean white portion, the anemic part which is a suitable soil for the bacilli.

At what age is phthisis most easily contracted? Without fear of successful contradiction I am willing to say that ninety per cent. is contracted during the intra-uterine period. For years we have been taught that phthisis is not transmitted as such, but merely a suitable condition of the body (susceptibility). No one will dispute the fact that spirocheta of syphilis pass thru the placenta. The bacillus of phthisis is more than ten times as small, why should it not pass thru the placenta? If the parents were suffering either from active or latent phthisis the offspring may be the recipient of the germs, yet may inherit with them a greater or lessor degree of immunity. If after birth the environment is suitable to reduce the resistance of the body (bad hygiene, bottle feeding) then a suitable soil will be produced and the germs will multiply and promptly produce the picture of phthisis.

Of what value are the various skin tests (tuberculine reactions)? Practically none. All of these tests simply show that toxines exist in the body which have been formulated by the tubercle bacilli. When the germs are completely walled off in tubercles there is no reaction. When the germs are free and the disease at its height the reaction ceases entirely. There is only one way of making a diagnosis and that is by physical signs and clinical evidence. Every human body harbors the bacilli, the great majority overcome the toxines by furnishing the necessary antitoxines and by the formation of tubercles. Therefore everybody is tuberculized.

What is the best way of preventing phthisis? There is no way of preventing the germs from entering the body either pre- or post- natal. The seed is always with us but we can control the soil the same as the farmer controls the soil for certain crops (the fallacy of the present system of anti-tuberculosis crusades). When a field has produced wheat for a number of years, the wheat will gradually become puny and die off (tuberculization). The farmer then plows under some oats, plants potatoes for one season, thereby producing virgin soil. Tubercle bacilli thrive best in virgin soil, hence those people or nations which have never been tuberculized fall easy victims to phthisis (lack of created immunity).

How does the high frequency current heat the lung tissue when the lungs are not in contact with the chest walls or when they are filled with air? The high frequency current which is used for therapeutic purposes differs but little from the one used for wireless telegraphy. Such currents do not require the usual conductors, they travel thru the air for thousands of miles. When, however, a tissue is placed between two electrodes (resistance) of a high frequency current, such tissue becomes heated thru the ionic vibrations taking place in cellular elements. No matter how small, one million or more vibrations per second will cause heat in almost anything. The Wappler Electric Co. of New York are making an instrument, the Telatherm, which possesses the three essential requisites for therapeutic work, low voltage, high amperage and great frequency of alternation.

What is the best diet for a consumptive? There is no special diet indicated; that which previous experience has shown to agree best with the patient should be continued. I would add to this the drinking of three glasses of fresh milk daily directly after the milking if that is possible; in such a fresh state it contains more vitamines than any other diet. Sterilizing and pasteurizing is a make shift, it does forty per cent. of good and sixty per cent. of harm.

Nearly all phthisical patients are of the hyper-acid variety; they require that the blood retains its proper amount of alkalinity. This is best accomplished by the administration of natrum bicarb. and natrum citric. As one of the results of hyperacidity, these patients lack lime salts, so absolutely necessary to wall in the bacilli. There is nothing that the pharmacists have been able to produce that will equal the results obtained by the daily administration of raw clam or oyster juice. These substances contain all the elements necessary for the proper deposit of lime in the affected tissue.

What is the usual length of time required to produce a cure? If by the word "cure" is meant the return to that state of health in which the patient was prior to his clinical symptoms, it depends upon the headway made by the disease and the recuperative power of the individual. Under ordinary circumstances I would say from six months to two years.

Is the cure permanent? After the patient has lost all of his clinical symptoms he may be regarded as a "closed" case. Anything which tends to the production of an anemia may again change the latency into activity (worry, poor or insufficient food, bad hygiene, especially poor ventilation, certain trades and occupations, etc., etc.).

Is the consumptive (open case) a menace or danger to the rest of the family or the community? Ordinarily speaking, no, he is no menace or danger with two possible exceptions. It may be conceived that the newly born or very young child might inhale or swallow germs which have been carelessly expectorated by an open case. Yet, when we remember that every person in civilized communities is already tuberculized, it is difficult to see how an infection now can take place. The other exception is of course "virgin soil." A native from a race or country where consumption has not yet taken hold (Indians and Eskimos) an infection would result very promptly whether such a person was placed in close contact with a consumptive or not. The mere fact of such an individual taking up his habitat among the "civilized" would make of him an easy victim. The cow bacillus infection is a myth.

In the preceding questions and answers I have included nearly all of the questions asked of me. All of these questions were asked by different writers in different ways. The answers are in conformity with my conception of this disease. The results from my therapeutic procedures have convinced me of the correctness of the same. There is no doubt that many of my answers sound revolutionary, be that as it may, right or wrong, I am confirmed in the belief that consumption, viewed and treated on the above lines is an easily curable disease. A willing patient, time and common sense are the only requisites.

I wish to thank several of the writers for various positions offered me in their sanatoriums and especially do I wish to thank AMERICAN MEDICINE for printing the original article.

ALBERT C. GEYSER, M. D.

OBJECTION TO RECENT LEGISLATION IN REGARD TO VENEREAL DISEASES.

To the Editor,
AMERICAN MEDICINE, New York City.

The result of the amendment to the Public Health Law to which the State Commissioner of Health calls the attention of druggists thru the medical journals is to hamper if not to penalize both doctor and druggist in their professional dealings with patients using medicinal agents which may be construed as remedies for venereal disease.

Already the New York State Department of Health has made itself under the law the sole depository of the right to advertise either remedies or forms of treatment for this disease even to the exclusion of reputable medical journals. It has gone so far even in this respect as to take over the privileges formerly

the exclusive medium in public laboratories of the lowest types of medical quacks. If this be a form of "public service" to be carried on at the expense of the tax-payers the sooner it is proclaimed from more reputable places, such as are more generally impounded now for purposes of this kind, the better.

As a friend and well wisher no less than a co-worker with the members of the pharmaceutical profession, I would advise them to disregard the provisions of this law even at the risk of the fine and imprisonment pointed out to them by the State Commissioner of Health for a failure to comply with its requirements.

To refer either a copy of a prescription or to renew a prescription containing a remedy for venereal disease is to put a stigma upon persons using medicinal agents for other than this purpose for which the druggist can be held liable under the common law. The druggist by the ethics of his profession is not to take cognizance either of the character of the remedies he dispenses or to use this knowledge for any purpose except to serve the purposes of justice or to prevent or punish the commission of a crime.

If the law demands this service it should be exacted of the physician not the druggist. He alone can decide whether his prescription is intended for a case of venereal disease. Before a druggist thus discriminates he should demand this protection from the doctor. His refusal to do so otherwise would be upheld in any court or before any jury despite the threat held over his head by the amendment to the Public Health Laws at the instance of the State Department of Health.

JOHN P. DAVIN, M. D.

LONDON LETTER

(From our Regular Correspondent.)

THE GENERAL MEDICAL COUNCIL AND THE TEACHING OF PREVENTIVE MEDICINE.

The summer meeting of the General Council of Medical Education and Registration of the United Kingdom took place in the last week in May, according to precedent, and the work before the Parliament of the medical profession was of an interesting character and illustrative of the reasons for which the Council exists. What those reasons are do not always make themselves sufficiently clear even to medical men, who are apt to forget that the Council was erected, not for the maintenance of professional rights but, to ensure that the public obtains a medical profession to minister to its needs which is educated up to a proper standard and inspired with the right civic behavior. As the full title of the Council shows, its duty is to sustain medical education at a proper standard and to keep a register of those men who, having complied with the standard, have become statutory medical practitioners. As a rider to these duties, the Council has the responsibility of removing from the Register, and so depriving of his legal professional status, any medical man whose professional conduct is unworthy, as well as all those who have been convicted at a criminal court of any offense. At this last session of the Council, its penal powers were exercised in respect of certain medical practitioners who had been successfully proceeded against at criminal courts for infringement of the Defense of the Realm Act, whereby a new element was introduced into the penal work of the Council. For such offenses cannot be said to unfit a man for medical practice in the way that the procuring of abortion, adultery with a female patient, or habitual drunkenness certainly do. The decisions of the Council are consequently being awaited with considerable interest.

On the educational side, a move in a most desirable direction took place. Dr. J. C. McVail, one of the five members of the Council nominated by His Majesty with the advice of the Privy Council, brought forward a motion with the object of securing action from the Council toward systematizing the teaching of preventive medicine in the medical schools. In a vigorous speech Dr. McVail pointed out that the general practitioner should play a larger part than he now did in the prevention as distinguished from the treatment of disease, whereas, at the medical schools the subject was neglected. Dr. McVail's motion was seconded by Prof. Elliot Smith, the Professor of Anatomy in the University of Manchester (representing the Victoria University of Manchester) who indicated certain aspects where lines of inquiry should be made at all the medical schools; for example, he said, it is obviously necessary that the teaching of physiology at such schools should bear relation to the practice of medicine, whereas the connection was often very slight. The motion was agreed to by the Council and the probability is that the outcome will be a development in the instruction of the students on preventive medicine. It is not new Chairs for Professors of Sanitation that are required but a rearrangement of medical education by which the various diseases, as they come before the students in the wards or the outpatient departments, may attract attention from the point of view of prevention at least as much as from the point of view of treatment. The clinical teaching in the wards of the British hospitals has rightly been considered of first-class quality, and the opportunities that are given to the students have been unrivalled in any country. All the knowledge of the hospital is accessible to the industrious student, and under a regimental system of clinical clerks, clinical dressers, assistants to registrars, and other minor posts, the student is from the moment he enters the wards in close personal touch with patients for part of whose treatment he soon becomes responsible. But this teaching has al-

ways been so closely directed toward pathology that the etiology lying behind the conditions has escaped any detailed notice. The examiners at the tests for degrees and diplomas in medicine have made no attempt to set this matter right, for the questions by which they open or bar admission to the medical profession have seldom or never had reference to prevention, apart from the special science of sanitation. Now what examiners call for, teachers in the end will supply, and modern thinkers in medical education hope that the General Medical Council will regard the question, now made alive by Dr. McVail's motion, as one that primarily concerns the examination standards. The Council has a regular system of inspection of all the examination centers, so that any systematic reforms which it proposed to inaugurate could be put speedily into motion without wearing the semblance of fussy interference.

THE MENACE OF TRENCH FEVER.

The transmission of trench fever by the louse was a largely accepted belief, indeed a matter of fact, before a Committee of the British War Office, working in France under the chairmanship of Sir David Bruce, corroborated it. The pioneer work was done by Captain J. W. McNee, and the Research Committee of the American Red Cross. But at the last meeting of the society of Tropical Medicine, held in London at the beginning of this month, some suggestive additions to the pathology of trench fever were made in a paper by Major W. Byam and a band of coadjutors, who had submitted the louse theory to further and stringent tests. The latest investigation was carried out at the Hampstead Military Hospital, on behalf of the War Office Trench Fever Committee, and some of the findings were made public a month before the report was published, tho their significance escaped detection. Major Byam's coworkers were Captain J. H. Carroll of the United States Reserve, Captain Lyn Dimond, Lieutenant U. Lloyd, Captain V. E. Sorapure, and Lieutenant R. M. Wilson, officers of the R. A. M. C., and the report starts with the definite statement that trench fever is a "blood infection communicable from man to man by the louse and possibly other parasites" and characterized by a group of symptoms of which the promient ones are recurrent pyrexia, headache, giddiness, pain in loins and limbs, conjunctivitis, polymnia, and at the height of the fever some leucocytosis. Convalescence is slow, many patients pass into a state of general ill-health with anemia and disordered action of the heart, and acute febrile relapses occur. The importance of this clinical picture is that it gives the civilian medical man a chance of being on the alert lest the returning soldier should prove a focus of infection for the civilian population which he rejoins.

The first point established by Major Byam's group of workers is that trench fever cannot be produced by the bite alone of an infected louse, for one of the volunteers who offered himself for what fanatics call "vivisection" received upwards of 10,000 bites from lice fed on trench fever cases and did not show any signs of the disease, while another volunteer was bitten nearly 1,000 times a day for a fortnight and remained impervious to the attacks. But scratching in of the lice on their excreta was immediately effective, for where the skin was scarified, when crushed lice, fed on trench fever blood, or the excreta of such lice, were rubbed in, the typical symptoms developed in about a week or 8 days. But there are refinements to the story. The louse was not infective immediately after feeding, nor was the infection carried by the excreta during the first days after the meal. A week's intermission was required before the infection was carried, the obvious deduction being that the life cycle of the parasite was completed within the body of the louse. Natural immunity was found to be practically absent among the volunteers, and age exercised no influence. The excreta remained virulent for 16 days at the ordinary room temperature, nor had direct sunlight or a temperature of 56° any fatal influence upon the parasites, a point in direct contradiction of previous belief. All these circumstances make it quite possible that trench fever in dirty and insanitary communities might easily be communicated by soldiers to the civilian population among whom they found themselves, while the early symptoms among the infected civilians could be mistaken, unless the medical man had his eyes open to the real disease, for the manifestation of almost any pathologic condition.

THE CAUSATION OF INDUSTRIAL ACCIDENTS.

An investigation of the factors concerned in the causation of industrial accidents has been carried out by Dr. H. M. Vernon in behalf of the Health of Munition Workers' Committee, and the information which he has brought together proves how numerous and how confusedly interconnected are the circumstances which conduce to these accidents. The particularly novel part of Dr. Vernon's report is the use that he has made of minor injuries as a basis for general deductions, this being quite contrary to the tactics of all previous investigators connected with British factory legislation, where the major accidents have invariably been the text for the sermon. The environment of the worker and his condition in respect of that environment can, however, be better tested by a scrutiny of the causes of a vast number of small accidents occurring at all sorts of centers than by an investigation into major accidents occurring at individual factories. Where such major accidents happen, their immediate cause, if detected, will be speedily removed. The sensational nature of the catastrophe will ensure so much, but the remoter causes are most likely to be ascertained by the close inquiry into a far greater number of minor injuries, which may be of the same origin as the major accidents, if not so profound in result. Dr. Vernon has submitted some 50,000 accidents occurring at three factories to intensive inquiry, investigating their hourly, daily and monthly variations, allowing at the same time

for the rate of production in the factories and the numbers of men employed. No such careful investigation into industrial accidents has previously been made by any British observer, and the first point demonstrated by Dr. Vernon is that, while fatigue does affect accidents, rapidity of output is far more frequently the prominent cause. Fatigue, in fact, according to Dr. Vernon, is only a subsidiary influence, less important as a prelude to accident than psychical influences produced by hurry, by excited or depressed mental states, by nervousness or cowardice. With regard to the temperature at which work is done and its influence, Dr. Vernon concludes that industrial accidents are fewest when the temperature of the workshop is between 65 and 69 degrees Fahrenheit. This is a point on which further investigation is necessary, for the conclusion is sure to be challenged. As far as this country is concerned, Dr. Vernon has broken new ground in which there is great room for further research.

CAMP INFECTIONS.

The subject of camp infections has naturally been much discussed by all medical and medico-military authorities in this country since the war broke out. The experiences derived from the South African War were from the first put to good uses by the British on some of their widely separated fighting fronts as far as the exigencies of transport would permit, but those exigencies proved too much for the original organization designed to meet the situation in Mesopotamia. The story of the breakdown in the arrangement by which the camps in Mesopotamia were to be well supplied, the sick properly cared for, and the wounded rapidly evacuated, is now an old one. It has been debated in Parliament and made the subject of blue-books, while promotions and retirements have followed upon the allotment of praise and blame. It is sufficient to say now that, as far as this particular episode in the vast war is concerned, the authorities in India had not taken to heart the lessons learned in South Africa, and therefore did not make their preparations either in sufficiently good time or on a sufficiently large scale, while it is clear that all concerned who are in sufficiently high places to control events are determined that nothing of the kind shall occur again. Our camps are now rigidly inspected and every conceivable measure to prevent infection, to cut short its spread, to segregate the sick, and to place these last in the best conditions for quick restoration are taken almost automatically. The fact emerges, however, from all the work thus implied, that the prevention of infection among the populations of military camps is an extremely difficult matter, and one concerning which much remains to be learned. Living, as the soldier does as a rule, in an environment of a higher hygienic standard than he enjoys in civil life, prevention might be expected to be a comparatively easy matter, but British experience in regard, for example, to measles and cerebrospinal fever, has proved this to be a mistaken view, almost suggesting that there are elements present in camp life which tend toward the grouping of common infections, and the display by these infections of certain unusual features, such as marked the outbreak of pneumonia in the camp Zachary Taylor, Louisville. The outbreak at the Zachary Taylor camp had an analogue on this side of the Atlantic where bronchopneumonia and purulent bronchitis leading to dyspnea and cyanosis followed more than one epidemic of measles in the camps. One of these epidemics occurred in the Aldershot Command: the mortality was 25 per cent., and the circumstances determining this virulent sequela to what is not usually a disastrous fever have not been identified. The usual explanations have been forthcoming, namely, that the mathematical chances of intercommunication of any infection are increased in abnormal ratio by large numbers; that the common environment, when it is good, obtains no credit for the maintenance of good conditions, which when it is bad many infections get their chance; that the mental atmosphere of a camp tends to homogeneity, and if it is bad will have a bad effect upon any epidemic. But it is felt that these generalities do not really go to the root of the matter or explain the fact that there is something in the nature of camp life which tends toward the grouping of unusual infections or unusual forms of common infections. All the practical sanitarians engaged in this war, whether their work is chiefly clinical, pathologic, or telluric, are on the alert to see if any common conditions lie behind these abnormal outbreaks, and an interesting chapter in preventive medicine is promised.

Relation of Internal Secretions and Faulty Metabolism to Mental Perversions.—Keister, discussing the subject of internal secretions (*Medical Record,* July 6, 1918), says we do not confine our argument simply to the ductless glands, but include the pancreas, ovaries and other internal secreting glands.

It is a well known fact that the ovaries play an important part in the activity of both body and mind. In gynecologic practice it is often observed that following complete removal of the ovaries with the premature menopause that ensues, many distressing symptoms, both mental and physical are found. There are cases whose mental condition becomes so serious that they are fit subjects for an insane asylum.

The question of not infrequent insanity during menstruation has been likewise discussed. Suicides have been frequent at these times. When we consider the vast array of psychic symptoms and phenomena produced by faulty metabolism and deranged internal secretions, we become somewhat bewildered in differentiating these conditions from some of the ordinary forms of insanity. Hypofunction of any of the ductless glands may give rise to toxemia by simply depriving the system of this regulating or harmonizing fluid whose function is to destroy the toxins. Tyson and Clark are of the opinion that dementia precox is an autotoxic disease, and that the poison is primarily vascular, which finally induces neuronic degeneration.

Sixty-five per cent. of all idiots, before the age of six years, are deprived of the thymus gland. It is also a fact that this class is more susceptible to infectious disease.

When, in the presence of toxemia, there is clear evidence of overactivity of these organs, it is reasonable to conclude that there is a defensive reaction. If after a trial of desiccated thyroids and iodothyrin, there is observed an increase of the motor symptoms of catatonia and those peculiar to Graves' disease, it is reasonable to conclude the diagnosis. A partial thyroidectomy in these cases has proven successful. Dr. Fallis has treated by this method eight successive patients with "catatonia," who recovered their mental integrity.

In mild cases of dementia precox, a thoro course of thymus extract aided by lecithin might be administered. Lecithin is a phosphorus compound and is indicated in the treatment of the active nervous systems of both catatonia and Graves' disease.

By giving the study of internal secretions more thought and care, it is the opinion of the writer that the stigma of permitting 30 per cent. of our fellow mortals to spend their lives in asylums might be avoided.

Dyspituitarism.—An interesting case is reported by Climenko (*New York Medical Journal,* July 6, 1918) because of its multiplicity of symptoms; also to emphasize again that when the metabolism of the endocrine confederacy is disturbed, no single gland can be held responsible as the sole cause of the clinical picture.

The patient in question showed signs of both hyperactivity and hypoactivity of this gland. The patient gained in weight, which may be explained by a lack of activity of the thyroid gland. This gain of flesh may possibly be explained by the inactivity of the pituitary, but in this case, the menses would ordinarily be scanty instead of profuse as they were with this patient. At first the patient was bright mentally, but later she lost weight and her mentality also changed and instead of being a useful member of society, she became morose, hypochondriacal and even suicidal, and is still this way after four years with perhaps slight improvement as far as her suicidal tendencies are concerned.

The Psycho-Neurotic Syndrome of Hyper-Thyroidism.—Woodbury, writing in *The Journal of Nervous and Mental Diseases,* June 1918, states that the question often arises whether in lower grade toxic types of hyper-thyroidism the symptoms may not closely simulate neurasthenoid states without endocrine origin. It is only quite recently that satisfactory means of differentiation have been available in doubtful cases. The two methods which are available are studies in basal metabolism, and the application of the adrenalin chloride test of Goetsch. The theory of Goetsch's test is that the sympathetic nervous system, sensitized by the overabundant toxic thyroid secretion, overacts to the administration of small doses of adrenalin chloride given subcutaneously. The technic is as follows:

The patient is kept quietly in bed, all sources of disturbance are, in as far as possible, removed. Observations are made on blood pressure, pulse, tremor, condition of palms, color about the lips, and on such subjective symptoms as the patient may have, such as palpitation, sense of nervousness, etc. One-half of one cm. of a 1 to 1,000 adrenalin chloride solution is administered hypodermically in the arm. The observations are then immediately repeated, and again each five minutes for a period of an hour and a half. Highly toxic cases respond very vigorously, with marked in-

crease in pulse rate, increase in systolic pressure, palpitation, tremor, etc. In such cases for clinical purposes long observation is not necessary, for the picture is unmistakable. In doubtful cases, the full technic should be very carefully carried out. Fresh solution should be used. Unless one gets a rise of at least ten points in pulse and in systolic pressure, associated with other positive symptoms, the test is regarded as negative. Aside from the development of the typical thyrotoxic picture in positive cases, the behavior of the skin vessels is interesting. The vasoconstriction noted not long after injection by pallor about the lips and drying of the hands, with increasing coldness of hands and feet, is followed after a time by flushing and warmth. Contrary to one's first suspicion, the physician who is keen on the trail of thyroid cases will be obliged by the use of the Goetsch test to concede suspicious cases as actually non-thyrotoxic fairly frequently. If the test brings certain suspicious cases into the thyroid fold, it certainly excludes others equally suspicious.

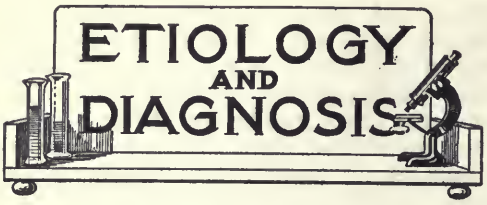
Over-leanness.—According to Dearborn (*Boston Med. & Surg. Jour.,* June 27) one of the causes of over-leanness is over-excretion of the posterior lobe of the ductless gland called the pituitary or "hypophysis cerebri". It is probably a cause also of leanness and emaciation in some of those persons whose food-work balance is perfectly normal. How frequent is this gland-defect we do not know, any more than we know its cause. There is associated very likely a derangement of the thyroid or of the ovary, or both.

Organotherapy in Hopeless Cases.—Garretson states in *Medical Press* (June 26, 1918) that the life of every individual is dominated largely, if not wholly, by his ductless gland chain; certain of these glands assume a dominating influence on the morphology, physiology and pathology of the individual. We come to designate persons in terms of glandular types, recognizing thyroidal, adrenal, pituitary, and gonadal types, many of which are mixed types, and are designated thyroadrenal, pituitoadrenal, etc. Studies clinically have proved that certain physiologic and structural markings are constant to certain glandular types, and by the physical objective examination alone, without other information, an accurate designation can be made.

"The character of an individual may depend largely upon his reaction to cholin or adrenalin and upon the relative abundance with which these two hormones, cholin and adrenalin are produced in his organism. Thus the autonomic or vagotonic type of individual is reserved (phlegmatic) and 'cold blooded,' with slow pulse, contracted pupils, deep set eyes, and cool, pale skin, which sweats easily and sometimes in patches, while the sympatheticotonic type is lively and excitable, with rapid heart, bright eyes, dilated pupils, rosy color, and warm, dry skin." The many perverted physiologic conditions and symptoms incident to the variable states of partial or complete imbalance of the vegetative nervous system are of great importance to consider, as an invaluable aid to diagnosis and in arriving at proper therapeutic conclusions.

Conditions heretofore considered hopeless frequently clear up under proper treatment with internal secretions as if by miracle. The frequent unsatisfactory results experienced by many are due to the fact that few have, as yet, learned how to interpret glandular dysfunction, and fewer still have learned the dosage. Far too large are the doses generally prescribed, and often the patient suffers from aggravated symptoms.

Fat Dyspepsia in Infants.—In the treatment of fat dyspepsia in artificially fed infants the main consideration is the entire removal of fat for a period. In these cases even whole milk—not top milk—has too much fat. Only skimmed milk is tolerated, and fat can be but very gradually reintroduced, and never beyond the degree of tolerance even if this degree is below the usual amounts credited to infants of that particular age. During the period of fat abstraction carbohydrates must be substituted, the best substitute being probably malt sugar if not pushed beyond the degree of tolerance.—*New York Med. Jour.*



Diagnosis of Cancer of the Breast.—The diagnosis of cancer of the breast is easy if there is no hope for the patient, but it is often quite difficult in the early stages. Horsely in the *Virginia Medical Monthly* (Jan., 1918) emphasizes the fact that cancer is not painful in its early stages. A benign breast tumor is more likely to cause pain than is early cancer. After ulceration has set in, with secondary infection or pressure on nerves, pain begins, but operation is then often too late. If ulceration, retraction of the nipple, and glandular involvement could be eliminated from text-books as symptoms of mammary cancer, the lives of hundreds of women would be saved every year. There is no one positive early sign, but one may build up the evidence and make a probable diagnosis. The typical early cancer occurs in a woman past thirty-five years of age and begins as a single lump. Usually limitation of motion can be detected upon careful observation. The skin may not move freely over the growth or the lump itself may not move freely in the glandular tissue, tho there is always some motion. Picking up the skin over the tumor sometimes shows points of attachment to the skin. The affected breast often does not hang as low as the unaffected breast. These symptoms, if present, amply justify immediate operation. If there is doubt, the patient should be prepared for a radical operation and an incision made in the growth. As a rule, inspection and palpation will then determine the diagnosis. Cancer usually feels hard, and has no capsule to retract upon incision as does a benign tumor. If there is still some doubt, a frozen section should be made and reported upon at once. The incision should be thoroly cauterized immediately after removal of the sections, and if the latter are positive, the radical operation proceeded with at once.

Etiology of Extra-Uterine Pregnancy.—Nothing especially new is known as to the cause of this anomalous condition. Of course anything which interferes with the entrance of the impregnated ovum into the tube, or whatever causes difficulty in the passage of the fecundated ovum along the tube will help in its arrest and development in an abnormal position.

A tortuous tube, a constriction of the tube, a diverticulum in the tube, a loss of the epithelium or trauma may precede or be responsible for the abnormality. A small or obstructed opening in the tube at its outer extremity may also cause an ectopic pregnancy.

We have been taught, and perhaps in the majority of cases it is correct, that ectopic gestation occurs most frequently in women who have borne one or more children, and then for some unaccountable reason have gone many years without a pregnancy when suddenly with no warning this abnormal pregnancy takes place with all of its dangers and evil tendencies.

So that we have been led to expect an extra-uterine pregnancy only in these special conditions. Henry (*So. Cal. Practitioner*, Mar., 1918) claims that while he is willing to admit that this is very often the picture presented to us, still he insists that we should not rest too securely in this belief; for he has seen several cases occur in women with babes at the breast not six months old. We must be on our guard and be prepared to recognize the symptoms when they occur without regard to former pregnancies. Then, too, we must remember that the condition occurs in young women who have never been conscious of any female weakness or disease and have had no occasion to fear an abnormal pregnancy. It is well for every medical man to be fully instructed in the classical picture of an aborted or ruptured ectopic gestation, but he should also bear in mind these rather frequent departures from the common type lest he be lured into an erroneous diagnosis and dangerous treatment.

Tuberculosis of the Stomach.—Broders reaches these general conclusions, in a recent issue of the *Surgery, Gynecology and Obstetrics:*

1. Little was known of gastric tuberculosis before the middle of the nineteenth century.
2. Gastric tuberculosis lesions have practically the same gross and microscopic appearance as tuberculosis lesions of the intestines.
3. A specific reason for the relative immunity of the stomach to tuberculosis still remains unknown.
4. The gastric juice appears to have a very slight effect on the tubercle bacillus unless the contact extends over a period of at least twelve years.
5. It is possible to produce gastric tuberculosis experimentally.
6. The exact mode of infection is often difficult to determine.
7. The theory that gastric tuberculosis is always secondary to intestinal tuberculosis has been disproved.
8. About half of the cases reported as gastric tuberculosis should be classified as doubtful or rejected.
9. Adults are affected more often than children, the ratio being about 3 to 1.
10. Males are affected more often than females, the ratio being about 2 to 1.
11. Ulcer is the predominating lesion in the positive and probable cases, constituting 81.6 per cent. of the former and 8.5 per cent. of the latter.
12. In the positive cases the lesser curvature is the most frequent site of the ulcer or ulcers, the pylorus leading in the probable cases and in a combination of the positive and probable cases.

13. In tuberculosis of other organs associated with gastric tuberculosis, the lungs take the lead, closely followed by the intestines.

14. No case of tuberculosis of the stomach has been absolutely proved to be primary in the stomach.

Etiology of Simple Acute Inflammation of the Middle Ear.—In simple acute inflammation of the middle ear Boebinger, in the July issue of the *New Orleans Med. & Surg. Jour.*, says we have hyperemia edema of the mucosa, followed by secretion of a serous or serohemorrhagic exudate of the middle ear. Injection and swelling of the mucosa decrease in a few days, with subsequent complete cure. It is an infectious disease caused by microorganisms which, however, are of slight virility or quite degenerated.

The staphylococcus pyogenes aureus, the various forms of streptococcus and the influenza bacillus predominate. Mechanical, thermic and chemical irritation may likewise give rise to simple otitis media. Infection thru the tube may also take place from sneezing, violently blowing the nose, retching, vomiting, etc.

Symptoms and Course.—A sudden pain in ear, impaired hearing, fever, continued severe pain, causing sleepless night, point to purulent middle ear disease.

The entire illness usually lasts from eight to ten days. Temperature reduced to normal; hearing increases, and pain occurs only periodically. Later the drum membrane becomes paler, when the inflammation has run its course; the drum may resume its normal condition, or else run a dragging course.

Leg Ulcers.—The method in use at Stewart's clinic (*Western Medical Times*, July, 1918) apparently leaves nothing to be desired. The ulcer is filled, heaping full and mounded up, with a dry powder, composed of soda biborate 4 parts and boric acid 96 parts. Upon this is placed a roof of short splints made of pieces of wooden tongue depressors, placed side by side. These are fastened with a proper crossing of three or four strips of adhesive plaster. The whole is covered with a gauze wipe, is bandaged snugly from toe to knee with a three-inch bandage of the roller sort, and the whole is removed and replaced on Tuesday, Thursday and Saturday of each week. Ordinary gauze is always used, because it is supplied, but painting that gauze with glue and sugar, or with boiled starch paste and then applying a second roller is good treatment, because it keeps the bandage from all possible slipping. Crinoline may be used perfectly well, for, after all, the great secret of success lies in having the patient put on his stocking and shoe before putting his foot on the floor.

Many methods of treating ulcers have been practiced with more or less success, but a very general rule is that an ulcer will soften and spread under an ointment. A very favorable mode is the method of cross hatching or multiple incisions. A proper employment of this requires some light anesthetic, such as nitrous oxide or ethyl chloride, for the method is bound to fail unless very free bleeding is produced. One way of proceeding is to make a ring of tincture of iodine, the inner margin of which shall be a half-inch outside of the crater rim of the ulcer. Then there is to be cut a circle which shall go completely thru the skin, between the iodine circle and the crater; these outside of the ulcer, entirely. There should be one or several such circles cut within the circumference of the crater, but always thru the whole thickness of the ulcer and its floor down into healthy tissue. These are to be crossed by lines one-quarter, or better, one-eighth inch apart. A good guide may be obtained by marking a line within the iodine circle, but cutting diagonal corners of the ulcer. This should be crossed by a similar line at right angles. These two lines, whether real or imaginary, may be paralleled with cuts until the whole ulcerous surface is cross-hatched by cuts running from good skin to good skin. Success in this maneuver depends upon being bold and thoro.

Barber's Itch.—Fischkin, in an interesting article in *Amer. Journal Clinical Medicine*, Mar., 1918, declares the method of treatment and its success depend upon the stage of the disease. If the patient is seen in the first stage, that is, in the earlier days of infection, when there are the multiple small superficial pustules or thin crusts, each pierced by a hair, with no diffuse swelling of the skin, we shall succeed by applying wet dressings of mercury bichloride (1:1000) or of chinosol (now hard to get), one tablet dissolved in 8 ounces of water; or, if there is considerable hyperemia around the pustules, by applying liquor of aluminum acetate, 1½ ounces in 8 ounces of water; while at night-time rubbing in an ammoniated-mercury ointment. With this treatment, cure ordinarily results in from one to two weeks.

More troublesome is the second stage, where there is nodular infiltration of the neck of the follicles, diffuse edema of the cutis and much tension and pain of the skin. External heat then is called for, as, for instance, hot linseed poultices over the dressings just mentioned. Or small pieces of mercury plaster are applied over the nodules, the entire area is covered with the foregoing dressings, and, on top, linseed poultices, to keep the dressing warm. In this way, it is possible to secure absorption of the nodular infiltration or its quick softening and evacuation.

Especially troublesome are the third and

fourth stages, with their deep perifollicular abscesses, infection, and suppuration of the bulb and the secondary inflammation of the cutis. The disease then is very persistent, frequently relapsing, and may require many months and often years of patient treatment. At this stage, epilation constitutes a necessary part of the treatment, while the medicinal applications are of the same antiparasitic and antiphlogistic character.

Epilation has the purpose of removing with the hairs as many cocci as possible and of creating a ready portal of entry for remedial substances. The beard is shaved closely (which often is quite painful) and the treatment described kept up for two or three days. As soon as the hair stumps have grown sufficiently to be caught by a forceps (a good hair-forceps with flat parallel blades must be used), the hairs of the diseased area must be epilated, while, interchanging with the liquid applications, antiparasitic and reducing pastes are to be applied.

The success of this treatment depends upon the skill of the physician to recognize the relation of the local follicular lesions to the general inflammatory condition of the skin; the more general reaction, the less active and irritating must be the treatment. In the first instance, use astringent and antiphlogistic lotions (boric acid, 3 per cent.; liquor of aluminum acetate, 5 per cent.; resorcin, 2 per cent.) and mild pastes and salves. In the second instance, use stronger antiparasitic and reducing drugs.

As the conditions often vary and relapses occur, they have to be watched and the method of treatment selected accordingly. A good paste of medium strength is this:

Tannic acid	0.6 to 1.5
Precipitated sulphur	1.5 to 3.0
Zinc oxide	4.0
Starch	4.0
Petrolatum, enough to make	30.0

If the process is more localized, stronger drugs may be used, such as tar, pyrogallic acid, mercurial salts, and so forth, beginning with low concentrations. Of the stronger preparations, the following paste is of good service:

Mercuryoleate (5 per cent.)	28.0
Zinc oxide	7.0
Salicylic acid	1.0
Ichthyol	1.0
Starch	7.0
Petrolatum	14.0

A most convenient and reliable treatment is offered by the X-rays. That these have to be cautiously and carefully applied, goes without saying. When the hairs begin to fall out from the radiated surface, a cure often is accomplished, but not always.

In many cases, the disease relapses as soon as the hairs begin to grow again. This obviously is caused by streptococci remaining within the prickly layer of the outer root-sheath and becoming active as soon as the growing hair exerts pressure within the follicle. It then is necessary to repeat the cycle of treatment. In almost every case, tho, one can attain a complete cure.

In cases where the X-ray treatments have to be repeated, one has especially to be cautious against producing burns or permanent atrophy. In one instance in my practice, a case of eight years' duration and of an unusually stubborn form, I could not prevent producing permanent alopecia and atrophy of the skin, but such cases are very rare. In the majority, a rapid cure is accomplished by weak doses and producing an alopecia of short duration.

Hay Fever.—Writing in *Medical Fortnightly*, June 15, 1918, Sophian reports the treatment of this most common disease may be divided into the prevention and the cure.

Preventive treatment has been successfully employed on a large scale by the enforcement of municipal laws requiring the destruction of weeds near homes; no weeds, no pollen, no hay fever. A similar result is obtained by sending the patient away, during the pollen season, to places relatively free from the causative weeds.

Active prophylaxis consists in the preventive vaccination with the causative pollen. The plan of procedure, therefore, is to test the patient with different pollens by scarifying the skin and applying pollen; by the intradermal test consisting in the injection of pollen intradermally; by the eye test consisting of the installation of a drop of pollen emulsion in the conjunctiva, a positive reaction consisting in a pronounced conjunctival effusion, and in the skin test, of the occurrence of a large urticarial wheal and redness.

The positive pollen is generally prepared for treatment by preparing a saline or an alcoholic extract. One-half the pollen extract which gives the characteristic ophthalmic reaction is used as the initial dose. Injections are given at three to ten day intervals, rapidly increasing the dose up to a final maximum of 1-100,000 dilution of pollen extract. Ophthalmic tests are made every two or three weeks to determine increased ophthalmic resistance.

Very favorable results are obtained with pollen treatment in the prevention of hay fever. Success in treatment depends upon the determination of the causative pollen, the proper preparation of the material and the control of treatment by suitable tests.

Serum treatment has been advocated and used in the active treatment of hay fever, with contradictory results. Dunbar's antitoxin serum consisted of an immune serum prepared by immunizing horses against different pollens. The serum is used locally.

The Value of Turpentine in Hemorrhage.—Enthusiasm for testing new drugs often leads to neglect of older remedies, and this sometimes results in useful therapeutic agents falling into desuetude. Allen (*Prescriber*, Feb., 1918) states that the value of turpentine applied locally for hemorrhage is well known, yet it is not so frequently employed as it might be. This is rather surprising, because turpentine is generally

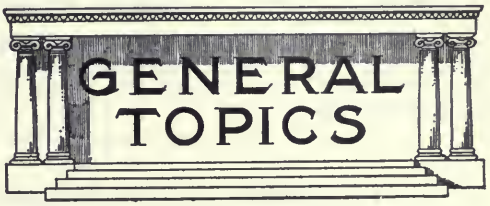
available, or at any rate is easily obtainable. I have many times demonstrated its local utility in hemorrhage in practice, and I can best illustrate this point by quoting a few cases.

A workman had an oblique portion of the top of one of his fingers removed by the blade of a cutting machine. There was considerable hemorrhage, but no actual bleeding point which could be ligatured was to be seen. There was simply capillary oozing, which gauze soaked in hydrogen peroxide, adrenalin, etc., failed to check. When I saw the case I suggested the application of gauze wrung out of turpentine, and this was successful in stopping the bleeding. In another case a soldier had several teeth extracted, and the after-bleeding, especially from one tooth socket, seemed uncontrollable. The bleeding was so severe that the man was admitted to hospital instead of being returned to his depot. The customary styptics were applied locally without success, but when turpentine was tried the hemorrhage ceased. Another youth had a submucous resection of the septum nasi done, and contrary to the usual experience persistent capillary oozing set in, which was not checked until the nasal cavities had been packed with gauze soaked in turpentine. In a little boy, who was afterwards discovered to be a hemophiliac subject, an abscess was opened in the thigh, and from the wall of the abscess cavity hemorrhage occurred which proved difficult to check. The best local application in this case also was gauze packing soaked in turpentine. Other conditions in which turpentine locally has been of service are post-circumcision hemorrhage and bleeding after tonsil and adenoid operations.

There is one practical point in using turpentine for the purpose indicated, and that is, the gauze should not be applied saturated with superfluous fluid. The gauze should be well soaked in the turpentine, but prior to application to the affected part it should be thoroly squeezed and wrung almost dry, otherwise results will be disappointing. Allan has employed turpentine with success when other drugs have failed, and considers this homely remedy deserves fuller recognition in the routine treatment of capillary hemorrhage.

Sepsis in the Army and Navy.—Gray in *New York Medical Journal*, March 23, 1918, writes if sepsis develops, all wounds should be opened up freely, possibly bilateral openings should be made, and the synovial cavity treated by intermittent flushing with Dakin's flavine, or other suitable solution. If improvement does not occur within twenty-four to forty-eight hours, a transverse or flap incision should be made, followed by resection as Colonel Fullerton has advised, or, after free division of the lateral and cruciate ligaments, by packing and fixing the joint in flexion in Hepburn's aluminium splint. If the articular surfaces of the bone have been injured, the former method is preferable. A soft pack or gauze impregnated with a paraffin paste may be used instead of Carrel-Dakin's dressings. Attention should be directed to the importance of rigid technic, and the necessity for thoro and complete operations. Half measures are worse than useless. "All or nothing" is a sound watchword.

If the fulfilment of these principles is not possible, far rather fix their limbs properly and send all patients on for treatment at the base.



Defective Speech.—After having given this subject careful study, Ersner (*The Laryngascope*, May, 1918) has arrived at the following conclusions: (1) It is important that each patient be studied from various angles, that the ear, nose and throat, eyes, medical and neurologic examination be made, as it is necessary to seek any etiologic factors and eliminate them. (2) Surgical interference should be instituted when necessary, but one must not be left with the impression that the latter will cure all forms of defective speech. (3) It is essential that the eyes and ears be trained by constant repetition of various exercises, first that they be seen perfectly and be pronounced properly. We know from experience that the eye can be trained to within a thousandth of an inch. Taking the eye as a simile, it is perfectly logical that the ear could also be trained. As previously stated, words are stored in the auditory center and transmitted thru the glossokinetic center. Therefore, by constant repetition of exercises and words, the auditory center is impressed with the true sound of the various words, which can readily be recalled and properly be expressed when the occasion presents itself. (4) Speech is normally automatic and subjectively independent of conscious effort. A person afflicted with defective speech realizes when others speak faulty or mispronounce words, but are unable to correct themselves. In order to accomplish most in the least time, it is essential that treatment be instituted early before it becomes chronic. (5) Defective speech is an overwhelming problem confronting us in these days of war and triumph, for there are innumerable stammerers in the European armies now, and thousands who become deaf.

Care of the Eyes in the Aged.—In the aged a little attention to the eyes will produce not only gratitude on the part of the patient, but will at times entirely change the mentality of the old man. Thewlis in *Med. Review of Reviews* (Dec., 1917) says that:

1. Correction of refractive errors in the aged gives great comfort to them and improves their mental condition.
2. Strong lenses should be tried for 15 or 20

minutes before prescribed in order to get the full effect of the lenses.

3. By properly fitting glasses many a pleasant moment is spent in reading and is contrasted to a previous life of lonesomeness and solitude.

4. Reading a paper or good book takes their mind from themselves.

5. Certain arteriosclerotic changes are normal in the senile eyes.

6. Loss of reflexes, irregular, contracted or dilated pupils not always significant.

7. Arcus senilis not evidence of old age or fatty degeneration.

The Antirat Campaign.—Calmette, in a recent issue of *Jour. de Medecine de Paris*, claims that the *mus rattus* has been known from the earliest historical times, but that the sewer rat was not known in Europe until 1727 when, owing to famine and extensive earthquakes in India, large bodies of sewer rats migrated westward and overran western Europe in a few years. By the end of the eighteenth century public rat-hunts were common; in one month 16,000 rats were killed in one building in France. Calmette reviews the history of the rat further, and shows that it is often responsible for transmission of trichinosis as well as of the plague. Remlinger has also proved the transmission of rabies from dog or cat to man by the bite of rats. He has reported the case of a girl at Smyrna who developed rabies after she had been bitten in the finger by a mouse that had attacked her, in her cellar, without the slightest provocation. Calmette describes the measures adopted in various countries to repress rats, saying that, left unmolested, one couple theoretically would breed 500,000 descendants in two years. Even if only a tenth survive, they form a formidable army. The system of bounties seems to work well, he says. In Stockholm 600,000 rats have been killed. At Odessa 500,000 roubles were appropriated for the purpose, and in the Japanese cities a bounty of 2 or 3 cents is paid. In France, the Danysz virus has been used on a large scale against destructive field mice, but it does not act so well on rats. Numbers have been killed with it but others escape. In the Antilles the mongoos, a weasel-like animal domesticated in India, was introduced to exterminate rats, which it does most effectually. But as it attacks also poultry, etc., its depredations were found worse than those of the rats. Calmette thinks that nonvenomous serpents would be better, such as the boa, which is a great consumer of rats while harmless for man. He adds that in 1909 the British parliament voted measures to promote and regulate the destruction of rats, and he pleads that the French parliament should imitate this example. The profession must educate public opinion to realize the enormity of the economic waste from the depredations of rats, and the dangers to which they expose the land from the murderous epidemics which they transmit.

Opium and the Digestive Tract.—In respect to their action on the intestine important differences are to be noted between morphine and opium. Macht in a recent issue of *Amer. Jour. of the Med. Sciences* says that in order to understand these it is necessary to examine somewhat in detail the action of morphine on the one hand and the so-called "minor" opium alkaloids on the other.

When the action of morphine is studied on a segment or a loop of isolated intestine it is found that it powerfully stimulates the peristalic movements and decreases the tonus of the organ, thru an action on Auerbach and Meissner plexuses situated in its walls. A similar effect is produced by the other alkaloids of opium which belong to the pyridinphenanthrene group, namely, codeine and thebaine.

The sedative or constipating action of morphine, when it occurs, is due to a number of other effects produced by it, and which counteract the above-described stimulating action. Of these the most important are as follows: (1) A spastic contraction of the pylorus. This hinders the passage of food from the stomach into the gut, and in this way deprives the latter of one of its natural stimuli. Magnus, in a very elaborate study, regards this as one of the chief causes of constipation after morphine. (2) There is a similar tonic contraction of the ileocecal sphincter which tends further to hinder the passage of fecal matter. (3) In the third place there is a diminution in the pancreatic and enteric secretions which also tends to produce constipation. (4) In the fourth place it is interesting to note that altho the secretions are inhibited the absorptive power of the intestine is unimpaired. This circumstance, together with the fact that the intestinal contents are propelled more sluggishly, leads to even more complete absorption of fluid and the production of harder feces. (5) In the fifth place, according to Nothnagel, Spitzer, and others, morphine causes an increased tone of the splanchnic nerve centers, and hence a greater inhibition of the intestinal movements. (6) Lastly, it is claimed by some authors that morphine tends to benumb or paralyze the sensory nerve-endings in the intestinal walls and thus render them still less responsive to stimuli.

It is thus seen that while the action of morphine on the Auerbach and Meissner plexuses tends to stimulate the intestinal contractions, some of its other effects on the intestine tend to counteract this stimulation and inhibit the contraction, and still other effects, by producing changes in the consistency of the feces, tend still further to lead to constipation. The final effect is a resultant of all the factors above mentioned and depends on which of them have the upper hand or the predominating influence. This varies in different animals. Thus in cats and dogs, morphine ordinarily produces purgation. In man the result may be constipation, but very often the peripheral stimulating action is sufficient to prevent it. Again, it is well known that morphine fiends suffer alternately from obstinate constipation and diarrhea.

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Phthisiophobia.—The establishment of institutions for tuberculous patients is wont to arouse opposition among taxpayers in the immediate vicinity of the projected site. Incidently, numerous persons will manifest hysterical reactions as a result of an irrational, tho none the less real and uncontrolled, phthisiophobia. Experience has fully demonstrated that there is far less danger from the recognized and diagnosed victims of tuberculosis than from those who unknowingly and unknown pursue their ordinary occupations.

Under ordinary conditions one would expect to find unusually high percentages of tuberculous infection in areas of the country to which the tuberculous sufferers are wont to go for purposes of relief. General investigations appear to indicate that tuberculosis health resorts do not reflect any ill effects by reason of the influx of suffering strangers seeking renewed health. This fact is further supported by a tuberculosis survey of the residents of Saranac Lake made by Forrest B. Ames (*American Review of Tuberculosis,* June, 1918), in which there is reported the results of a thoro and systematic house-to-house canvass of all the dwellers in the incorporation of Saranac Lake. Despite a large number of deaths from pulmonary tuberculosis among transients, the native population suffered a low mortality rate from this cause, there having been only 18 deaths among the native population during the ten years previous to 1916; none from 1911 to 1916, while six occurred among long standing cases during 1916. In brief, the mortality and morbidity for tuberculosis at this popular health resort is markedly lower than in other communities of the same size. Unfortunately, the survey was not properly checked up by adequate clinical or laboratory data.

Twenty per cent. of the total population consists of persons who traveled thither for the purpose of health improvement. Only three-tenths of one per cent. of living tuberculous patients were found among the native born and only nine-tenths of one per cent. among previously healthy residents. This fact warrants the tentative conclusion that there is a minimum of danger of infection to the healthy residents of a community frequented by high percentages of tuberculous patients. It cannot be assumed that the natural climatic conditions are wholly responsible for the minor degree of infection of the native population. Fresh air, lack of congestion, freedom from industrial over-stimulation and dusty trades may play some part in fostering the welfare of the general population. Such factors, however, do not entirely offset the greatly feared contact with tuberculosis carriers with incipient conditions or open lesions discharging tubercle bacilli. Six per cent. of the tuberculous persons noted in the survey were not and had not been under the care of

a local physician during their residence at Saranac. Obviously, the educational influences radiated from nearby sanatoria, the optimistic spirit, the desire to aid sufferers by extending the open-handed fellowship in the local industries and occupations have served in many ways as a protection of the adult population from tuberculous infection thru direct contact.

The incidence of tuberculosis among children at Saranac is exceedingly low so far as clinical manifestations are indicative, altho tuberculin tests would undoubtedly reveal a higher ratio of latent and potential infection. Possibly in the words of Baldwin, "The natural infection of human beings takes place largely in childhood and increases the resistance to subsequent disease in a large measure. . . . . Adults withstand exogenous reinfection under extreme exposure partly on account of slight infections in earlier life, and favorable occupations, environment and nutrition."

The health status of Saranac Lake, so far as tuberculosis is concerned, further corroborates the opinions and experiences of those who have emphasized the benefits to be derived by communities thru the establishment of educational and institutional methods for the treatment, cure and prevention of tuberculosis in all its forms.

The establishment of sanatoria redounds to the interest of communities, not merely thru the advantages derived by the patients treated, but thru the demonstration of right living and its consequent emulation by non-infected friends and relatives. There is probably more damage resulting from phthisiophobia than can possibly result from any institution designed for the cure of the tuberculous. Emphasis upon this at the present time may aid in the location of such institutions as may be required thru present day conditions which are resulting in the discovery of numerous tuberculous subjects who had been unaware of their condition. Thirty thousand men, drafted, were rejected because of tuberculosis. The natural incidence of tuberculosis in connection with military and naval expansion will make necessary the extension of facilities for their relief and treatment. The anti-tuberculosis campaign must not be hampered by groundless fears. The obsessive ignorance of self-centered phthisiophobes, who so frequently interfere with the well designed plans of communities, must be counteracted and dispelled by such lessons as Saranac Lake teaches.

Cardiac Murmurs and Physical Fitness.—The advances in cardiology have been due to more careful clinical study, animal experimentation and the introduction of various instruments of precision. The researches of investigators have brought about a marked alteration in the estimation of the seriousness of cardiac lesions. The differentiation of intracardiac and extracardiac murmurs has simplified the interpretation of their effects upon the vigor and vitality of those possessing lesions of the heart. The most significant result, however, has been the transference of consideration from the murmurs and valvular defects to the study of the tone of the cardiac muscle with a view to determining its fitness to undergo strains under varying conditions of life. The relation of cardiac disease to military service is obviously of great moment at a time when every effort is being made to mobilize all fit manpower for service under military authorities. The

alteration of conditions in warfare has brought about numerous changes in the the regulations governing the acceptance of recruits.

With the prolongation of war there is increased necessity for the enrolment of all men capable of rendering military service. There is a vast difference between the degree of physical fitness essential for extreme physical exertion in the front lines of attack and the degree of vitality requisite to afford needed service in numerous branches imperative for maintaining the fighting efficiency of the front lines. There is a constantly growing number of positions which might well be filled by men with various handicaps rendering them unfit for the bearing of arms.

L. F. Barker, in the *Canadian Medical Association Journal,* July, 1918, points out a weakness in the Selective Service Regulations (U. S. A.), which requires unconditinal rejection because of the presence of an organic murmur. It is undoubtedly true "that the hearts of some of the men presenting organic murmurs are better prepared to stand exertion than are the hearts of some men presenting no murmurs." This being true, it follows that many men with organic valvular disease of the heart need not be unconditionally rejected, as required by existent regulations. Many of them are fit for undertaking special service not involving severe exertion and some, indeed, might be assigned duties requiring moderate and, in rare instances, considerable bodily activity.

The experience of the past few years has indicated the effect of war strain upon the hearts of men regarded as free from organic disease, as well as upon those giving service despite chronic lesions. The intensive studies which have been made have solved numerous problems and have given valuable information pointing out the necessity for a revaluation of cardiac conditions in terms of potential cardiac tonus, rather than the location, audibility and persistency of murmurs. Some of the inorganic murmurs, due to nervous influences, may result in "neuro-circulatory asthenia" with consequent greater incapacity than would follow mild mitral stenotic lesions. Under present regulations, an inorganic murmur, not due to the relative insufficiency of a valve associated with cardiac enlargement, is not in itself a cause for rejection.

In the effort to build up rapidly our overseas forces, every care must be exercised to accept all and only men who are fit. The question of what constitutes fitness must necessarily depend upon the character of work to be performed by the drafted men after induction into the national service. The study of cardiac conditions in the light of recent experience and with the advantages of modern methods should make it possible to accept for special or limited service many men who in previous years would have been unconditionally rejected. If the present Selective Service Regulations contain provisions at variance with the judgment of experienced cardiologists there is every reason that they should be altered so as to conform with most recent established opinion. No rule or regulation possesses value when it interferes with, or hampers the very cause it aims to further. Experience has required the modification of most of the regulations relating to drafted men and apparently there is reason to believe that those paragraphs dealing with cardiac conditions are destined to an early revision. The state of the heart muscle is not given sufficient consideration in connection with organic murmurs to insure a fair estimate

of the acceptability of a man for military service.

The mere presence of an organic murmur should not be rated as a specific reason for unconditional rejection from the military or naval service of the country.

Standards of Venereal Non-contagion.—The establishment of government clinics for the early treatment of venereal diseases in the extra-cantonment zones is but one of a large group of special facilities now available for the control of venereal diseases. The basis of discharge, as non-infectious, of patients from clinics thus established is of importance because of the difficulty of giving adequate treatment within a reasonable space of time. The standards for the discharge of carriers which have been established (*Public Health Reports,* July, 1918), recognize the difficulty of establishing freedom from infection as opposed to freedom from infectiousness. The essential item, from the public health point of view, is the determination of freedom from the danger of transmitting any of the venereal infections.

Luetics may be discharged as non-infectious when a complete clinical examination has demonstrated the absence of any area from which infectious matter can be disseminated. The patient, however, thus discharged is advised that he is not cured and may subsequently become infectious to others, that the disease would probably be transmitted to his offspring until he has undergone a proper and adequate course of treatment requiring a number of years, during which period of time he is warned to remain under observation. The standards for considering a syphilitic individual as cured involves the following: "No case should be considered as cured for at least one year after the termination of treatment and unless the following conditions have been satisfied: (a) No treatment for one year during which time there has been no symptoms, no positive and several negative Wassermann reactions. (b) A negative provocation Wassermann reaction. (c) A negative spinal fluid examination. (d) A complete negative physical examination, having special reference to the nervous and circulatory systems. (e) A luetin test may also be included."

Before discharging male gonorrheics the following requirements must be met: "1. Freedom from discharge. 2. Clear urine; no shreds. 3. The pus expressed from the urethra by prostatic massage must be negative for gonococci on four successive examinations at intervals of one week. 4. After dilation of the urethra by passage of a full-sized sound, the resulting inflammatory discharge must be negative for gonococci."

The difficulties of demonstrating the cure of women are more pronounced than in the case of men, and the standards thus far established are subject to revision in so far as the experience of clinical workers may determine. The minimum requirements demanded for the discharge of females as non-infectious merit careful consideration and thoro testing in order to determine their actual worth. The absence of urethral or vaginal discharge is essential, but far less important than "Two successive negative examinations for gonococci of secretions of the urethra, vagina and the cervix, with an interval of 48 hours and repeated on 4 successive weeks."

Even with these strict regulations, if fully carried out, it would be impossible to

secure the elimination of the carriers of venereal diseases. The provision is made merely to cover those actually securing clinical treatment enforced by adequate power to secure the return to the clinic or place of treatment with due regularity until the requirements have been met. The problems of clandestine prostitution, which are far greater than those involved in commercialized vice make even these standards, reasonable and apparently practical as they are, exceedingly doubtful in value as a large measure of public protection.

The main obstacle with which the public must contend is the ignorance of the importance of prompt and early treatment and the imperative necessity of continued treatment until microscopic or serologic examination demonstrates freedom from contagion, and cure. Despite the fact that the standards established will not of themselves perform miracles their definite compilation with the authority of the Public Health Service is a distinct step in advance in the control of venereal disease.

Medical and Nursing Reorganization.—The upbuilding of a medical corps consistent with the military needs of the nation is threatening the stability of the institutions necessary for the care of the civilian population. Beyond doubt, the health and welfare of the industrial and civil population is as essential for maintaining the efficiency of our military and naval forces as any other single factor. National health may be in part dependent upon coal, food and various other elements, but health is the end and aim of food conservation and increased fuel production. S. S. Goldwater has pointed out in various communications appearing in medical journals, the importance of considering, analyzing, restricting and holding back the numerous destructive forces tending to undermine the hospital organizations of the country.

The mobilization of civil hospitals in the interests of national welfare would probably lead to many forms of reorganization for the promotion of efficiency, but the results might work to the disadvantage of organizations that have been perfected thru many years of labor and enthusiastic cooperation by physicians and laymen. It is of the utmost importance, therefore, for hospitals themselves to endeavor to weigh their own difficulties and bring about the needed readjustments. In preparing to meet the exigencies which have already arisen thru the volunteering of a large proportion of medical men for military and naval service, thru the limitation of the term of service of internes and their prompt registration in the medical reserve corps, and thru the regulations attendant upon the pursuit of the study of medicine, many serious problems have arisen. Added to these are the difficulties incident to securing an adequate number of nurses in training to supply the demands of the military and civil population. To meet the difficulties thru a national program various plans have been suggested and whatever their outcome may be, the fact remains that internal reorganization must be begun at once by the hospitals.

Dr. Goldwater has suggested the abolition of the rotating service with a view to releasing a certain number of hospital attendants for national service. One might ask whether hospitals could not first drop from the rotating services all single men, and particularly those under the age of 45. It would be possible to recall for hospital service men over the age of 45 without any

great difficulties in preserving the usefulness of the present hospital organization. One is almost tempted to inquire how far hospital politics, the questions of seniority, social status and similar elements interfere with reorganization of medical or surgical services with a view to releasing the greatest number of men for national service. In all probability it is not necessary to discontinue the rotating services, tho where it exists on the basis of a three months rotation, the period might be extended to six months. In small communities where all physicians have the right to send persons into hospitals and to treat them, while the ward service is restricted to those holding hospitals appointments, the attending staff can be recruited more readily without a sacrifice in the standards of work performed. In larger cities where the hospital virtually has become an institution in which only a limited number of persons may be of service, there is a tendency to underestimate the ability of persons not thus connected. If the military and naval medical corps are recruited from the general average of the medical population, there is little reason to believe that the civilian population would suffer by the placement in vacancies of older men whose general experiences have been greater than those of a large percentage of the physicians who have answered the call to the colors.

Rotation in service is probably of less importance to the civil community or to the government than the adjustment and redistribution of civilian physicians so that the needs of the civilian population will be met, while there is no sacrifice in the character of service afforded our soldiers and sailors.

The time is rapidly approaching when the services of internes will need to be altered. Already nurses are being taught how to give anesthetics. A large amount of the clerical work now performed by internes can be carried on by others with less highly technical training. A certain percentage of the laboratory work now falling upon the internes can be performed readily by technicians trained for this important service. Steps of this character will reduce the volume of work to be performed by internes and thus decrease the number necessary to carry out the ordinary work of hospitals and dispensaries.

The demand for nurses, 25,000 being required before January first, will only be answered when there has been developed a new type of nursing assistant. In England and France the volunteer nursing aid is a tremendous factor in promoting the welfare of the sick and wounded. It does not require a highly trained nurse to take a temperature, fill a hot water bag, assist a surgeon to make a dressing, or countless other duties which take time. The average hospital is enabled to care for its patients by virtue of the services performed by pupil nurses. At each stage in the course of training there is induction into new duties and constant growth in the breadth of the pupil's knowledge and experience. For the purposes of war there need be no special training in obstetrics, gynecology, pediatrics, and the undergraduate nurse without this training would probably be as useful as the fully trained and registered nurse possessing these added qualifications. The advantages of the fullest training are not to be denied, but the question of meeting an emergent shortage of nurses compels attention to the necessity for re-valuing nursing functions in order to supply the number of women who will be required to meet the de-

mands of the government and of the civilian population.

At the beginning of the war numbers of women took up Red Cross First Aid Courses and Home Nursing, but what use has been made of them? Others undertook additional studies and short courses at hospitals with a view to becoming nurses' assistants, but to what extent have the services of these willing workers been utilized?

The Army has not hesitated to alter its standards in order to secure men. Draft regulations have been changed in order to accommodate the greatest number of draftees. Other institutions have been obliged to vary their set forms and practices in order to maintain their efficient working organization. It is possible for hospitals to develop a series of graded positions lower than that of trained nurse, arranging for promotion from one position to another in ascending scale, depending upon the character of the work performed, the training and experience secured. Numerous women are anxious to participate in nursing service and would be willing to undergo training to fit themselves for specific useful functions without any idea of ever pursuing the occupation at the conclusion of the war. The fears of the registered nurse as to the economic dangers in the future must not suffer the nation to be impoverished in its supply of trained women for attending to the wants of the future civilian population. What percentage of fully trained nurses are willing to take charge of obstetrical patients? How many refuse to attend persons suffering from contagious diseases? What number object to looking after the mentally diseased, or those suffering from uninteresting, but nevertheless serious chronic ailments?

The standards of nursing training thruout the country manifest wide variations, as indeed it is deemed requisite for medical education. The importance of recognizing a nurse trained in a small hospital as having a different type of experience from one who has enjoyed the privilege of pursuing a three years' course in a large hospital must not be overlooked. Both are trained nurses, both are acceptable for government service, but both have not had the same training or the experience. The problem of nursing service may be solved thru the development of a new grade of nursing assistants, bedside attendants, surgical aids and similar classified positions in which willing women will find an opportunity to express their patriotism and willingness to serve the country without thought of anything save the opportunity to give of themselves in the interests of human welfare.

The government is establishing a huge system for training nurses in cantonment hospitals and in cooperation with private and public medical and surgical institutions. The plan involves a three year course of training and possesses many valuable features.. Now is the time to ask where are to be trained the necessary number of nurses to satisfy the full demands of the nation during the present year and the next year and the year after. The health of the country should not be endangered by a shortage of these essentially public servants whose part in building up public health is so highly creditable and meritorious. The three year training under government auspices does not appear to meet with the exigencies of the growing shortage of nurses for every form of nursing service.

Woman After the War.—"But the most striking thing in England today," writes a

correspondent in the course of a letter from London, "is the extraordinary situation of the woman. It is almost impossible to describe the change. Back in the States the women have followed business and industrial careers for a long time and they have enjoyed excellent salaries, but here the better classes have always avoided such a course. It was a come-down for a woman to go into business, more so certainly than with us. The result was that only the women of the lower classes worked, and their jobs generally paid as little as three or five dollars a week. Now these women have suddenly been put into industries that pay them five times as much. They have more money at their call than they have ever had before. Their prosperity is unprecedented, and in addition to their salaries they get separation allowances from the government out of their husbands' pay. All this money and their freedom from home duties seem to have gone to their heads. Don't misunderstand me. There isn't a more patriotic woman than the English woman, but, altho her sense of responsibility to the government has increased in war-time, her responsibility to her home has diminished. In fact, now that she is so free, she seems to feel that she has missed a great deal being confined to the narrow duties of the home, and she is making up for lost time. You found Europe a pretty gay place when you were here, but believe me, for a young officer on leave and unchaperoned, this is no——"

The vigilant censor applied his scissors to the letter at this point, but it is easy to reconstruct what the writer tried to say in the next page or two. The censor has been exceedingly severe in all such correspondence, but the scant information that has come to this country obliquely and from scattered quarters leaves no doubt of the fact that the new woman of Europe constitutes a serious moral problem. That this problem exists has been acknowledged frankly, emphasis being given generally to its economic aspects, but its moral aspects have been uniformly ignored, tho by far the more critical from a social point of view. However, our information on this subject is growing more complete, despite timid efforts to avoid it, and, now that one of England's most distinguished authors has made it the text of a striking novel, it is sure to loom up large on the horizon in the future. The problem affects not only the women but the men. And, if we are to be frank, the men are as much responsible for the situation as the women. For the dual standard of morality which has prevailed thruout the civilized world is the pivot upon which the whole problem turns, and this dual standard is the invention of man. Woman has rebelled against it again and again ever since she became an articulate factor in the social scheme, and it is to her credit that, between the two courses that were open to her, she chose the one that involved a continued restraint in her freedom but demanded a similar restraint on the part of man. The few women who chose the other course, the concession of freedom to the man with a similar degree of freedom permitted to the woman, were always in the vast minority. To both views the stronger sex, smugly satisfied with their privileges, turned a deaf ear. Man's liberty was to him axiomatic and woman's restraint inevitable, and he refused to consider the matter a problem. There were occasional discussions and wrangles, but the established order prevailed.

The dual standard of morality, how-

ever, is destined to meet its severest test in the present situation in war-time Europe. This time it is not an academic discussion of the merits of each viewpoint, it is a very real crisis. Hitherto, the male point of view has prevailed because the woman was in no position to challenge it effectively. She could not persuade the man to conform to the standard which was prescribed for her, and she did not dare adopt his course because of her economic dependence. Her father, or her brother, or her husband, by his economic authority over her, could dictate the terms of her continued enjoyment of his patronage. She had no choice, her challenge being purely a theoretical one. Even when the law was on her side and she could obtain a divorce because of her husband's infidelity, she did not dare resort to this measure because she would be thrown upon her own resources and she was in no position to be able to earn her own living. She was powerless. It was humiliating, but she had no choice except submission. The war has altered circumstances. Woman abroad has at last achieved economic independence, but, more than that, she has attained a larger social freedom. Her men are away at the front, her home duties are no longer as exacting as they were, she has now both the means and the opportunity to assert herself and, if the reports are to be credited, she has asserted herself. If we are inclined to frown and grumble at the course she has taken, we must realize that our own unyielding adherence to the double standard is to blame as much as anything else. If at the time when she attained economic independence the single standard had prevailed, no doubt women would have quite naturally submitted to this standard. Man's moral discrimination has acted as a boomerang. His economic authority over woman having disappeared, his moral authority is rendered impotent. Woman had never succeeded in converting him to her mode of living, but now that she has attained economic equality it is inevitable that she should claim moral equality. For the present it would seem that she has sought his equality by rising to man's altitude, or would it be truer to say, sinking to his level? It is a regrettable choice, but a choice there had to be. Things could not remain as they were. Discrimination in favor of one sex and against another could last only as long as one sex could dominate the other and enforce its will upon the weaker member.

However, the choice may not be a final one. Perhaps women, having just come into freedom after so many centuries of confinement, are merely sowing their wild oats. Perhaps it is only a reaction from which they will recover presently. Whichever may be the case, it is manifest that the moral arrangement has been considerably disturbed. Some speak quite frankly of a "sex war." It will hardly come to that, we trust, but that there will be a clash is unmistakable. After the war, the returning men will challenge the right of the women. The women will challenge the authority of the men. The men will find that they can no longer bully women because of their economic dependence. They will recognize that women have not only the will but the way to pursue their own bent. There will have to be an arrangement as between equals. Such an arrangement may be delayed but it is inevitable. One side will have to give way. Man will either have to surrender his ancient privileges and conform to the feminine ideal of continence and fidelity, or, if he decides to retain his liberty, he will have to accord the same

degree of freedom to woman. That is the only choice open to him. Bullying and browbeating will prove unavailing now that woman is no longer financially dependent on him. Which choice he will make it is too early to say, but it is perhaps safe to predict that consideration of the future and society will be the determining factor. A universal relaxation in the moral code that has governed the conduct of women would be disastrous to the health of the race and would endanger the existence of the family as an institution. This menace to society is avoidable only by man's yielding. He has been deaf to argument and stubborn to persuasion in the past, but will he be able to resist the pressure of a consideration so vital as the future of the race?

The Most Beautiful Thing in the World.

Unfurl the flag at sunrise
And let its colors fly,
More radiant than the brilliant hues
That flood the morning sky.
Salute it as its glories
Upon the breezes dance,
Today it guides our soldier boys
To victory in France.

Flag that in blood and battle
And sacrifice was born,
Flag that has never known defeat
Since first it met the morn;
For Liberty its scarlet
And stars were then unfurled,
And still behold! to liberty
It proudly leads the world.

—Minna Irving in the *New York Sun.*

Laundry Protection.—The hygienic value of laundries has been frequently discussed, but not always on the basis of the inherent hazard to patrons or employees. While it is true that there are various physical disabilities which may be acquired in some of the laundry processes due to exposure, to extremes of heat and moisture, dusts from the handling of dry linen and long hours of standing, the extent to which infectious diseases of a contagious character originate in laundries is comparatively small.

The sanitary condition of goods delivered from commercial power laundries merited the investigation made by Elledge and McBride, *American Journal of Public Health,* July, 1918, "On the Bactericidal Efficiency of Soap Solutions." Practical studies were made to test out the statement of Wile, *Medical News,* December 3, 1904, "Laundering as practiced in the better class of power laundries appears to be an efficient hygienic method of promoting cleanliness without danger to patrons and with comparative safety to employees." The studies of Lederer and Bachmann had demonstrated the use of bleaching powder to be effective in destroying almost completely bacterial contamination. Any germs escaping the action of the hypochlorites are destroyed during the process of ironing or drying at high temperatures.

The bactericidal value of such solutions at a temperature of about 120° F., together with the added affect of the agitation afforded by the power-driven washer, apparently is sufficient to secure satisfactory results. In a series of tests with various microorganisms, reductions of the bacterial content of the wash water were secured to the extent of 96.2% for *micrococcus p. aureus* and 80.6% for the colon bacillus. Their results indicate that a considerable number of bacteria in clothing are not killed, and also that sterile clothes become con-

taminated thru the medium of the water. Tests would indicate that it is almost impossible to remove all bacteria from clothing under the ordinary conditions of washing.

The most significant statement in their report is the exceedingly rational conclusion, namely, "Considering the omnipresence of organisms that, under certain conditions, may be considered pathogenic, it appears absurd to demand that a clothes-washing process should render fabrics absolutely sterile; but it has been demonstrated that such results are actually obtained in the case of all garments that are finished by ironing or drying at high temperatures, and that, in the case of those not so treated, the washing with soap produces a bactericidal efficiency comparable to that obtained by pasteurization."

With proper precautions, therefore, in the handling of clothing and linen preliminary to washing, namely, during the sorting and marking at arrival, the dangers of infection to employees may be reduced to a minimum. If there is sufficient guarantee of the safety of foods for human consumption thru the process of pasteurization, there certainly is a higher degree of safety in utilizing goods for external use which practically have been pasteurized thru the process of laundering. There is always a possibility, however, of the reinfection of sterilized linen where it is sorted and counted in the same room with unclean or infected linen.

A distinction must be made between the methods employed in power laundries and those commonly used by the ordinary home washerwoman. From the standpoint of public health there are undoubtedly greater dangers from the carrying of infected and soiled clothing into private homes, there to be laundered and returned to the patron. The lack of sanitary surroundings in the homes of washerwomen, the exposures of clothing to unhygienic handling after washing and ironing give greater opportunity for reinfection than can possibly occur in the well ordered commercial laundries.

The excellent report by Harris and Swartz on the "Cost of Clean Clothes in Terms of Health," points out many inherent defects of laundries with suggestions as to the methods for overcoming them. Their report is devoted to a consideration of the factors injurious to employees, but is practically silent upon the large public health question of the danger to patrons. Unfortunately, they made no study of the individual workers, nor the relation of their working life to that outside the laundry, and thus it is in many ways difficult to accept, as proven, some of the causal relations upon which their recommendations were based.

From the data available it may safely be concluded that while dry sorting and marking, the heat and humidity of laundries, long hours of standing and imperfect ventilation are causative of some ill health among the workers, the mechanical processes involved in laundering are such as to secure the practical cleansing of the materials cared for by them and thus suffice to protect the general public from the hazard of contagious and infectious diseases.

Patriotism and Hysteria.—A man shot another recently in a heated controversy on a patriotic subject. The shooter was arrested and brought to trial. During the course of the trial it became obvious that the mental condition of the offender was not above suspicion, and two alienists were invited to examine him and report on the case. After subjecting the man to careful tests these alienists, both recognized as authorities in their special field, reported the man as insane on the question of patriotism. The presiding judge indignantly refused to accept their finding, maintaining with great warmth that in these critical days patriotism, however extreme in its manifestations, could not possibly be regarded as a mental aberration. It is easy to understand, and in a measure to approve, the judge's spirit in the matter, but in point of scientific precision the judge was distinctly transcending his authority in arbitrarily thrusting aside the studied conclusion of specialists equipped to render a decision in the matter of the offender's mental condition. They were called in to give a scientific, not a sentimental, opinion and they offered it with an unprejudiced spirit. The rebuke to the alienists implied in the judge's refusal to recognize their finding can have no good effect on the effort that is being made, from President Wilson down, to avoid hysteria in our patriotic manifestations. No one who has read the papers closely in the past few months can

deny that there have been excesses perpetrated in isolated sections of the country, and an incident such as this is scarcely calculated to act as a check to these excesses.

When the President issued his appeal to the country to suppress the lynching spirit that has shown an ugly front in certain sections, he had just such excesses in mind. He knew that they were injuring our cause and were being used for propaganda purposes in Germany. The appeal was timely and well advised. It is just because these are such critical times that there should be a concerted effort on the part of the level-headed public to avoid any manifestations which might betray a condition of hysteria which would be most flattering and encouraging to the enemy. The various elements in the country are more united today than they ever were in their fixed and solemn purpose to see this war thru and to see it thru properly. President Wilson's broad-minded and generous principles have been accepted unqualifiedly by even the most restive factions in this country. If there is a discordant voice raised here and there, those in authority are competent to decide whether it is raised with malevolent intent and to punish the offender accordingly. There are irresponsible elements in every community, and to approve of the excesses of these elements merely on the ground that they were moved by a spirit of patriotism would be a poor reflection on the quality of our patriotism. In a contest, the side that is confident of victory inclines toward coolness and magnanimity. The side that is doubtful of the issue is likely to grow nervous and resort to irregularities and violence. The hysteria that is now sweeping over Germany, the uneasiness of the masses, the reported cruelties to prisoners are only heartening signs of inevitable Allied victory, and the more certain the evidence of our victory the more acute this hysteria will become. But we in this country, sure of the result, can present a calm, steady front. Patriotism is not such a rare thing with us that we must welcome and encourage it in its worst forms. The judge who rebuked the alienists is very much in the position in which a high religious authority would be if he ruled that "in these irreligious days, no man who commits violence is a sinner if he commits it in the name of God." Many men and women obsessed with a religious mania have been committed to insane asylums in this country, yet no one can conclude therefrom that we are an irreligious nation. It is a mark of high patriotism to frown upon hysterical manifestations that are more embarrassing than helpful.

The Fourth Liberty Loan.—Before another issue of AMERICAN MEDICINE appears the campaign for the Fourth Liberty Loan will be under way. The part played by physicians with troops in the field requires no meed of praise beyond that given to all men who are performing their national duty in accordance with their vision and genuine feelings of service. The thousands of the profession who for various reasons are remaining in civil practice performing such duties as they may be called upon to perform with enthusiasm, devotion and loyalty are, none the less, among the potential fighters in behalf of humanity.

One might well ask, whose war is this? Men speak of *our* war, *our* troops, *our* battle-stained warriors, *our* brilliant successes, *our* shipping achievements, *our* management of finances and industry; *our* Nation is at war. There is no mere implication of ourness; it is a recognition and an acceptance. *We,* the people of the United States; *we,* the Government of the United States; *we* are at war.

When a campaign is launched for the purpose of raising funds with which to pursue our aim and object, a tremendous educational force is liberated to awaken the people as to their duties and responsibilities toward their government. Orators stress the virtues of purchasing Liberty Bonds for economic reasons. The investment value is urged. The value of a Liberty Bond is a means of saving money, of strengthening credit, of making provision against a rainy day. There is a vast stimulus to patriotism, civic duty and communal responsibility. The purchase of Liberty Bonds as a means of inculcating thrift possesses undoubted values. The emphasis placed upon bond buying as a means of investment is, however, inadequate as an appeal to thinking persons.

By this time scarcely a home in the land has not felt the touch of the poison-dipped fang of Mars, directly or indirectly. The

boys who have donned the uniform of their country; the girls who have rallied to every call that has been made in the fields, the shops, the factories, the hospitals, in every phase of humane effort have transformed the battle across the seas from an impersonal war to one that comes close to home. It is our war, not merely by proclamation and declaration, but by action and interaction, by effort, accomplishment, unified aims and specific ideals. The war for this country has been humanized in the sense that our human lives are being consecrated to humanity. There are no slackers worth mentioning, there are no wasters in numbers; today we are at war, all realize it, have evaluated it, and have determined to carry on until that eventful day when the vicious catspaw of fate with demoniacal possession will have been stripped of his powers and bereft of his sordidness and sent down to depths from which he ne'er can spring again. We are not pugnacious, we do not carry hate in our spirit, but we are determined that justice shall triumph and humanity be free, and are willing to wage now the war which may save future generations the pangs and sufferings which most of the world is undergoing today.

Those who are loyally giving service at home can and do fight. It may not be theirs personally to grapple with the enemy, but they still provide the sinews of war to gird up their representative heroes whose lives are sanctified by the glory to self-abnegation and self-consecration in the face of every living curse that Mars provides. The peaceful medical profession, consisting as it does of citizens of the United States, is at war. For them a Liberty Loan Campaign need not be prosecuted on the theory that Liberty Bonds represent the finest type of investment backed up and guaranteed by the assets of the United States. The profession realizes the importance of purchasing ships, munitions, food and clothing, but it is even more deeply conscious of the necessity of supplying necessary medical aid for our military and naval forces. At cantonments, in camps, at casualty clearing stations, at advanced dressing stations, hospital trains, naval hospitals, afloat and ashore, vast sums of money are required in order to provide the munitions for the forces of construction and peace. The agencies that keep men well, relieve the wounded and rehabilitate those physical bodies racked and torn by disease and missiles require support. Every physician glories in the accomplishments of his chosen profession. His money exchanged for Liberty Bonds is his method of indicating his personal desire to augment the resources of the government and foster the highest degree of efficiency in every phase of this epochal undertaking.

The call for the support of physicians to a Liberty Loan Campaign need not be based upon sordid or personal reasons that promise the enhancement of their personal welfare. The purchasing of Liberty Bonds is not to be regarded as an opportunity for making money, but rather as a privilege for a man to evidence his belief in the principles of the government of which he is a part, and his altruistic realization of what his temporary sacrifice will mean to his personal representatives who are defending him while he is protecting them. The purchase of Liberty Bonds is not a duty unless it is felt; it is not an obligation unless it is realized; it affords a high type of expression of those deeper feelings of consciousness that look to the progress of the world with a recognition of a desire to play some small part in it. It is a tangible evidence of the feeling of brotherhood. It is an unostentatious method of capitalizing one's inmost feelings in the interests of democracy. It is at once an opportunity and an inspiration.

It is estimated that the present conflict is being waged at a cost of $555 per second. The amount is startling to those unaccustomed to thinking in terms other than the small fees derived from the practice of medicine. Were it in the power to stop the war by the expenditure of funds along other channels, how quickly funds would be forthcoming. At the present time the grim prosecution of the struggle seems to be the only way out. Every dollar loaned to the government is contributed toward the cause of peace. How many seconds can the individual take off from the duration of the war? The financial aid provided for the successful termination of the war may be measured in terms of seconds. Each $555 for carrying out the policies of the government means one second more of warfare and one second more towards peace.

Aye, we are at war; each one of us; each a part of the government. We are buying from ourselves, loaning to ourselves, at trifling temporary inconvenience and without any real sacrifice in order that the American principles and ideals which we profess to believe and accept may be carried to desecrated countries in the interests of future generations. There should be no need for the screaming of eagles, the singing of songs, the waving of flags, the violent outbursts of oratory. Conscience, patriotism, understanding and the principles that underlie the medical profession should suffice to make the profession answer in no uncertain way the request of the government, their other self, for aid in taking up the Fourth Liberty Loan.

A Peace Counter-offensive.—During the critical months between March 21 and July 18, while the German offensive was at its height, the Allies were in a state of constant uneasiness as to the ultimate issue. The nerves of the public were on edge. Where will they strike next? How can we stop them? These were the questions on everyone's lips, but on July 18 General Foch supplied the long-awaited answer—the only effective answer—his brilliant counter-offensive on the Marne. The German offensive was stopped and stopped definitely and disastrously. The facts are common knowledge.

The impending German peace offensive is causing considerable uneasiness in certain quarters. Ever since the Russian débâcle and the Italian reverse at Caporetto, both largely due to German wile, bribery and deceit, the peace offensive has been regarded as a deadly weapon in the hands of the enemy. There is evidence abroad of a new peace offensive, of unprecedented magnitude, in preparation, and there is a good deal of apprehension in this country as to its consequences. The public is being warned that the enemy, recognizing his inevitable defeat, will try to evade the consequences of defeat by paralyzing Allied effort and unity with an insincere and treacherous bid for peace. He succeeded in Russia; he succeeded in a measure in Italy; he must not succeed with us. We are counseled to present a stern front to his advances when they come. The warning is timely, but is the counsel sound? We are asked to assume a defensive attitude, but why bide the time of the Germans and wait for the attack? Certainly General Foch has set us an enlightening example. It was Foch's conviction that to assume the defensive is to admit weakness, that the only answer to an offensive was a vigorous counter-offensive. When the Allies were on the defensive, waiting anxiously for the next German blow, the enemy was able to inflict great damage; but, once they gave up their waiting attitude, the tide turned. Perhaps it would be wise for the diplomats to take a leaf out of the soldiers' book. The object of a peace offensive, as Germany has employed it in the past, is to profess a readiness for peace on unselfish terms and so give the impression that the enemy is continuing the bloody struggle for selfish, imperialistic ends. Thus the home front is strengthened by leading the masses to believe that they are fighting a purely defensive war, and the enemy's armies are weakened by the suspicion that they are sacrificing themselves in a "senseless" war for conquest. The German invention of the word "senseless" is a cynical triumph of insincerity. In all her peace offensives, Germany never really entertained the thought of peace; military strategy, with a view to weakening the enemy, was the only consideration. The mockery of the treaty of Brest-Litovsk, coming after a noisy campaign in Germany against annexations and indemnities which completely disarmed the Russians, is a hideous example of German methods. Yet, despite their transparent insincerity, German peace offensives have been successful in no small measure, and one is forced to acknowledge that the peace offensive, as a weapon of war, is a formidable agent. But it is a weapon which, in the hands of the Allies, can be made deadly. If the Germans employed it with some success, we can employ it with overwhelming success, for we are perfectly sincere when we assert that this country desires no material rewards for its participation in the war. Even in Germany they have found it hard to make out a case against us, so that we are in a position to meet, perhaps even to anticipate, the next

treacherous offensive with a vigorous counter-offensive. This is not as impracticable as it may seem. If the Germans have succeeded in attributing to us a lust for conquest which is nonexistent, certainly it should be easier for us to bring to light in the Germans a lust for conquest which is unmistakable. In any event, it is very annoying, and it is probably very bad strategy, to show alarm and run to cover every time a German peace offensive shows its head.

Another French Victory.—After four years of war, the genius of France continues to evidence undiminished virility. With superb devotion, marvelous tranquillity and stoicism, and indomitable courage France struggles on defending three-quarters of the line on the Western Front. Despite the death of a million men, the crippling of another million, there are 4,725,000 men mobilized as officers and soldiers in the defense of their country. Their accomplishments also represent a brilliant record of medical achievement by the medical corps which has heroically risen to the necessities of the times in the protection of the health and welfare of the civil and fighting forces. The French combat against disease during the war, as described by Colonel Dercle, in *The Military Surgeon*, June, 1918, is a tribute to the medical profession, serving valiantly with their arm-bearing compatriots.

Typhoid fever, in the French Armies, has been met by vaccination. From a morbidity rate of seven per thousand in December, 1914 and January, 1915, the rate has fallen from 0.1 to 0.06 per thousand, while the mortality rate fell from 98 per hundred thousand in 1914, to 0.3 in 1917. Anti-typhoid vaccination has been as successful in wiping out typhoid fever as the Jennerian vaccination has made smallpox disappear from civilized and disciplined communities.

The prevalence of tuberculosis in France has been reported as appallingly great, but Colonel Dercle's statement that only 89,430 men were discharged for tuberculosis from August 2, 1914 to October 31, 1917, would indicate a rate of incidence that is not excessive for an army of men of the ages at which tuberculosis is wont to take its maximum toll. Incidently, many victims of the scourge were returned prisoners who had contracted the pulmonary affection by reason of their experiences in German prison camps. France is, however, alive to the seriousness of this menace and has already at its disposal almost 9,000 beds, together with a growing system of dispensaries, convalescent homes and similar institutions of proven worth in the management of pulmonary tuberculosis.

Wild statements with reference to the venereal diseases in the French Army have appeared from time to time, apparently at complete variance with the official figures. Before the war, the Army of France had a venereal admission of 21 per thousand, which since the war has fallen to 14 per thousand. This attests the successful use of venereal prophylaxis, which has not found a place in the medical service afforded British troops, in consequence of which the venereal disease rate among English soldiers is tremendously high compared with that of the French Army.

Considering that dysentery, diphtheria, and various diseases generally regarded as normal accompaniments of warfare no longer serve as a menace, the conquest of deadly maladies has gone apace with the victories achieved over war wounds. During the last offensive of the Aisne, the general mortality of the wounded in the French Army was only 5.18 per cent. Considering that 20 per cent. of the wounded were judged to be non-transportable, the mortality rate stands out as a tribute to the vitality and capability of the medical corps charged with the responsibility and care for the wounded.

The story of medicine and surgery as developed in the French Army forms a striking illustration of the constructive resourcefulness and the traditional courageous service of the French physicians, as well as an epoch-marking stage in the development of preventive medicine as applied by a nation at war.

Salvage.—The American Civic Association is inaugurating a national campaign for salvage. The collection and reutilization of so-called waste materials has been

characterized in a broad way as the junk business. With the scarcity of raw materials and increased prices, the saving of scraps becomes dignified into a serious business markedly affecting the industrial welfare of the country. The belligerent nations have actually established salvage corps in order to rescue as large an amount of war materials as is possible to glean from the fields of battle. In less than two years the English Army was able to salvage materials whose value amounted to $250,000,000.

The wealth of the United States and its abundance of materials during eras of prosperity actually interfered with the development of systematic economy, just as the abundance of vital resources served to weaken the interest in the physical welfare of human beings. Institutions, despite their budgetary limitations, have been wont to be prodigal in the use of food, clothing, drugs and hospital supplies. Attempts at salvaging paper, metals, rubber, rags and jewelry, bottles, jars, pasteboard, gauze, alcohol, lead, copper, glycerine, platinum, gold, silver, and the countless other commodities essential in many industrial pursuits would result in the saving of millions of dollars worth of materials and aid the government in carrying on its military operations.

The principle of salvage extended to the vital assets of the nation would redound to our social, economic and financial advantage in no uncertain way. Of the 2,500,000 men examined for the National Army in 1917, 33 per cent. were rejected because of physical unfitness. It has been estimated that about three per cent. of our population is constantly disabled by illness tho various sickness surveys suggest that this percentage is more nearly two per cent. Every man, woman and child on the average loses about nine days per year as the result of illness. The annual wage lost as a result of illness to the workers of the country may be conservatively estimated at from $500,000,000 to $750,000,000. This large sum does not represent the loss to industry as a result of the interference with the normal working of the vast industrial machinery during the period represented by the illness of the workers.

The salvage of gross inanimate materials is undeniably of great significance and value, but the salvage of the living population is of paramount importance. The saving of eyesight and hearing, the prevention of the numerous deformities and handicaps arising during childhood, the reduction of gonorrhea and syphilis, tuberculosis and typhoid, the reduction in the incidence of arteriosclerosis and the allied disabilities of the heart and kidneys, the prevention of occupational accidents and diseases would return to the country human resources of countless value and strengthen the industrial resources without any sacrifice of the basic welfare and morale so requisite during a period of national stress and heightened activity.

Practical salvage is to be attempted on a national scale in the efforts to rehabilitate the disabled soldiers and sailors. The application of the principles of physical and mental reconstruction with re-education and placement is equally necessary among the civil and industrial population whose usefulness has not been fully appreciated and whose problems of occupation have been treated with more or less indifference.

Salvage is saving; thrift and saving have a medical and surgical phase which can only be interpreted in the light of social values. Hospital Boards have awakened, thru force of circumstances, to the necessity for exercising unusual care in the administration of hospitals and dispensaries. There is still room for improvement, but at least an intelligent study is under way. The main problem of the salvage of human beings merits a deeper and a broader consideration on the theory that human beings are of more value to the community than cotton, gauze, rubber or any other of the raw materials worked by human hands for the comfort, welfare and development of human beings.

Could we judge all deeds by motives
That surround each other's lives,
See the naked heart and spirit,
Know what spur the action gives,
Often we would find it better
Just to judge all actions good;
We should love each other better
If we only understood.

—Rudyard Kipling.

ORIGINAL ARTICLES

THE MODERN CLASSIFICATION OF THE DISORDERS OF NUTRITION IN INFANCY.

BY

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In the following remarks, I shall not attempt to treat the subject exhaustively; but shall simply point out a few of the criticisms, which may be justly made against some of the better known classifications of the disorders of nutrition in infancy; to present a compromise classification, and to emphasize the importance of considering the degree of *food tolerance,* in each individual child.

All pediatrists are agreed that a satisfactory classification of the disorders of nutrition of infants is exceedingly difficult to formulate. Such a classification may be etiologic, pathologic or symptomatologic. The difficulty arises from the fact that the same etiologic factor may give rise to different clinical pictures, for example, overfeeding may result in simple indigestion, or in the much severer, alimentary intoxication. On the other hand,

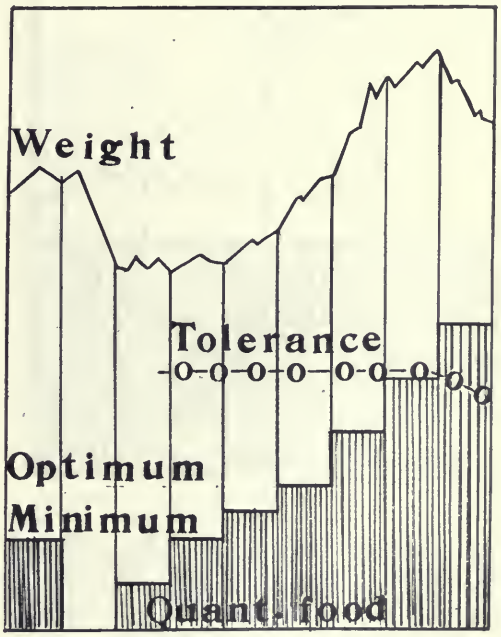

CHART 1.[1]

An infant suffering from indigestion, and on a small quantity of milk. All food is withdrawn temporarily, and a loss in weight results. With the disappearance of the symptoms of indigestion, the food is gradually increased, and when the amount given reaches the optimum, the weight of the child increases. The quantity of food is then increased beyond the point of tolerance, and a loss in weight ensues.

[1] EXPLANATION OF ABBREVIATIONS USED IN THE CHARTS.

Min.—The minimum amount of food necessary for maintenance. The amount on which the equilibrium is retained, but without a gain in weight.

Opt.—The optimum amount of food, that is the amount upon which the infant thrives and gains regularly in weight. (Approximately 45 calories to the pound of body weight.)

Tol.—The tolerance for food. The amount beyond which it is not possible to go, without causing disturbance.

different etiologic factors may result in producing similar clinical pictures, for example a simple indigestion caused by feeding beyond the point of tolerance may resemble in its symptomatology an infectious diarrhea. A pathologic classification is difficult, because entirely different clinical pictures may be present, in cases which at autopsy show similar pathologic changes, or in many instances show practically no pathologic changes at all. Many of the cases of nutritional disorder are not due to one etiologic factor, for example, the disturbance may be due to overfeeding during the summer months, so that the injury due to warm weather is added; or a bacterial infection occurs in an infant which is congenitally constitutionally inferior. All classification must therefore be of necessity schematic.

In this country, at least in the Eastern States, the classifications of Holt, and of Morse and Talbot, are probably the best known. Holt's classification, as will be seen, is an anatomico-pathologic one.

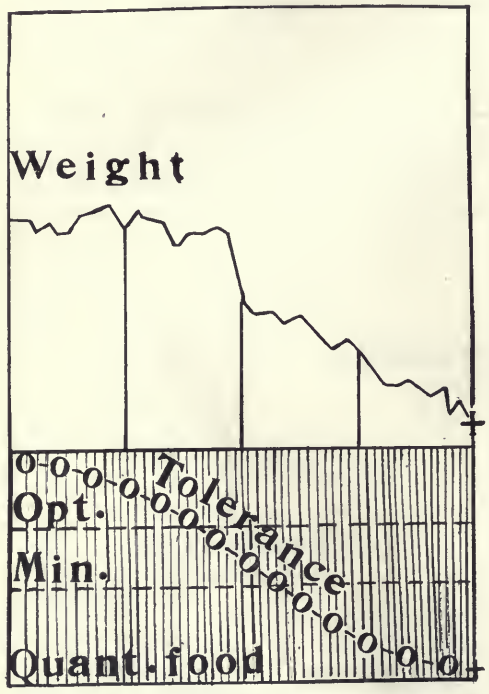

CHART 2.

The quantity of food given is above the point of tolerance. This is continued, with the result that a loss in weight ensues. This overfeeding is continued, the tolerance becomes lower and lower, and death results.

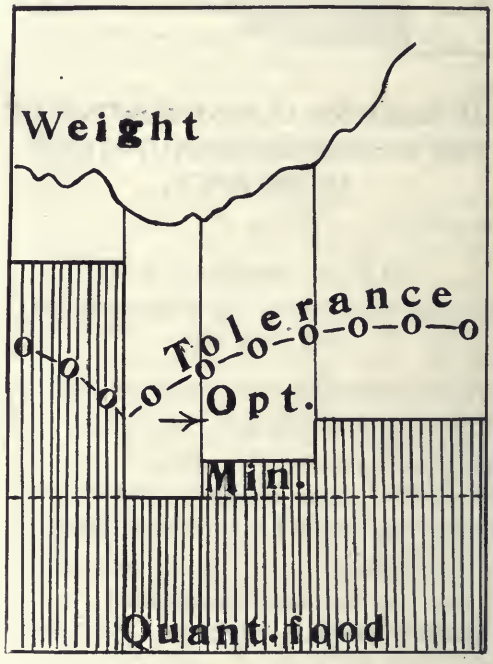

CHART 3.

Too much food is given, the tolerance is thereby lowered and the weight remains stationary. However, the error is recognized and the amount of food is reduced. The tolerance is thereby increased, a greater amount of food is given and when the optimum amount is reached a progressive gain in weight results.

Acute gastric indigestion.
Chronic gastric indigestion.
Acute intestinal indigestion.
Chronic intestinal indigestion.
Acute ileocolitis.
Chronic ileocolitis.
Intestinal intoxication.
Cholera infantum.
Acute inanition.
Malnutrition.
Marasmus.

The chief objection to such classification lies in the fact that it assumes that we can locate the site of the trouble, and can determine the nature of the lesion, from the symptoms which the patient presents. It assumes that vomiting is nearly always due to gastric disturbance, that changes in the

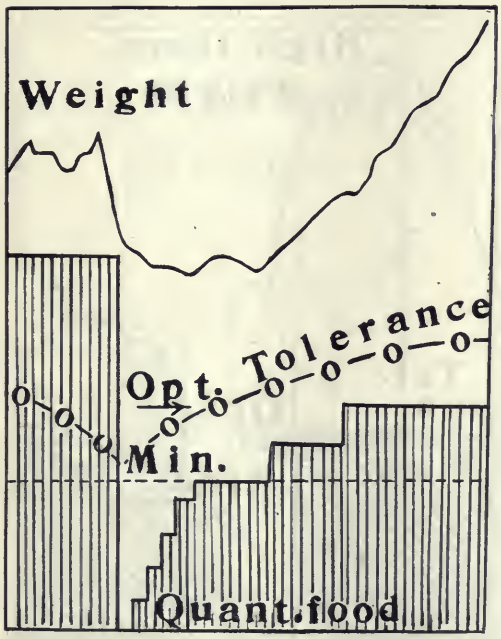

CHART 4.

A more advanced case than that represented in Chart 3. Too much food has been given for some time and the tolerance has been greatly diminished, with a marked loss in weight. In order to raise the tolerance, the amount of food is at first greatly diminished to a point below the minimum required for maintenance. It is then increased very gradually, the tolerance is raised and when the amount of food given reaches the optimum, a rapid increase in weight results.

stools are due to disturbances in the intestinal tract, and that we can determine with a fair degree of accuracy the character and site of the lesion, from an examination of the stools.

The classification of Morse and Talbot is largely a symptomatic one. They admit the shortcomings of such a classification. To quote their own words:

"It is extremely difficult to draw a distinct line between simple indigestion from excessive amount of food, indigestion from an excessive amount of one of the constituents, fat, carbohydrate, protein, salt, indigestion with fermentation, infectious diarrhea, cholera infantum indigestion and indigestion with fermentation on the one

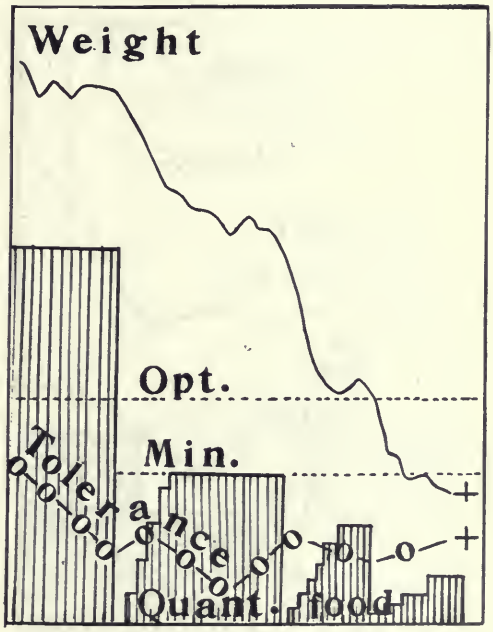

CHART 5.

The amount of food given has been far and long above the point of tolerance. The quantity is greatly reduced and several attempts are made to gradually increase the amount given. But the tolerance has reached such a low level that every effort fails, the weight progressively diminishes and death results.

hand, and between indigestion with fermentation and infectious diarrhea on the other." . . . . . "It is often difficult to distinguish between simple indigestion and indigestion with fermentation, because all but the mildest cases, of simple indigestion are accompanied by a certain amount of fermentation in the intestinal contents, as a result of bacterial activity in them." . . . . "The border line between them is therefore a very indefinite one, and must often be arbitrarily drawn. The manifestations of simple indigestion of the various food elements are moreover very similar to those

of the fermentation of these same elements, as the result of abnormal bacterial action. This makes it still more difficult to draw the line. It has to be drawn principally on the relative severity of the symptoms in general, and especially on the degree of evidence of fermentation." . . . Speaking of infectious diarrhea they say, "The symptoms produced by these different types of organisms are practically identical. It is impossible to determine from them the type of organism which causes the disease. The symptoms of infectious diarrhea may be precisely like those of simple indigestion, or indigestion with fermentation." . . . . "Cholera infantum.—No specific microorganism has ever been found for this disease. In fact it is not certain that it is caused by any form or forms of micro-

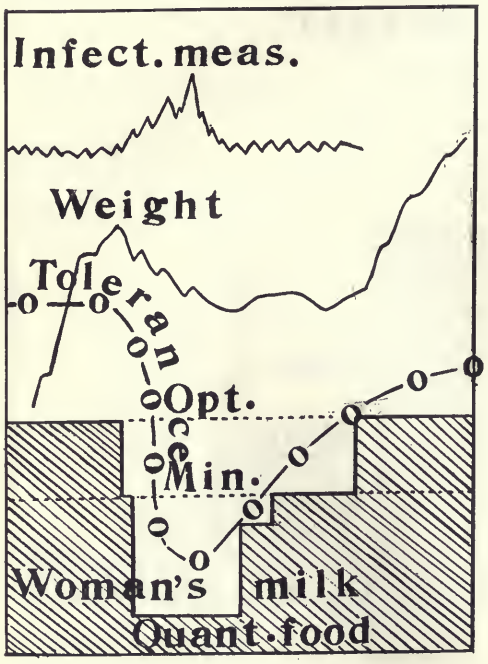

CHART 6.

Illustrates the effect of an intercurrent attack of some infectious disease, in this case, measles. During the latter part of the stage of incubation there is a loss in weight. At the height of the disease, the tolerance for food is markedly diminished. Fortunately the appetite is diminished also and very little food is taken. As the fever and other symptoms subside, the tolerance for food increases and the weight gradually rises with the increased intake of food.

organism. It is possible that it is merely a peculiar manifestation of some unusual type of intoxication, or disturbance of metabolism."

The classification suggested by Czerny and Keller some years ago is the one accepted by the majority of German pediatrists, either in the original or in a modified

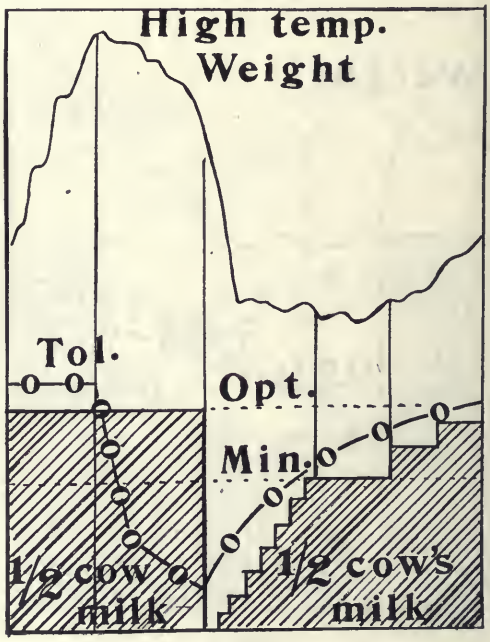

CHART 7.

Illustrates the effect of the high temperature of summer. As a result of the heat the tolerance for food is reduced and overfeeding is followed by a rapid loss in weight. The tolerance is then raised by reducing the quantity of food taken, and as the tolerance increases the amount of food given is increased and a gain in weight is obtained.

form, and by many American pediatrists. Certain of its deficiencies have been pointed out by Finkelstein.

Alimentary disturbance due to milk, or to fat, starch, or sugar, disturbances due to infection, disturbances due to congenital peculiarities.

To Finkelstein belongs the credit of having carefully studied those cases which are due to purely alimentary causes, and of hav-

ing drawn clear cut clinical pictures of the various types of disturbance. These he has divided into disturbed balance, dyspepsia, decomposition, and alimentary intoxication. He does not insist on these terms, they simply serve as labels, but each represents a distinct clinical type, with characteristic

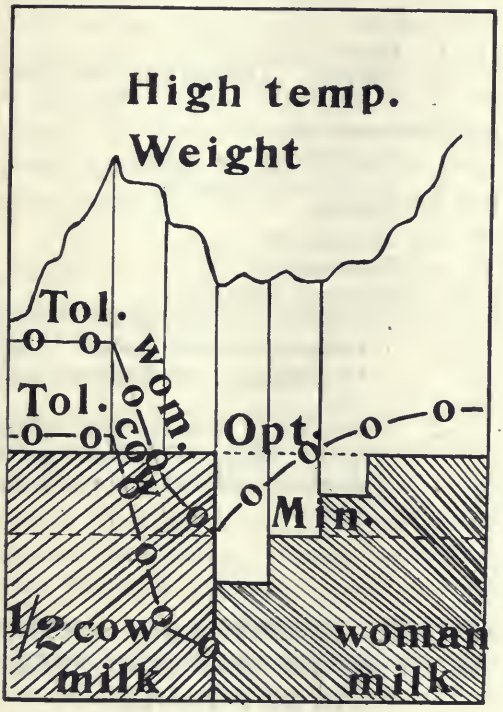

CHART 8.

Represents graphically the greater tolerance for human milk as against cow's milk, especially in warm weather. With the high temperature of summer, the tolerance for food is considerably lowered. When small quantities of human milk are substituted for cow's milk, the tolerance is rapidly increased, and with the gradual increase in the amount of human milk given, the gain in weight is readily obtained.

symptoms. Above all, he, and those who have accepted his views, has laid stress upon the importance of considering the degree of tolerance for certain food elements in each individual case. In charts 1-10, constructed by Von Pirquet, the practical value of this point of view is very well illustrated.

This conception has also been of value in the study of other conditions, for example, Allen's treatment of diabetes is largely based on a similar conception. Finkelstein emphasizes the fact that many of the symptoms associated with the nutritional disturbances of infants, notably fever, are not due

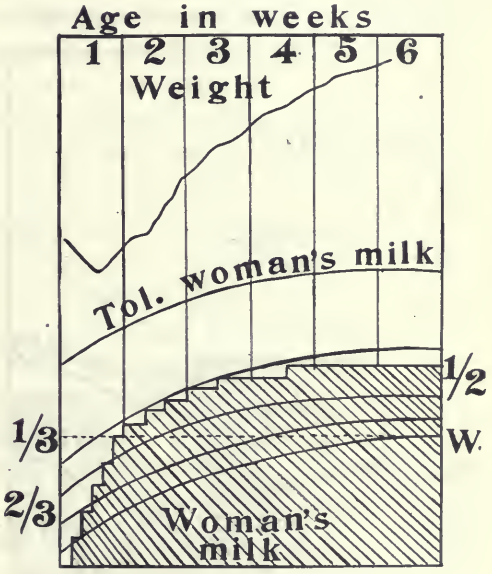

CHART 9.

Illustrates the conditions in the newborn. There is an initial loss of weight during the first few days. The greater tolerance for human milk is shown and the relative degree of tolerance for the different strengths of cow's milk is graphically represented. Human milk has a beneficial effect in increasing the tolerance for cow's milk. There is a progressive gain in weight as the amount of human milk becomes greater.

primarily to bacterial infection, for in many cases they may be made to disappear by simply withdrawing the food. This could hardly cause the immediate disappearance of the bacteria and their toxins. He also pointed out that similar nutritional disturbances occur in exclusively breast fed infants, and in a certain number of infants in institutions, in which only certified milk is used. Even the severe cases may be immediately

improved in many instances by the withdrawal of food, which would be unlikely if marked changes had occurred in the gastrointestinal tract. As Morse and Talbot state, it has never been demonstrated that the symptom complex which he calls cholera infantum is associated with a specific microorganism, or a particular intestinal flora.

The following classification, suggested by

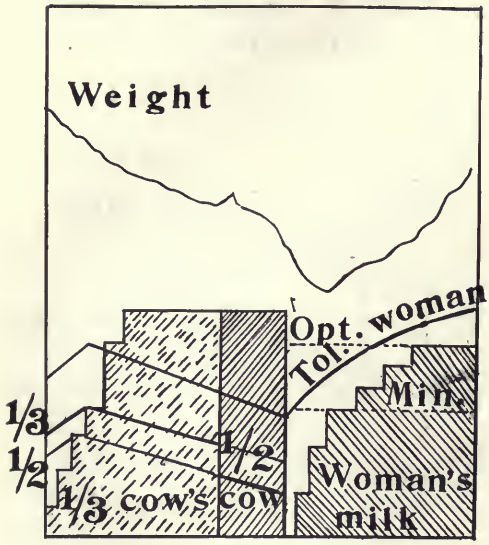

CHART 10.

Illustrates the difficulties in the artificial feeding of the newborn. When the quantity of ⅓ strength of cow's milk is increased beyond the point of tolerance, the weight diminishes; and when the strength of the milk is also increased to ½, the tolerance is lowered still further, with a continued loss in weight. By withdrawing all food, and then substituting human milk, the tolerance is rapidly increased, and when the quantity given reaches the optimum, the gain in weight is marked.

Schelble, represents a sort of compromise. As has been stated such a classification is of necessity schematic, but it serves as a convenient working basis.

A. Normal child.

I. Alimentary causes.

1. Overfeeding. Disturbed balance. Dyspepsia. Atrophy.
2. Underfeeding. Inanition.
3. One-sided feeding. Excess of milk, or of starch.

II. Infectious causes.

1. Enteral. In the gastrointestinal tract.
2. Parenteral. From parts of the body outside the gastrointestinal tract.
   a. With appetite retained. Relative overfeedings. Symptoms similar to those of II.
   b. Appetite lost. Inanition.

III. Heat.

1. Direct. Heat stroke.
2. Indirect. Diminished food tolerance.

B. Abnormal child.

I. Constitutional anomalies.

1. Exudative diathesis.
2. Rickets.
3. Anemia.
4. Neuropathic.

II. Structural anomalies.

1. Anomalies of individual organs. Congenital heart disease. Malformations of the digestive tract, etc.
2. Anomalies of development of the whole body. Probably due to disturbance of the endocrine system.

SCIENCE, WISDOM AND COMMON SENSE IN THE ARTIFICIAL FEEDING OF INFANTS.

BY

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Infant feeding has at least assumed a historic interest. Years have now intervened since many mothers decided to give up breast feeding as an additional burden to their many domestic tribulations and since physicians began to realize that they were mightier than our Creator. However, the philosophy of life is to take things as they come, hence the pediatrists. Mathematical formulae are an interesting and necessary study in astronomy, but I cannot see how foodstuffs can be mathematically ar-

ranged to the human economy. Foods that require mathematical formulae of great complexity cease to give to that individual infant anything but arithmetical nutrition. However, since infants must be kept alive and since mothers seem willing to pay us to do so physicians have delved somewhat into the mysteries of adequate food essentials in the infant dietary. One of the modern fads and, like many fads, it can be of great benefit, is the method of caloric feeding. Caloric feeding, pure and simple, is only one spoke in the wheel. It is of great importance if well understood and as a further aid in minimizing the perplexities of a well-organized dietary. To put caloric feeding into the hands of an inexperienced physician is only to put a delicate tool in the hands of a tyro. The basis of caloric feeding then is the calorie itself, which means the quantity of heat required to raise the temperature of one liter of water one degree centigrade. This rise may spring from chemical combustion, from the sun's direct rays, from artificial heat, and from the chemic action of friction, etc. Now there are certain restrictions to caloric feeding *per se*. In summer high caloric feeding is not as necessary as in winter. Heat must be liberated as the result of the chemical activities of the body or a human could not live. In summer it is far easier to store up heat energy than in winter and a less number of calories are therefore required. Fats, sugars, starches, meats, all produce heat and in modified form, and at the proper age of the individual are digestible and requisite. Therefore in selecting a proper food the individual, his characteristics, age, desires, muscular activity, size, weight and necessities, as well as the season of the year, must be taken into consideration. Different foods have different caloric values—the same food may differ at different periods. For instance, the percentage composition of human milk as well as that of cow's milk may vary within wide limits. There is, therefore, marked fluctuation in caloric value. The artificially-fed infant requires more calories than the breast-fed, as the work of digestion is more labored. Infants underweight require more calories than those of normal development. In general, infants require from 100 to 120 calories per kgm. of their body weight. The zeal of many physicians to acquire a sufficient number of calories, but overlooking an adequate protein content in the dietary, is often seen. The amount of food needed to stimulate growth cannot be computed by the amount of heat thrown off from the body. If, for instance, only as much heat is taken into the body as is given off, no storing up of protein or growth of body can take place. It is not necessary also to point out the fact that with an adequate combination of nitrogenous and non-nitrogenous foods there must be water enough ingested to dissolve them and oxygen enough to burn them. 2,000 cubic feet of air is need thru the lungs of an adult daily if enough oxygen is to be furnished; children, therefore, must get theirs in proportion. In employing the caloric method the physician should ask himself the question, does the food calorie supply heat only or does it stimulate normal growth to the individual? In artificial feeding the infant starts with food rich in fats and carbohydrates but poor in protein. It must receive a sufficient number of calories proportionately to body weight else it cannot gain. If, however, protein is sacrificed to calories, meaning now to fats and carbohydrates, the infant loses or dies. There is no such

thing as a definite number of calories for an individual child. Each infant is a low unit itself and it is, therefore, very important to fit the food to the digestive capacity.

Let us in turn pass on to our second stage on the infant's nutrition, namely, the vitaminic principles of foods. What are then, the vitamines? The chief constituents of foods as Tibbles points out are the proteins, fats, carbohydrates and salts but chemical and experimental observations show that foods contain something more than albumen, globulin, glutelin, casein, stearin, palmitin, olein, sugar, starch and dextrose; in fact, they possess certain accessory substances essential to the growth, development and to the well-being of the organism. Exclude them and the body suffers and is liable to disease. What these substances really are is not well known and has been the subject of much recent study. But various substances have indeed been isolated from foods whose presence, in that food, influences nutrition favorably, and whose absence does just the opposite. These substances have been called vitamines. It has long been known that animals grow quicker, larger and become heavier when fed on some kinds of foods than upon others. Vitamines are found in fresh milk, eggs and yeast, meat extracts, yeast extracts in growing grain and in all grains which have not been deprived of their pericarp (wheat, oats, barley, red rice, corn) and in the substances which have been removed from them such as wheat, bran, rice bran, corn bran, germ of wheat and other cereals; also they are found in beans and in rapid growing vegetables. Most fresh animal, vegetable and fruit juices contain the vitamines. They are often destroyed by exposure to long continued heat and disappear perhaps in foods kept for a long time in storage. These delicate bodies are known to be derivatives of nuclein and nucleic acids. Foods should be fresh or cooked for as short a time as possible. The sterilization of milk by boiling and often by pasteurization, and the canning of foods, meats, vegetables and fruits often deprive them of these sensitive principles. There has been at times great difficulty in isolating these vitamines from foods, as, for instance in their isolation from yeast and from rice polishings. Accordingly attention has been directed to the preparation and to the testing of synthetic substances which appeared likely to display some curative properties similar to the vitaminic fraction of natural foodstuffs, says Robert R. Williams writing in the *Journal of Biological Chemistry* of 1916. Two facts indeed show up clearly: First that the curative substance seemed to be a pyridine derivative since the curative fraction of rice polishings contains nicotinic acid and has been found to develop a pyridine-like odor under certain conditions. A second hint was found in the fact that the blue color reaction given by anti-neuritic foodstuffs when treated with phosphotungstic acid and alkali seems to be rather closely associated with the potent constituents. Accordingly a series of pyridine derivatives were prepared, the therapeutic action of each individual roughly tested on polyneuritic pigeons by the administration of doses of 1 to 10 mg. by intramuscular injection. In some cases doses of 10 to 100 mg. were administered by mouth as a supplementary test. The series included nicotinic, cinchomeric, quinolinic, 6-hydroxynicotinic and citrazinic acids, a-hydroxypyridine, glutazine, 2-4-6 trihydroxypyridine and its anhydride and finally 2-3-4 trihydroxypy-

ridine and the so-called tetrahydroxypyridine. Death usually follows within twenty-four hours or it may occur at any moment. Many birds of this series died before they could be treated. During and after treatment the birds were continued on a diet of white rice, a redevelopment occurring within a few days.

On treating these polyneuritic pigeons with the substances above mentioned definite evidence of curative power was noted in the case of a-hydroxy-2-4-6 trihydroxy and 2-3-4 trihydroxypyridine. The remainder of the medicinal remedies showed no effect whatsoever. In each case all the cures obtained were of those pigeons which were first treated with a given preparation while those treated with the same preparation a few days or weeks later received no benefit. It was obvious that the substances had changed in some manner so as to lose the curative power. As there was no evidence of decomposition it seemed probable that it was due to isomerisation. This isomerisation of these substances would suggest that this change is at least partly responsible for the instability of the vitamines in foodstuffs in general. However, the ultimate effects on the general health and weight of the birds from these synthetic products were less satisfactory than were those of the natural vitamines.

The above illustration has been used to emphasize the point that certain substances in food are necessary for the body functions. To apply our illustration: Foods should be fresh, if possible raw, as fresh as possible anyway, and cooked only so long as will ensure the maintenance of these vitaminic principles. When meats, vegetables and fruits are fresh their salts are partly dissociated and ionized and such ions are of importance for metabolic processes. When, however, foods are not fresh when dried, tinned and treated in many other ways these salts are sometimes no longer in the ionic condition and are partly inert. A guinea pig, for instance, fed on fresh potatoes alone will live for months, but a pig fed on potatoes which have been dried and then boiled develops scurvy and dies within a few weeks. Similar conditions are seen when dried cabbage and carrots are used. While vitamines are required in small quantities for normal growth yet a certain quantity must be present before growth can take place and the larger the quantity present in foods usually the greater the growth.

According to Talbot and Peterson certain fresh vegetables lose their antiscorbutic properties in varying degree when dried, for instance, potatoes, carrots, dandelions, white cabbage, etc. Freshly preserved cabbage juice loses its antiscrobutic principles when heated from 60 to 100° C. for ten minutes. On the other hand other foods can withstand great heat—the cooking of ordinary rice, the boiling of peas, or the baking of beans does not destroy their vitaminic principles in the least. Raspberry juice can be cooked one hour without harm at 110° C. and lemon juice withstands heat which would harm cabbage. When these vitamines are taken into the body cooked or uncooked in the hulls of rice, wheat and other food products it is believed that they are set free and presumably stimulate the secretions of the various glands such as the thymus, parathyroid and other internal glands. They may influence these glands directly in their nutritional capabilities or they may act as hormones whose work is the activation and stimulation of enzymes.

There remains still unfortunately no chemical knowledge in many books as to

what degree of temperature these vitaminic bodies are destroyed. After much arduous labor Holst and Froelich were unable to determine the nature of the antiscorbutic bodies in fruits and vegetables either by dialysis, extraction or by other methods. Now Funk has a theory that the vitamines are a constant part of the nucleic acid present in the cells of food which theory seems to be generally accepted. However, on the other hand, McCaskey believes that these sensitive bodies belong, as mentioned before, to the pyrimidine chemical basis and that they are destroyed thru cooking.

Now our third progressive step takes up to the clinical practicability of putting into practice the first two. We must then not forget that in general infants require from 100 to 120 calories per kgm. of body weight as previously pointed out. We should also remember in addition to give foods easily digestible which prove of high vitaminic value. It is easy to estimate the number of caloric requirement by the multiplication table; it is not so easy to compute the vitamines in this simple manner, experience and experimentation must be brought to our aid. Human milk is quite naturally the ideal food for infants, either the milk from its own mother or that from a wet nurse thoroly examined and adequately nourished. Mixed feeding comes next and lastly artificial food only. Within the first year the infant is fed raw cream, raw cream and skimmed milk, long cooked cereals, fruit juices, sugars, vegetable soups or jellies, all containing their allotted number of calories and their sensitive vitaminic properties, one just as necessary as the other. It is impossible for any physician to prescribe a day to day, week to week, month to month plan of infant food modification. It cannot be followed owing, and quite easily understood, to temporary loss of appetite, conditions of teething, slight head cold, moderate constipation and to many other minor causes.

If the mother cannot nurse her infant, if also suitable wet nursing is impossible, a proper modification of cow's milk must be used. As I have before mentioned, it is best for the mother to give the infant as much of the breast milk as possible combined with bottle feeding, the so-called mixed feeding. To approximate human milk, the protein of cow's milk must be diluted, its sugar content increased. Cane sugar has given me satisfaction always. In my own modification, I use Grade A certified milk. The mother is instructed to place the bottle of milk upon the ice, where it remains five hours. The cream is then carefully poured off into a freshly rinsed out bottle and sealed with absorbent cotton. The skimmed milk remains in the original bottle. Depending on the age of the infant, the mother takes of the cream a certain amount, of the skimmed milk a certain amount, adds to the mixture a small amount of cane sugar, ʒii, a certain amount of lime water, adequate ounces of boiled water, and with the mixture at 90° F., the food is ready. Up to five or six months, the modification is made practically as above, increase in the milk being from week to week; after this time, whole milk is given, and gradually cereal gruels such as farina, oatmeal, and barley are added, beginning with small quantities and gradually giving more of them. The stools and the general condition of the infant must be closely watched. From the first, that is shortly after birth, raw, warm, slightly sweetened orange or pineapple juice can be added advantageously to the diet. Apple juice and prune juice, long cooked, sweetened, and strained, served warm, are excellent food adjuvants. These

fruit juices are laxative, diuretic, and stimulate the liver, intestines and stomach.

From six months on, the boiled water is gradually eliminated, the gruel waters in turn assuming their place. For the last two or three years, and given from that age on, the soups of long boiled and strained lima beans and peas have proved very satisfactory in my hands. They are used for their vegetable starches and proteins. Where cereal gruels are not tolerated, they seem to act well. In many cases the cereal gruels and the vegetable soups can be given together with the milk.

It would seem then that in following out the successful feeding of infants, in understanding the capabilities and pitfalls of calories, in realizing the great importance of the knowledge of vitamines, and in the adequate understanding of the combination of these facts into a proper modification of milk and its adjuvants, the burdens of the physician would be greatly lightened. A restricted, hampered, untrained mind should never attempt the tremendous uncertainties of the infant dietary.

To those mathematically inclined, a short series of foods used within the first year and their caloric values, by Alida Frances Pattee, is here appended:

Cream thin, 18 per cent., 1 tablespoon, 29 calories.

Cream thick, 4 per cent., 1 tablespoon, 440 calories.

Milk whole, 1 tablespoon, 14 calories.

Milk whole, 1 cup, 169 calories.

Milk skimmed, 1 cup, 89 calories.

Milk skimmed, 1 tablespoon, 7 calories.

Milk skimmed, 1 quart, 358 calories.

Farina, 1 tablespoon, 34 calories.

Oatmeal granulated, 1 tablespoon, 55 calories.

Oatmeal granulated, 1 cup, 880 calories.

Olive oil, 1 tablespoon, 135 calories.

Pea flour, 1 tablespoon, 33 calories.

Pineapple, fresh, 98 calories.

Raspberry juice, 1 cup, 90 calories.

Sugar granulated, 1 tablespoon, 60 calories.

Barley flour, 1 tablespoon, 57 calories.

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SOMETHING DEFINITE ON THE TREATMENT OF THE TOXEMIA OF PREGNANCY.[1]

BY

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A few words of explanation may be in order before taking up the subject-matter of my paper. In the first place, I give full recognition to the fact that no one yet knows the exact origin of the toxemia of pregnancy; that no one has yet discovered or isolated the particular poisons that produce those peculiar and widely prevalent symptoms so often fraught with distress or disaster to child-bearing women.

I am assuming, however, that the consensus of advanced opinion on the subject is right in ascribing the source of these poisons to the products of conception. I am assuming, furthermore, that there is an early toxemia, and a late toxemia; and that in all probability the two are somewhat different in nature and origin, as we know they are different in clinical manifestations; that it is most probable that the early toxemia, manifested chiefly, but not wholly, by nausea and vomiting, is of syncytial, or placental-cell origin; while the late toxemia, the culminating fury of which we see in the

[1] Read at a meeting of the Montgomery County Med. Society.

eclamptic seizure, is primarily of fetal origin, but may be influenced or aggravated by syncytial products, as well as by extragenital poisons such as those from the gastrointestinal tract.

Personally, I hold to the opinion that the nausea and vomiting of pregnancy is always toxemic, except, perhaps, when it occurs in the husband—there is no such thing as normal, or physiologic "morning sickness," and no such thing as purely reflex or neurotic vomiting. I would rather believe that what the books thus classify as different varieties of nausea and vomiting, are simply different manifestations of the varying degrees of toxemia, influenced, in individual cases, by reflex or neurotic factors.

So much for a brief statement of my position on these disputed and unsettled questions.

Now a word or two as to why I have used the term, "something definite," in speaking of the treatment of a condition whose origin is anything but definite, and which, therefore, cannot have a definite or specific rational treatment. If any one came here expecting to hear of a new treatment for pernicious vomiting, or a never-failing cure for eclampsia, let me hasten at the outset to disabuse his mind of any such false impression.

Notwithstanding this disclaimer, I shall still crave the privilege of trying to give you something definite in the treatment of these two forms of toxemia.

I am sure I need but refer to the great variety of remedies, and widely differing views on this subject, to remind you that there is need for something more definite, and therefore more satisfactory, in the handling of this class of cases. Men have complained that there are so many widely different theories and treatments for eclampsia, for instance, that they are usually at a loss to know what to do first. They have felt the need of a clear-cut positive statement of the best course to pursue, not an arbitrary mechanical rule, but something reasonably definite to serve as a guide to intelligent treatment. Likewise, it has not been an uncommon experience, when called to see a case of persistent or aggravated vomiting, to be told by the attending physician that he had "tried everything in the pharmacopeia," and he believed there was nothing else to do now but empty the uterus. I have seen a good many of these cases in the last few years, and almost every one of them had been put thru the same trial of multiple remedies, with the same failure in results. Only the other day I was called to such a case, where the doctor made the significant remark: "I have given that woman everything in the book, and nothing does her a bit of good." His expression "everything in the book," aroused my curiosity to know just what that would include if we took it literally. Happening to have on my desk the very latest 1918 edition of one of the best books published on obstetrics, I turned to the chapter on pernicious vomiting, and copied off the following list of remedies there suggested: cocaine spray to the fauces, lavage of the stomach, lavage of the colon, electricity to neck and stomach, iodine internally, cerium oxalate, bismuth subnitrate, antipyrin, nux vomica, ipecac, adrenalin, menthol, hyoscin, cocaine (internally), bromides, chloral, opiates, calomel and salts, nitrate of silver to the cervix, cocaine to the cervix, vaginal packing, dilatation of the os, blood serum, corpus luteum, and finally, abortion—twenty-five remedies in all; and fearing that this author might possibly have omitted something, I took down another well known text, and

copied off fourteen more, not included in the above list. Is it any wonder the busy physician appeals for something definite? Is it any wonder, after an unsuccessful, haphazard trial of all, or any considerable number of these thirty or forty "cures," the despairing doctor should want to ship his worse than starving patient to the hospital to have her uterus emptied? In the particular case referred to, however, I did not find it necessary to empty the uterus in order to stop the vomiting. And I may say in passing, that for the last four years, at least, I have not had a single case in which it was necessary to do an abortion for vomiting. Perhaps you think I have been unusually fortunate in the type of cases coming under my care. That is quite possible, and yet when I remind you that a large proportion of these cases was seen only after the family doctor had gone the limit, and had become alarmed at their seriousness, I think you will grant that I have had to do with a fairly representative type of the disease.

What, then, has been my plan of treatment? Before giving a direct answer to this question, let me say that a little study and observation along this line, some four years or more ago, chiefly in the Vienna clinics, impressed upon me two points, especially: First, that if the toxemia of pregnancy is of syncytial origin, and is overcome or neutralized in the normal pregnant woman by some specific protective cell-product generated in her own blood, then it follows that the logic treatment for the woman who fails to thus cure herself, is to reinforce her blood with the blood serum from a pregnant woman who is, or has become, normal by reason of her successful development of these protective cell products.

The second point that impressed me was, that in practically all cases of early toxemia —and late toxemia too, for that matter— there is a more or less pronounced degree of acidosis, the overcoming of which should greatly aid the blood in developing the protective ferments necessary to prevent or relieve the nausea and vomiting, or other manifestations of toxemia.

The combination of these two ideas seemed to me to offer such a reasonable theory of treatment, that when I returned home, I sought the earliest opportunity to put them to the test. It was not long before there came under my care in the Samaritan hospital, one of the most desperate cases of pernicious vomiting I have ever seen. One of the type that in the past had too often meant the loss of the child, or of both mother and child.

This patient was primipara, about five months pregnant, who, from the start, had resisted all efforts of her physician to control her vomiting. For seven weeks she had been unable to retain any food by mouth, and was now so extremely weak and exhausted that it was feared she would not even bear removal to the hospital, where she was sent for the purpose of terminating pregnancy. I at once started this apparently hopeless patient on carbonate of soda and salt solution by bowel, giving nothing, of course, by mouth, and then began to look for a donor from whom to obtain suitable "immunized" blood serum. I was fortunate enough to have in the hospital, at the time, a private patient awaiting delivery, whom I knew to be free from any signs of toxemia. As soon as it could be prepared, I gave my vomiting patient about 20 c. c.'s of inactivated serum from this healthy woman. She vomited but once after receiving the serum. Of course, we continued

to give the Fischer's solution as rapidly as the bowel would absorb it, adding to the day's quantity, from one to two drachms of bromide of soda. In less than a week she began to take food, and in three weeks she was able to leave the hospital in normal condition, except for weakness. The alkaline treatment was kept up for some time at home, where she went on to term without further disturbance.

This first test of the new theory had apparently been a great success, but of course, had proven nothing, except that it was possible to satisfactorily administer such a course of treatment. A number of other cases coming under my care were successfully treated in the same manner; enough to convince me, that we had at last found a rational and successful, if not always a practical, method of relieving hyperemesis without destroying pregnancy.

It was soon found, however, that the difficulty of obtaining suitable donors, just when and where they were needed, prevented the general adoption of this plan of treatment; altho for some time after my experiments were made, a number of more or less favorable reports along the same line appeared in both home and foreign journals. One thing we had learned, and that was, that even if we could not always get blood-serum, we could at least carry out the other part of the treatment, and overcome the patient's acidosis, and this I continued to do in my own cases, with such good results that I do not hesitate now, after four years further experience, to speak of this plan of treatment as "something definite," if no longer something new.

I have no doubt that, to many of you, this acidosis theory and treatment in pregnancy is a familiar story, but for any to whom it is not, the report of another case or two, will perhaps serve to explain the details of the method better than an abstract description. The last two cases under my care were especially interesting. I could just as well take the last ten or twenty cases, so far as results are concerned, but it would consume too much time.

One of these cases was treated at home, and the other in the Samaritan hospital. The hospital case was a young woman sent in with the history that twice in the last fourteen months she had had abortion done for pernicious vomiting, and had been told that she would never be able to go thru a pregnancy. This made the treatment of her case all the more difficult, for there is no question that the mental attitude of the patient, which is a big factor in any illness, is especially important in the toxemia of pregnancy, regardless of what may be its exciting cause. It is a great mistake for any doctor to set himself up as a prophet in pregnancy, or to presume, in the light of a present experience, to tell a woman what will, or will not happen if she ever becomes pregnant again. This patient felt so wretched and weak from her constant vomiting, that it was almost impossible to convince her, even after she began to improve, that her former physician might have been mistaken when he told her she could never carry a child to term.

Her treatment consisted: First, in carefully explaining to her that she could be relieved of her vomiting without emptying the uterus; that for several years we had not had a case where such a desperate measure was necessary, altho many of them were as bad as she; that if she cooperated faithfully and patiently in our efforts to relieve her, she would probably be able to take food without vomiting in about a week's time. Second, in cleansing the bowel by copious

enemata, and then giving by Murphy drip, three hours on and three hours off, a solution consisting of sodium carbonate, three drachms, and sodium bromide, one drachm, to the quart of normal salt solution. Third, in giving for the first three days, absolutely nothing by mouth, except water containing bicarbonate of soda, ten grains to the ounce, which was given freely, chiefly for the purpose of washing out the stomach when she vomited. After three days she was to have food when she wanted it, and of practically whatever kind she wanted.

This program was carried out faithfully, but she continued to quote her former doctor, and to vomit two or three times a day for the first week. By the end of the second week, however, the vomiting had dropped to once a day, and she was taking a fairly liberal diet, and felt so much better that she begged to be relieved from the annoying Murphy drip. A week or so later she was eating heartily, and went home in good condition, except that she was still a little weak.

The second case will serve to show how equally good results may be obtained in the private home. This was a primipara, in the third month of pregnancy. For eight weeks she had been in bed, and her stomach absolutely refused to retain any nourishment. There was alarming loss of weight, with prostration and mental despondency that was pitiable to see. As usual, her doctor had tried everything he ever heard of, including corpus luteum, each hypo of which, he said, appeared to make her worse. Starvation and the exertion of constant vomiting were rapidly exhausting her little remaining strength, and it was evident that something must be done at once. Realizing the seriousness of her case, and the futility of trusting her family friends to carry out the necessary treatment, a good cheerful trained nurse was obtained, and all long-faced calamity-Janes were banished from the room. The husband and the family doctor were made to see, what the nurse already knew, the necessity of turning this patient's mind from a condition of lowest despair to one of hopeful anticipation of early relief. Again I emphasize the importance, and indeed the absolute necessity, of giving first place to this part of the treatment. The patient, of course, was in immediate need of alkalines and some form of sustenance by bowel. She was therefore placed at once upon carbonate of soda and salt solution as before described, to which was added three or four ounces a day of glucose, the latter having been found to be of especial value in such cases. At night, a drachm of sodium bromide was added to the bowel solution. She was to have no nourishment by mouth until sufficiently relieved to want to eat. The Murphy drip was continued one week, at the end of which time she began to take solid foods without vomiting, and treatment by bowel was discontinued. There was occasional vomiting after this, but her general condition improved rapidly, and in two weeks she was able to eat heartily, to move about the room, and to dispense with the services of a nurse. She is still under observation, and still taking liberal quantities of bicarbonate of soda, which was given by mouth, when the Murphy drip was discontinued, but she is beginning to resume her normal activities and to feel that life is quite worth living, both for herself and her unborn child.

In conclusion, I shall only take time for a very brief reference to the treatment of late toxemia. The condition known as pre-eclamptic toxemia should, of course, come first under this head, but that is a big sub-

ject in itself, and cannot be dwelt upon in this paper. All I would say, is that it should be recognized early, and treated with a thoroness in keeping with its potential dangers.

Without attempting to give more than the merest outline, I will say that what has appealed to me as the best general plan for the treatment of eclampsia at the present time, is about as follows:

1. Morphine, for the temporary control of the convulsions, half a grain or more at a dose, and repeated as soon and as often as necessary.
2. Blood-letting, as early in the attack as possible, and to the extent of from fifteen to thirty ounces, or more, according to the case and to the effect on blood-pressure.
3. Cleansing of the lower bowel, and giving by Murphy drip, sodium bromide, one or two drachms, and sodium carbonate, two or three drachms, to the quart of normal salt solution, as rapidly and as constantly as the bowel will take it.
4. The darkening of the room, and the securing of quiet and freedom from all unnecessary disturbances, until the convulsions have been brought well under control.
5. The induction of labor in all cases occurring before the eighth month, if the convulsions have been at all severe in type, or more than three or four in number. After the eighth month, the termination of pregnancy regardless of the number of convulsions, letting the circumstances and conditions determine whether the delivery shall be by the normal route, following spontaneous or induced labor, or by the more rapid method of Caesarean section.
6. No food of any kind by mouth, until at least three days after convulsions have ceased, but a continuation of alkali-salt solution by bowel, or of alkaline water and salines by mouth, until the quantity and quality of urine are satisfactory.

It will be noted that this treatment program has no place for chloroform, which is not only useless, but extremely dangerous in eclampsia. It also bars, so far as possible, all peripheral or other excitants, such as gastric lavage, violent purging, hot packs (or other methods of sweating), and accouchement force. If, after controlling the convulsions, pregnancy is to be terminated, it must be done by whatever method promises least shock to the patient, and this precludes accouchement force.

The only immediate means of elimination, and of reducing blood-pressure, is by venesection, which is done early and in quantity to be effective, and may be repeated if necessary. Veratrum viride or other substitutes for blood-letting are not to be considered, so far as promptness and efficiency of action are concerned. The hot pack, or cabinet sweat might not greatly disturb the patient, but those of us who more or less closely follow the Stroganoff idea believe that sweating is usually contraindicated, on the ground that the toxins are already too highly concentrated, and sweating only increases this concentration, by removing much water from the tissues without any appreciable quantity of toxins. Washing out the stomach cannot be successfully accomplished without greatly disturbing the patient at a time when the aim should be to prevent all disturbance. Purging is much slower than blood-letting, and can only remove the gastrointestinal poisons, and not the specific blood-borne toxins of pregnancy. This also would disturb the patient at a time when absolute quiet is most desirable. The giving of purgatives, therefore, can well be left for the secondary treatment when the convulsions have ceased to be the danger factor.

The general outline here given makes no claim to anything new, nor even to anything especially rational or specific, for such treatment of eclampsia, as of any other disease, must, of course, await the discovery of the exciting cause. It is neither wholly radical, nor wholly conservative, for in my expe-

rience, at least, a judicious combining of the so-called conservative methods, with some of the best of the more radical measures, is productive of better results than the attempt to follow either method alone.

No. 4149 North Broad Street

THE ADEQUATE TREATMENT OF SYPHILIS.

BY

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A discussion of this time-worn and hoary subject may seem, to some of our readers, to be quite unnecessary and even superfluous. To one, however, who is brought into close contact with many syphilitic patients, both in hospital and private practice, it seems that this question does not receive a tithe of the care and attention that its importance to the individual and community demand. When one sees the results attributable to the poorly defined notions and hastily formed concepts of the so-called modern treatment of lues, the great moment of this disease assumes almost heroic proportions. In fact, we do not consider the advent of salvarsan and its derivatives an unmitigated blessing. It is not our intention to decry the worth of these drugs, for we unreservedly assert that they stand in the foremost rank of antisyphilitic remedies and we believe that, when properly and adequately administered, their value cannot be overestimated. It cannot be denied, however, that the almost magical power of these drugs to rapidly heal the lesions of syphilis has had the tendency to relax the watchfulness of some physicians. It is for this reason that we sometimes think that our patients of yesterday, who were religiously kept under mercurials and iodides for periods ranging from three to seven years, were much better off than some of our present-day patients, who receive a few salvarsan and mercury injections and are then sent on their way.

It is not our intention, nor even desire, to dogmatically promulgate certain set and rigid rules for the treatment of syphilis. If we can make the point, however, that each and every case is to be treated on its merits and given an amount of treatment which will be adequate for the particular individual, so as to cure him and insure him, so far as is humanly possible, against future trouble, we shall consider the effort as having been worth while.

Prophylaxis.—It is not necessary to enter into the moral, ethical, social or economic phases of this subject. These are questions which will be met by the individual according to his own particular mental capabilities. We, as physicians, however, would be remiss in our duties if we failed to inform our patients of the prophylactic and preventive measures at hand. First, patients with herpes progenitalis, verrucae, erosions, balanitis or partial phimosis should be cautioned against intercourse while these lesions are present. Syphilis gains entrance thru the smallest abrasion and the above-named conditions are especially favorable for the implantation of spirocheta. Because these affections are so commonplace and benign, the average patient and even physician is inclined to dismiss them without thought as to the necessity for precaution. The suggestion of Metchnikoff, in 1905, has placed in our hands the most satisfactory prophylactic that we have. This consists of the application of calomel ointment (calomel 20, lanolin 40) to the exposed parts. To

be efficacious, this must be thoroly rubbed in, not later than one hour after intercourse. There have been cases reported where infection has taken place in spite of the use of this prophylactic, but its undoubted value makes its use almost imperative.

Diagnosis.—Search is immediately made for spirocheta in the serum obtained from the lesion. The india-ink or dark field methods are the most satisfactory for this purpose. One negative examination is not to be considered conclusive. Repeated search, over a period of several days, is often necessary before the organisms may be discovered. During this period the chancre is not to be cauterized or bathed in antiseptic solutions. Sterile, normal saline solution is prescribed, to be used as a wet dressing. If the examination has been non-productive, so far as a positive diagnosis is concerned and there are no other signs on which a positive diagnosis can be made, antiseptics are applied and the patient kept under observation. Personally we find that it is not necessary to make the serum examinations for spirocheta in every instance, as the true syphilitic chancre presents a clinical picture which cannot be mistaken for anything else. The Wassermann reaction is of little value during this stage, as it is rarely positive during the first two or three weeks of the infection. When the patient has entered the generalization stage, the reaction will be positive in almost every case, but by that time the patient will usually show the external evidences of the systemic infection. In instances where we cannot make the diagnosis on the clinical picture and the spirocheta examination is negative and the sore is nevertheless of a character to make one suspect it to be of syphilitic origin, we give the patient an intravenous injection of salvarsan or one of its derivatives, using about two-thirds the average dose. If the lesion is syphilitic we will see signs of healing within twenty-four hours. If the sore is non-specific, the injection will have no effect and no harm will have been done to the patient.

It may be said that there is no justification for the injection of salvarsan unless the diagnosis is positive. In a broadly speaking general and theoretic sense this objection is well founded. In the extremely small number of cases in which such a procedure may be necessary, the benefit to be derived from early diagnosis and therefore early therapy so far outweighs the possibility for harm as to leave no doubt as to its propriety. To wait for the generalization stage, when the typical text-book picture of secondary syphilis becomes self-evident, is to lose much valuable and never-to-be regained time.

Treatment of the Chancre.—Excision of the chancre was advocated some years ago as an abortive measure. Experience has shown that such is not the case. We do believe, nevertheless, that when excision can be performed without causing any deformity, by reason of the subsequent scar formation, the procedure is of value as the secondary stage is thus often rendered much more benign. It must be borne in mind that it is best not to excise patently "mixed" sores, as these cases do not heal satisfactorily because of the almost immediate chancroidal involvement of the cut edges, even when the excision is made into healthy tissue and wide of the diseased area. We often give the patient a wet dressing of weak bichloride solution or *lotio nigra,* altho we prefer, in most cases, to use the calomel ointment applied on gauze, twice daily, directly to the chancre.

General Treatment of Early Cases.—With the establishment of the diagnosis, systemic treatment is immediately instituted. If one is fortunate enough to be in a position to begin treatment before the establishment of the generalization stage (secondary), the outlook for a successful termination of the case is exceedingly bright. Salvarsan, or one of its derivatives or present day substitutes, is the main reliance in this stage. The only contraindication to its use is the presence of grave renal disease or marked cardiac disturbance, associated with deficient compensation. Valvular lesions, if compensated, should not deter one from the administration of this drug. We have long since discontinued the use of large quantities of water in the injection, the salvarsan being given in 20 c.c. of water, using the Record or other suitable syringe. In this method there is very little danger of disturbance of the circulatory apparatus. The concentration of the solution does not seem to have any bearing on the question of reaction, local or systemic. Local reactions are just as severe with the dilute as the concentrated solutions and occur only when there is an extravenous extravasation of the salvarsan solution. I have seen only one case of true phlebitis and that followed the use of the original neosalvarsan, imported shortly before the entrance of the United States into the war. This was not due to faulty technic, as the patient presented the same phenomena after three (in a series of eight) injections. Systemic reactions have been almost entirely overcome by rigid adherence to three points. First, the intestinal tract of the patient must be thoroly emptied and no food taken for six hours before and at least three hours after the injection. Second and most important is the question of the water used in preparing the solution. I use double distilled water, prepared not more than four hours before the time of injection. The third point has to do with the preparation of the salvarsan or arsenobenzol solutions. Just enough of the sodium hydrate should be added to the solution to make the final product neutral or slightly alkaline in reaction. If too much of the alkali is added, the patient will almost always experience a severe reaction, manifesting itself in nausea and vomiting and sometimes a sharp rise in temperature. Since taking these precautions I have not seen a single severe reaction and certainly not more than an occasional case of mild gastric disturbance (nausea). The patient receives the injection at the office or clinic and goes home immediately thereafter.

The first injection is usually about two-thirds of the maximum dose. This is done to determine the susceptibility and possible idiosyncrasy of the patient. If this dose is borne without any unpleasant manifestations, the full dosage may be given at subsequent injections. In women and undersized men I usually make the maximum dose 0.4 to 0.5 of salvarsan and 0.6 to 0.75 of neosalvarsan. Three days after the intravenous injection the patient is given an intramuscular injection of mercury (one-half grain). One week after the first salvarsan injection a second, full dose, is given. Three days following this, the patient receives three-quarters of a grain of mercury, intramuscularly. This "double" treatment is continued for at least six, usually about eight, weeks. During this period the urine is examined at frequent intervals for signs of nephritis. If the examination shows the presence of marked renal embarrassment, as evidenced by granular and epithelial casts, the treatment may have to

be discontinued. The administration of diuretics and a diminution in the dosage usually helps to correct this and avoids the necessity of cessation of treatment. If, as is usually the case, only a few hyaline casts are found, no fear need be entertained and the treatment is continued as usual. After the patient has received the full course of intravenous injections, he is given the intramuscular injections of mercury every five to seven days, the maximum dose being one grain. This course of treatment is continued for about five months and then discontinued for about one month. The blood is then examined for the Wassermann reaction. Regardless of the reaction, the patient is then placed under treatment again. He receives four to six intravenous injections and about four months of mercurial treatment. The patient is then allowed to rest for two months, and at the end of that time is given two to four intravenous injections and a course of mercury injections covering a period of about two months. After a rest period of about one month the blood and spinal fluid are examined. During this eighteen months of treatment close attention is paid to the general health of the individual. Every patient is instructed in the importance of the intestinal hygiene, the necessity for systematic light exercise and bathing and is given cod liver or olive oil or some form of hematinic. The importance of these points cannot be overestimated, as it would be a serious error to simply treat the syphilis and forget the patient himself. The patient is also told to weigh himself at regular intervals. The best prognostic sign is a gradual increase in weight. A loss in weight calls for close examination of the patient. It may be that he is not responding to the treatment. The attack on the disease may have been too vigorous, in which case it is well to discontinue treatment altogether and send the patient to a country resort for a short time. If the general bodily welfare of the patient is carefully supervised, however, it will usually be unnecessary to carry this out.

An early case of syphilis, discovered before the generalization stage and treated in the manner described above, should show a negative Wassermann reaction in the blood and negative finding in the spinal fluid. If the serum Wassermann is positive, and the fluid findings are negative, the patient is given no further treatment. If the fluid findings are positive, treatment is once again instituted, adding intraspinal therapy to the general program outlined before. This treatment is continued until the fluid findings become negative. The patient is examined every three months for clinical signs of syphilis and also the Wassermann reaction. If the serum (blood) Wassermann only is positive and there is no change in the reaction after six months, another course of treatment is given to determine the fixity of the reaction. If the reaction is found to be immovable and the fluid findings continue to be negative and the patient does not present any clinical evidences of syphilis, all treatment is discontinued and the patient discharged.

Treatment of Latent Cases.—The treatment of these cases depends entirely on the clinical symptoms, the duration of the disease and the amount and duration of treatment previously received. If a patient has had sufficient and adequate treatment in the early stages of the disease and has had no recurrences and simply comes for treatment because he has been told that his Wassermann is positive, we make it a rule to insist upon examination of the spinal fluid before any opinion is given as to the

necessity for further therapy. If the spinal fluid findings are negative, we advise against antisyphilitic treatment, regardless of the positive blood serum Wassermann, always keeping in mind the question of duration and amount of previous treatment and the absence of symptoms. If the spinal fluid findings are positive, however, the patient is immediately placed under treatment. He is given an intravenous injection of salvarsan (full dose) and on the next day an intraspinal injection of either mercurialized or salvarsanized serum. These injections are repeated every week for at least six weeks. The spinal fluid examinations are made every week, using, for this purpose, the fluid which is withdrawn previous to the intraspinal injection. Following this course of injections, the patient is given mercurial injections, intramuscular, once every five to seven days. Internally he is given potassium iodide in increasing doses. This course of treatment is continued for at least eight months and at the end of this time the blood and spinal fluid are examined. If the fluid findings are positive, the whole course of treatment as outlined is repeated. If the fluid findings are negative, the patient is given a rest period of about two months and then compelled to resume treatment. This is especially important if the patient has not had adequate treatment early in the course of the disease. The second course of treatment is made shorter and does not include the intraspinal injections. Following the cessation of treatment the spinal fluid and serum examinations are repeated. If they are both negative the patient is discharged from active treatment and instructed to report every three months for further examination. If the serum reaction remains persistently positive, one final effort is made to note whether or not it can be influenced. Four to six intravenous injections are given at weekly intervals and then a course of mercury injections over a period of three months, the iodides being given in increasing doses. If, at the end of this course, the serum Wassermann still remains positive, the patient is discharged from active treatment and kept under observation for at least one year, during which time the serum and fluid are examined every three months.

Treatment of Tertiary Cases.—The treatment of these cases depends upon the type of lesion presented by the patient. In the cardiovascular cases, intravenous medication is to be undertaken with caution. These patients do best on mercury, injected intramuscularly, and iodides taken internally. In addition it may be necessary to administer drugs for the heart as indicated. In the cases of neural involvement it is best to start the patients on a course of mercurial injections, together with iodides internally. After the patient has received fifteen to twenty mercury injections, the intravenous and intraspinal injections may be given. The intravenous injection is followed, on the next day, by the intraspinal injection. These are given every week for at least six to eight weeks. The mercurial injections are then continued for at least one year, the iodides being given continuously during this period. This treatment will usually be sufficient to control the symptoms and to render the spinal fluid normal. The one general exception to this statement is general paresis. While some writers report that they are able to control these patients with intensive intravenous and intraspinal medication, combined with mercurials and iodides, that has not been our experience. We have never been able to convince ourselves that we did more

than to perhaps lengthen the periods of remission. The more recent work on intraventricular injections seems to offer more promise than anything we at present have at our disposal for the treatment of these cases. The cases of gumma, hemiplegia and cord involvement must be kept under mercurials and iodides so as to prevent recurrences, as where connective tissue has replaced the destroyed nerve tissue, one cannot hope to bring about a regeneration with healthy nerve tissue. The general hygienic treatment as mentioned above is especially important in these cases and is not to be neglected.

Mercurial Treatment and Salivation.—During the course of the mercurial treatment, great care must be exercised lest salivation be caused. The alert physician does not wait until his patient is completely "knocked out" by the treatment, when he appears with fever and marked depression, fetid breath, colic and diarrhea, bleeding and ulcerated gums, sore teeth and a stream of saliva oozing from his mouth. Before beginning the treatment, the teeth should be carefully examined and the patient referred to a dentist. Cavities should be filled and badly diseased teeth drawn. The patient is instructed to brush his teeth twice daily and, if possible, after each meal. I usually advise the use of a tooth paste rich in chlorate of potash. In addition the patient is instructed to use a mouth wash several times during the day. For this purpose chlorate of potash or one of the mild antiseptic and astringent solutions may be used. As the treatment progresses, the patient is instructed to report the slightest sign of pain in the teeth or soreness of the gums. A frequent site of early trouble is the mucous membrane opposite the last molars. This becomes edematous and bleeds easily before the other signs of salivation make their appearance. Close attention to the mouth hygiene, intestinal elimination and the careful adjustment of the dosage of mercury to the individual patient will almost always prevent the occurrence of this disagreeable complication.

At this point it is interesting to consider the question of the mode of action of mercury in syphilis. During the past few years, following the more advanced work on the chemistry of syphilis and the various agents used in the treatment, we have come to accept the theory that the various agents act by reason of their parasitotropic action. McDonagh, who has performed the most important and advanced work in this field, holds that mercury and salvarsan owe their activity to the fact that they are catalysing agents and that they accelerate a reaction going on spontaneously, but more slowly without their assistance. We believe that the elder Keyes discovered the principle of successful mercurial therapy without being able to supply the rationale of its action. He says: "It is not as a tonic, or because it is a tonic, that mercury cures syphilis or alleviates it; but mercury may be so used in the treatment of syphilis that, over and above its specific influence, it may still not only do the patient no harm, but may be actually a tonic to him, doing him good."

The experience of most of the men familiar with this problem is that the best results are to be obtained from the long-continued administration of small doses of mercury, rather than from heroic and furious assaults upon the unfortunate patient. This clinical fact coincides with what we know regarding Nature's method of overcoming disease. When we cooperate and help these natural forces our therapeutic results are much better than when we blindly disre-

gard these first principles. As stated before, our antisyphilitic remedies act as catalysing agents. They attack the envelope membrane of the spirocheta and make it possible for the oxidation to go on and thus destroy the parasite. Oxygen is carried to all the tissues by the red blood cells and it is in this connection that one can see the importance of the hygiene of the patient during treatment. The oxidation is carried out by nature thru a complex system of cells, intracellular reactions and ferments. By the constant introduction of small and easily assimilated amounts of mercury we are aiding, supporting and stimulating the natural forces in these reactions and in their attack on the invader. This action continued over a long period of time makes it impossible for the immature or young forms of spirocheta to grow and attack the tissues. If we give massive doses for short periods of time, we kill off the spirocheta which are circulating, but we also are apt to injure the natural reactive forces, so that the antibodies or protective substances are not elaborated, the spirocheta thrive and our patient gets worse instead of better. That explains the improvement which follows in many cases, soon after the cessation of very severe treatment which apparently had no effect on the disease. We have simply given Nature an opportunity to rally her forces and to attack the invader in her own slow and systematic and very effective manner. The rationale of the method of giving small doses of mercury over long periods of time is quite clear when one realizes and comprehends these facts.

Conclusions.—(1) Every case should receive intensive treatment immediately upon making the diagnosis.

(2) Every case of early syphilis should be kept under active treatment for at least two years, with short intervals between courses.

(3) Every case of latent syphilis should be treated if the spinal fluid is positive. If the fluid findings are negative, and the patient has not had sufficient treatment, the patient should be kept under the treatment as described. In the positive cases, intraspinal therapy must be given.

(4) The patient should be given long courses of mercurial injections, keeping the dose at not more than one grain, repeated every five to seven days. All of these patients should also receive iodides.

(5) Every case of tertiary syphilis should be given intraspinal treatment, associated with mercurial and salvarsan injections and the internal administration of iodides.

122 East 34th Street.

STRICTURE OF THE MALE URETHRA AND ITS PHYSIOLOGIC TREATMENT.

BY

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New York.

We recognize, broadly speaking, two kinds of strictures in the male urethral canal. One is spasmodic, the other is permanent. The spasmodic one we will not consider while in the permanent one we will endeavor to show how it can be cured safely, sanely and permanently.

What is a stricture and why does it exist? A stricture is an abnormal narrowing or contraction of the lumen of a canal or duct from external pressure, or *as a result of inflammatory or other changes.*

It is our intention to deal only with those strictures of the urethra formed as a result of inflammatory changes.

The reason for the existence of such a stricture will be found in the fact that some injury, chemical, mechanical or bacterial preceded the inflammation which caused the stricture. The most common cause for such

an inflammation is the infection of the urethra with the gonococcus of Neisser causing a urethritis veneria. Under ordinary circumstances, the inflammation which is physiologic response on the part of the system to rid itself of its unwelcome intruder (the gonococcus), is either adequate, inadequate or excessive. When the inflammatory response is *adequate,* the gonococci die, the phagocytic action is complete, the debris is removed and the entire process is at an end in from three to ten days.

When the inflammatory reaction is *excessive,* complications of many kinds accompany the acute attack. A generalized fibrosis occurs and as a result we have an incomplete clearing up of the debris with the resultant narrowing of the calibre. Since all scar tissue has a natural tendency to gradual contraction, sooner or later a stricture is liable to be the result.

When the original inflammatory response is *inadequate* (the usual result), the germs multiply rapidly, the discharge increases and may continue indefinitely. These are the cases that resort either to self-medication or the physician, owing to the chronicity of the case, resorts to heroic treatment. Either dilatation with the steel sound has been performed too often and too vigorously or the silver or similar tissue-destroying solutions have been used too strong, in short, the mucous membrane has sustained an injury.

If Nature errs in her reparative process, it frequently happens that she supplies too much material for the actual need. As a result of this overproduction she fails in the final clearing-up process and the surplus is not entirely removed or as we say *absorbed.*

Under such circumstances we have this increase of fibrous or scar tissue in a canal of limited calibre. At this stage the patient may not even be aware of the presence of a stricture. Sooner or later the physiologic function of urination is interfered with. The patient experiences a gradually increasing difficulty in voiding his urine, due to the gradual contraction of the now unnecessary scar tissue. If this scar tissue happens to be circumferential it may lead to a complete arrest of bladder function with all of its possible consequences.

Now that we know what a stricture is and why it exists, we can formulate a line of therapeutic procedure that will be in harmony with the laws of physiology as we understand them.

Therapeutics.—We are only considering strictures which are the result of trauma. They were originally formed for a definite purpose, that purpose, however, has ceased to exist; they were formed slowly, therefore, they must be removed slowly. They were the result of an inflammatory process (heat, vessel dilatation, diapedesis and leucocytosis). The same or a similar condition would have absorbed and removed the debris, if they had continued to act. Those activities ceased, therefore, they have to be re-established.

Technic.—I need hardly dwell upon the necessity of observing the usual rules of surgical cleanliness, they are self-evident.

Select the largest calibre steel sound which is capable of passing thru the smallest stricture present. Attach this to a Telatherm high frequency apparatus, the other pole is attached to a piece of flexible tin, one inch wide and applied smoothly to the entire outside of the organ surrounding the sound. The current is turned on gradually, the amount being limited to the sensation of the patient and not to the reading of the hot wire meter. The temperature of

the enclosed tissue will reach 104 F. in a few minutes.

After twenty minutes of this diathermia application the high frequency current is turned off and the galvanic current is substituted, the negative pole in the urethra, using the same sound without removing. This current is turned on until the milliampere meter shows a reading of not less than seven nor more than ten milliamperes. The patient does not experience any sensation from this current, therefore cannot be consulted. A correct reading meter is the only and correct guide. This current like the previous one is allowed to act for twenty minutes, then gradually reduced to zero. The electrodes are removed and the seance is at an end.

This entire procedure is repeated once a week with a gradually increasing size of the sounds. Do not attempt to dilate; dilatation may restore bladder function and under some circumstances may answer a useful purpose, but dilatation can neither *absorb nor remove* superfluous fibrous tissue, that is a physiologic process, and must be undertaken in a purely physiologic manner. Strictures that have been *dilated* may again *contract*. Strictures that have been properly *absorbed* by electrolytic action neither *re-contract* nor *reform*.

301 West 91st Street.

Tonsillitis.—The cold compress, which consists of three or four layers of a linen towel, folded to fit the part, wrung out of iced or cold water, applied to the part inflamed and covered well with a larger dry towel, is very beneficial in cases of tonsillitis, croup, pneumonia and insomnia, with intestinal indigestion and stasis. It can be worn all night if agreeable, or changed during the daytime every hour.—*Therapeutic Gazette.*

EVOLUTION OF MENTAL POWER.

BY

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I have had considerable to say about the advantages of educating the grandfather. By "grandfather" I mean the aggregate of ancestors in three or four generations. The term really means the ancestors all of the way back, but I have restricted it to three or four generations because I have reliable records that far and can speak positively as to what those records show.

By "education" I mean the development of the organs exercised, and not things learned and remembered. In physical education a person develops his muscles by exercising them, and that development is represented by increased strength, power and endurance. In trotting education, a horse is trained at the trot day after day, month after month, and year after year. The records show that when such education is continuous, the horse will continue to gain in trotting power up to a late age in life. The same thing is true of milk production. When a cow is regularly bred and regularly milked, she will continue to increase in milk-producing power up to a late age in life.

The Binet system recognizes the development of mental power year by year in children up to about sixteen years of age. The aviation branch of warfare wants young men as distinguished from old or middle-aged men, but experience has taught the authorities that persons under eighteen are lacking in that judgment necessary to existence in a struggle to the death. Judgment is a product of mental development as distinguished from things learned. The law recognizes the fact that mental development continues from year to year by setting dif-

ferent ages necessary to qualify a person to vote or hold office. There are many facts which indicate that mental power continues to develop under mental exercise up to a late age in life.

It is recognized that from feeble-minded parents we get feeble-minded children, and from powerful-minded parents we get powerful-minded children. The average parent, male and female considered together, is about thirty years of age when the average child is born. Consequently, the standard parent is one who has that mental development which is normal for a thirty-year-old. But a normal-minded person of twenty-five is below the thirty-year standard, and a normal-minded person of thirty-five is above that standard. The same normal-mined person may be a feeble-minded parent in early life and a powerful-minded parent in late life.

As a result of extended investigations into the pedigrees of men, of trotting horses, of hunting dogs, and of milk-producing cows, I have said that improvement in animal powers comes thru old parentage and not thru young parentage. And I have defined the term "parentage," as I have defined the term "grandfather," as meaning the aggregate of ancestors not too greatly removed for accurate investigation. "Old parentage" is simply another expression for "educating the grandfather." This will be evident from the fact that education is a development of powers continued thru years by continued exercise. An animal (man or other kind) does not gain in mental or physical powers simply by growing old. He gains only as a result of exercise, and the age of the animal is simply a means of measuring the amount of the gain. I have said this many times before, but there still are many persons who seem to think that I never made any scientific investigations and have no knowledge on the subject, but do have the abstract idea that age in parents is important.

Upon being informed that the child is profoundly affected by the age of the parent at the time the child was produced, each person wants to apply that to himself. He can do so provided he has the requisite amount of information. The object here is to point out what facts need to be known. As no one can know all of the facts involved, each application must, of necessity, be an approximation. The accuracy of the approximation will, of course, depend upon the number and accuracy of the facts known.

Washington (1732-1799) [38] means that George Washington was born in 1732, died in 1799, and was born when his father was 38 years of age. The "38" is technically known as a "birthrank" and indicates George's inheritance as measured by the age of the father when the son was born. Of course George inherited a great many things from his father which are not measured by birthrank, but that does not necessarily imply that nothing is so measured. The color of his hair and his mental ability are two quite different things. The birthrank is placed in brackets to distinguish it from other numbers not so placed.

For the purpose of illustrating the matter under consideration I have prepared a diagram showing two lines of descent from the same great-grandparents. While the diagram is arbitrary it represents fact. The person who will calculate his own pedigree for twenty or thirty generations will see that he must have come from the same ancestors as the man across the street. Among our domestic animals we can find many pedigrees which are close approximations

of what are given in the diagram. For convenience the great-grandparents, arranged in the center of the diagram, are assumed to have been born in the same year, and over each generation are given the dates of births of the persons in it. For simplification, the original great-grandparents are assumed to be ordinary persons who received an ordinary amount of schooling, and who lived in an ordinary neighborhood. Also, that they were fairly active members of their community, but not anything that would call for special comment. The same conditions are also assumed for all of the descendants enumerated. It is also assumed that the stock is healthy and that no pathologic conditions arise in any branch. These various assumptions are for the purpose of eliminating from our consideration all factors except the one involving the age of parents and differences in amount of education arising from differences in age.

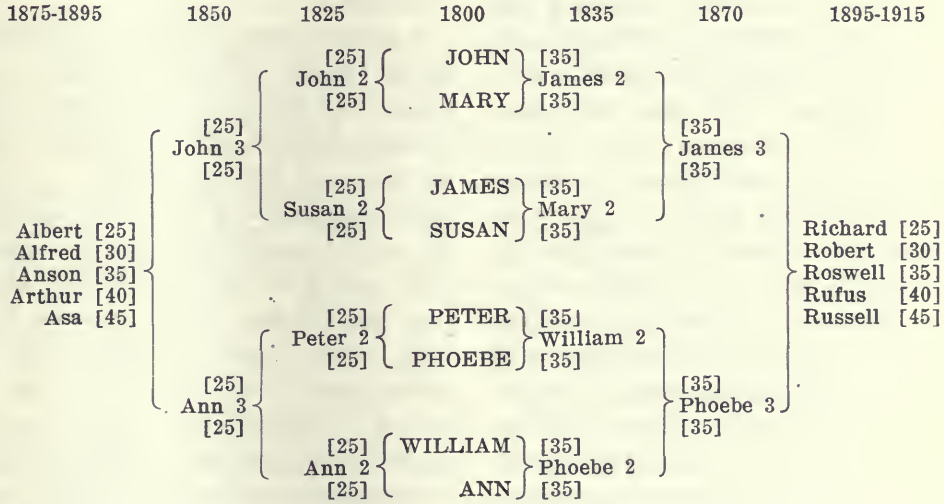
John and Mary, born in 1800, have a son John 2 born in 1825. The birthrank of John 2 is placed in brackets between him and each of his parents. Ten years later, John and Mary have another son, James 2, born in 1835. The birthrank of James 2 is similarly placed in brackets between him and his parents where we can refer to it when going over his pedigree or that of any of his descendants.

John 2 was born when his parents were in the twenty-five-year-old stage of mental development, and James 2 was born when the same parents were in the thirty-five-year-old stage of development. The difference is due to the fact that John and Mary each had ten years more of education when James 2 was born than they had when John 2 was born.

James and Susan have a daughter, Susan 2, born in 1825, and a daughter, Mary 2, born in 1835. Mary 2 has the same ad-

DIAGRAM.

DATES OF BIRTHS.



Two lines of descent from the same great-grandparents.

vantage over Susan 2 that James 2 has over John 2. There is the difference of ten years in the mental development of the parents. In the same way, and to the same extent, William 2 has the advantage of Peter 2, and Phoebe 2 has the advantage of Ann 2.

John 2 and Susan 2 have a son, John 3, born in 1850, and Peter 2 and Ann 2 have a daughter, Ann 3, born in the same year. The time from parent to child is twenty-five years in each case, and we put this birthrank in brackets in the proper places where we can find it when we want to refer to it. James 2 and Mary 2 have a son, James 3, born in 1870, and William 2 and Phoebe 2 have a daughter, Phoebe 3, born in the same year. The time here from parent to child is thirty-five years in each case, and we put this birthrank in brackets.

Before proceeding further, let us compare James 3 and John 3. James 3 has the advantage of John 3 by the addition of ten years on each of his parents, or a total of twenty years. But each of the parents of James 3 had a similar advantage of twenty years over the parents of John 3. When we count it all up we find that the ancestors of James 3 had sixty years more of education than did the ancestors of John 3. Similarly, we find that the ancestors of Phoebe 3 had sixty years more of education than did the ancestors of Ann 3. Consequently, when James 3 and Phoebe 3 marry, their children, as a starter, have the advantage of the children of John 3 and Ann 3 of one hundred and twenty years of extra education piled up in their ancestry. Under normal conditions that difference will make the children of James 3 much superior to those of John 3.

John 3 is represented as the father of five sons born at five-year intervals from 1875 to 1895. James 3 is also represented as the father of five sons born at five-year intervals from 1895 to 1915. The birthranks of the two sets of sons are identical. They are all great-grandsons of the same great-grandparents. According to the germ-plasm theory, which is only another name for the blood-line theory, these ten great-grandsons are identical. There is nothing in that theory to indicate the existence of any kind of difference. As a matter of fact these great-grandsons differ widely, and the facts given make it possible to tell what is the general nature of the difference.

A person coming upon my statement that we get superior children from older parentage and not from younger parentage would compare Richard [25] with Asa [45] and say that here was an exception. The son of young parents is evidently superior to the son of much older parents. Besides, both came from the same great-grandparents, and both were born in the same year—1895. Asa's father and mother are each twenty years older than the father and mother of Richard, but we have seen that the father and mother of Richard had accumulated a total of one hundred and twenty years in advance. Taking the 40 from the 120, Richard still has in his ancestry 80 years more of education than has Asa. This may be seen by simply adding up the birthranks shown on the diagram. Those leading to Asa aggregate 390 while those leading to Richard aggregate 470 years. Yet both were born in the same year and were descended from the same great-grandparents.

The example given shows that we need something more than the age of the parents themselves. Finding that Richard [25] was superior to Asa [45] and calling that

an exception to the statement that we get superior children from older parents is like observing a rising balloon and calling it an exception to the law of gravitation. The apparent exception is due to superficial consideration. That improvement does come from older parentage continued for several generations is abundantly demonstrated by the facts on hand. We get our eminent men only when the birthranks for successive generations average much more than thirty years. The average of over a thousand birthranks in the pedigrees of several hundred eminent men was more than forty years in the male line.

The same thing is seen in the trotting horse, and here the matter can be determined with a scientific accuracy which is beyond all dispute. The remarkable improvement in trotting power which occurred during the nineteenth century came thru old sires and old dams and not thru young ones. Furthermore, it came thru only those sires and dams which were actually educated at the trot before reproducing. It never came thru idle animals used exclusively for breeding purposes. For the most part this trotting education came from hard work on the road rather than from special training.

Returning to the final products shown in our diagram, the ten great-grandsons not only differ from each other in inherited ability, but they differ in their dispositions. A man's ability is principally what he inherited. The application of that ability is usually determined by the environment. The most of us are more or less misfits. The man whose natural disposition is to be a poet or artist finds himself earning his bread and butter as a statistician, and the natural born philosopher finds himself selling dry goods.

Close relatives are likely to differ much more in inherited ability than they are in their dispositions to direct those abilities along different lines. We will therefore assume that these ten great-grandsons are produced in approximately the manner illustrated, but belong to different families living for generations in different parts of the world. With this assumption I will tell a little of what was found when investigating the way in which eminent men of different kinds were produced.

The most successful and brilliant of military commanders like Alexander, Napoleon and Grant were produced in substantially the way Richard [25] was produced. They were sons of young men, but back of that point there were successive generations of old parents. I assume that Albert [25] is of the same disposition as Richard [25], but I have found no eminent man of any kind who was produced in substantially the same way that Albert was produced. The type of mind which makes a brilliant military commander should make a good executive, and it is probable that Richard would do well in an executive position.

The most noted of poets, musicians and artists were produced substantially as Roswell [35] was produced. They were principally sons of men between thirty and forty with higher birthranks in earlier generations. I assume than Anson [35] is of the same type of mind as Roswell [35], but I have not succeeded in finding him among the eminent men of the world.

Great constructive statesmen and men of practical affairs were produced principally according to the formula for Russell [45]. It is probable that Asa [45] is of the same type. I have found a few items to indicate that, but not enough on which to base a definite statement. But there is one ad-

vantage the son of a young man has over the son of an older man—he is less liable to be lazy.

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POSTOPERATIVE TREATMENT OF MASTOIDITIS.

BY

CLARENCE H. SMITH, M. D., F. A. C. S.,
New York.

Early in his experience the writer wondered at the prevailing method of dressing the cavity after a mastoid operation. Foot after foot of narrow gauze was packed in; the more one got into the cavity and the more tightly packed this was, the better. This packing was changed on the fifth day, when the stitches were removed, and the performance was repeated thereafter every second day until the cavity could hold no more packing. We were taught that this tight packing stimulated the granulations and in that way hastened the healing.

This seemed to the writer illogical. The chief object of the packing seemed to him to be drainage of the middle ear abscess, assuming that the mastoid cells had been completely exenterated, as they should be in a thoroly performed operation. No abscess in any other portion of the body is treated in this manner; on the contrary, it is treated as an open wound and drains left out just as soon as one dares.

For the past two years the writer has had the courage of his convictions and has treated his mastoid cavities in the following manner: When the operation is completed a small wick of narrow gauze about two or three inches long is placed one end in the mastoid antrum and the other in the lower angle of the wound. This is left in place until the fifth day, when it is removed and absolutely no more drainage is inserted in the mastoid cavity. The outer dressing is changed every two or three days thereafter, the mastoid wound not being interfered with in any way, except to see that the lower angle of the incision does not by any chance heal over. The results of this radical change have been uniformly satisfactory. Two outstanding benefits have been noted, which have been so constant that they are not coincident. The first is shortening of the period of convalescence, whereas with the old style of dressing the average mastoid wound took as a rule six weeks at least to granulate and heal completely, now the writer finds his mastoids heal completely, on an average, in three weeks. Several have healed in fourteen days and a few in less time than that. The reasons for this probably are: around this small initial drain very likely a blood clot collects and becoming organized tissue, the space is correspondingly diminished. Very likely when this drain is removed there is left a sinus leading from the middle ear to the angle of the wound and all the rest of the cavity is filled by this blood clot. This sinus keeps open as long as there is any pus to be discharged from the middle ear and then it too fills in and the wound completely heals.

The second benefit noted is the subsequent small amount of depression or concavity in the mastoid region. Very often there is absolutely none and the scar of the incision is the only trace of the operation. This is certainly a more desirable result than the disfiguring depression one used to see very often after the other method of dressing. This must be from the filling of the cavity with the organized blood clot already referred to.

A minor advantage is the painlessness of

removing a small piece of gauze only once, instead of the excessively long drains formerly packed and repacked.

It would seem that this *laisser-faire* method of treatment can be recommended also on another ground. Too much interference with a wound which Nature is trying to heal, such as the continuous change of drains, unnecessary probing and other instrumentation, often, it seems to the writer, is responsible for these wounds not healing and a sinus being left, which remains until a secondary operation has to be performed, to the chagrin of the operator and the annoyance of the patient. This experience has not been once met with under the method of dressing advocated above.

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LONDON LETTER

(From our Regular Correspondent.)

THE NEW MINISTRY OF HEALTH.

The medical and lay press alike resound just now to the cry for a Ministry of Health, but it is a rather disquieting fact that the public appears to mean a different kind of ministry to any kind that would be welcome to the medical profession; and no less disquieting to find that all medical men are not in agreement as to what is wanted. The public, or a large section of the public, is prepared to welcome a Ministry of Health which shall be a kind of super-influential National Insurance Commission, curing the sick at the state cost, and run by humanitarian officials who will exercise inflexible authority over medical men, regarding them as professional healers. The medical profession, of course, sees that nearly the whole value of a Ministry of Health will be represented by the wonderful development in preventive medicine that must follow upon the attention of a first-class state department to the modern trend of medical science. Prevention should be at least seven-eighths of the medicine of the future, and under a Ministry of Health the work of prevention can be started in the right direction from the center. Consider the old story of the prevention of disease in an English village or country town, and in times not far removed from those in which we live. Cases of illness of a particular kind—say a malignant type of sore throat—began to occur regularly in and around a certain locality. The fatalities becoming notorious attracted the attention of the local medical men in the district. When an Act of Parliament enjoining notification of infectious diseases was put on the statute book, these cases were notified as diphtheria. The local medical officer of health would inquire into the circumstances, and would find gross insanitation which could only be removed by considerable interference with property, and the property holders might be, and often were, the very laymen to whom the medical officer owed his appointment, and by whom he could be discharged. It was soon discovered that the spread of disease was not going to be effectively checked in such circumstances, but the medical men made that discovery, just as they had originally discovered the diphtheria. Then the number of whole-time medical officers of health was greatly increased, and the local government board, having a share in the responsibility for their salaries, was able to insist that all measures for prevention of disease should be carried out; the county medical officers of health were appointed to coordinate the work of the district medical officers; and so at last a public health service was evolved, deriving its driving power from two sources: (1) the skill in diagnosis of the medical profession; and (2) the administrative capacity of that most influential bureau, the Local Government Board. Now primarily the *whole* of this organization was concerned with prevention; so much so that the bulk of the medical profession, whose business must be to heal the sick, found their position an ill-defined one, and sometimes a very embarrassing one under the new sanitary legislation. There was no definite connection between the preventive service, carried on by salaried officials, and domiciliary medicine, which is the treatment of the public during their sickness, a thing which is much nearer the public heart than any prevention of disease, which that same public heart regards as humane but largely hypothetical. The medical profession, with the story of the evolution of preventive medicine in front of them, see that the preventive side is the one to which their energies for the future will be more and more steadily directed, and in the future Ministry of Health they are looking for a bureau, which, in its care for the health of the people, will place scientific medicine in a position where ignorant or interested lay interference will be impossible, and where state, institutional and domiciliary medicine will alike be given proper opportunities for good work. At the head of such a bureau, say the bulk of the medical profession, there must be a medical man, and his principal subordinates must also be medical men, for otherwise the direction in which scientific medicine requires particular assistance will never be obvious to the ministry. So far, medical men are

in accord in what they expect from a Ministry of Health, and on the question whether the state should take over the medical profession and erect it into a public service, every doctor being a civil servant, there is no great difference of opinion, for such a plan is almost universally regarded as dangerous. But at what place the doctor should, under a Ministry of Health, become a state servant and cease to be an individual practitioner, remains to be decided, and it is just here that a consensus of opinion is required. For if medical men are not in agreement when their views are sought by those in charge of the Parliamentary Bill for the constitution of a Ministry of Health, it is certain that the bill will take the lay character indicated by the ordinary public view of the value of preventive medicine. It is to obtain some general platform from which all medical men may speak that we have the numerous addresses in the *Lancet* and *British Medical Journal* on the future of the British medical profession; and to the same desire may be attributed the intention of the English Royal Colleges to institute committees to watch the course of impending legislation.

MOTHERCRAFT AND INFANT MORTALITY.

The part played by maternal ignorance in the production of infant mortality is being much questioned at a time when the lives of infants are seen by every one to be of such profound national importance. An enormous amount of lay effort is centered around various schemes for the education of mothers and the institution of clinics at which the care of infants can be regularly supervised. But the utility of all this is rudely challenged, and in more than one direction, by figures which go to show that it is the congestion of population in unsuitable dwellings that is really responsible for the greater part of infantile mortality. The comparison of urban and rural rates of infantile mortality certainly seem to prove this.

THE TRANSMISSION OF DISEASE BY LICE.

The transmission of various diseases by lice, for many years suspected by medical men to have been occurring, has now been proved up to the hilt in certain conditions; and, while there is every reason to believe that the number of diseases in which lice can play a part in the spread will become larger, there is also in England unprecedented opportunity at the present moment for lice to play their mischievous rôle. It is of course completely impossible to eliminate lice from the circumstances of actual war; all the arrangements, as much as all the want of arrangements, which must prevail in actual war make for the harbor and the propagation of lice; and that we may have to combat among the civilian population many lice transmitted diseases is now a recognized possibility in England. It is a risk, however, which the medical profession views with no great apprehension, for, with the exception of trench fever the diseases propagated by lice, so far as our present pathologic knowledge goes, are fairly obvious to the medical eye. Typhus fever, relapsing fever and various skin affections are conveyed by lice, who are also strongly suspect in the matter of plague. But recent work by English and American observers proves to demonstration that trench fever is transmitted by lice, and here a real difficulty in the matter of diagnosis is introduced, for without doubt, trench fever is a very elusive disease. The organism has not been isolated, so that bacteriology affords no help, while typhoid or paratyphoid fever, malaria, rheumatism, Weil's disease and any general septic condition, may aptly counterfeit the disease. Absence of pericarditis may eliminate acute rheumatism in some cases, and to a certain extent the history of the invalid will eliminate malaria; but in England doubt may occur here, as undoubtedly a few cases of malaria show their first manifestations in this country, even while their points of contact with the original infection cannot be ascertained. In lice, therefore, the public has always a disgusting and at the present moment a formidable enemy and medical men are rightly insisting that the public should play their part in the elimination of the pest. In the army or navy disinfection, or rather disinfestation, from lice can be speedily and thoroly effected, and as a matter of routine. Clothes and hair can be inspected under authoritative orders, the destruction of lice in fomites can be carried out in a wholesale manner by the use of stoves or steam chambers, concealment of infestation by lice can be punished, and in various ways those under naval or military orders can be forcibly cleansed. None of these things quite hold good with a civilian population. In the matter of school children machinery exists for compelling the parents to keep their offspring free from lice, but no one can constrain those parents themselves to be cleanly, and it is in the adult and not in the child that the unsuspected cases of trench fever may occur. Most insecticide solutions are ineffective, and almost always so when made up according to popular theory, so that it may be incumbent upon medical officers of health to issue public instructions as to how to destroy lice. For they must otherwise spread among the civilian population, who are brought in so many and such frequent manners into collision with the soldiers fresh from the trenches.

THE DEATH OF PROFESSOR HENRY GEORGE PLIMMER.

In Professor Henry George Plimmer, Professor of Comparative Anatomy in the Imperial College of Science, the medical profession has lost in this country one of its most learned exponents of pathology. Plimmer was a remarkable evolution of a scientist from a general practitioner, and a general practitioner when clients were drawn mainly from the humbler classes. Born in 1857 he made a late start in medicine, but qualified in 1883, showing great anatomical knowledge. Compelled by

circumstances to make a living he conducted the parish and dispensing work of a suburban practice for 10 years, and worked so hard that in 1892 he was able to retire from general work, enter at King's College Hospital as a scientific student and devote himself to bacteriology. He was a fine technician in his chosen line, and a brilliant microscopist. His early "discoveries" as to the cause of cancer were disproved, and he himself openly admitted that he had mistaken the rôle of "Plimmer's bodies," but he was elected a Fellow of the Royal Society because of the great value of his researches in many directions of preventive medicine. Among his numerous posts, he was pathologist at different times to the Cancer Hospital and St. Mary's Hospital, London, a member of the Tropical Diseases Committee of the Royal Society and pathologist to the Zoological Society. At the time of his death he was engaged at the College of Science in the investigation of trench fever.

Physical Therapy

Under the Editorial Direction of Albert C. Geyser, M. D., New York.

The term "physical therapy" is not an adequate one for the purpose for which it is intended, for, in the final analysis all therapeutic measures must be more or less physical. Even such cults as the "faith cure, christian science, etc.," all intend eventually to affect the physical part of the patient.

Surgery is the other extreme of physical therapy. When we speak of physical therapy in a medical sense, it is our intention to limit the meaning of the word physical to the Greek word *physis* meaning nature-like or natural. It would seem apparent, if we used such an expression as "natural therapeutics," that there must also be "unnatural" therapeutic agents. Thus, again we are at a loss in finding the correct word or expression which will at once indicate our intended meaning and nothing else.

Physical therapy, by general consent and for the want of a better term, implies the use of such agents as are found to be in existence by or thru the forces of Nature. Under such circumstances such agents as temperature and motion appeal most strongly to us. Even here, we are confronted by the fact that temperature creates or modifies motion, while motion creates or modifies temperature. Since all forces of Nature are so closely allied and interdependent upon each other, we are forced back to our original proposition, that the term physical implies for our purpose all of the various physical or natural manifestations of the universe. When such various agents are used for therapeutic purposes, we are, by leave and license, allowed to make use of the term physical therapeutics.

Nevertheless, nearly all of the various agents designated as physical or natural have to be imitated or produced artificially in order to fit them for our purposes.

Electricity, heat, cold, light and motion are all agents or modifications from some natural force or energy. It is necessary to grasp this fundamental law, it simplifies the comprehension of the applications of these various derivatives. Given any one of these agents, all of the others are practically implied in their fundamentals and so the action of one always implies at least a portion of any one of the others. There is a general sameness in all of them. Such a comprehension will assist materially in understanding the various claims made by the users of such agents. One physician makes use of heat, another of cold, yet both of them claim similar results in similar cases. As a matter of fact they both made use of *thermo-therapy*, hence the similarity in results. One physician claims wonderful effects with galvanism, another under similar circumstances uses faradism and is equally impressed with the results. The fact is, both of them made use of electric currents or *electro-therapy*. In the one case the galvanic current caused chemical changes directly in the fluids of the body by electrolysis; in the other case the faradic current caused muscular contractions and relaxations and as a result of these, chemical changes in the fluids of the system. Both of the physicians arrived at the same goal but by different routes.

In order to destroy or remove a growth, the surgeon uses the knife, the internist a caustic, the physical therapist the actual or the galvano cautery, yet they all accomplish the same end results, but use different means in accomplishing them. When localized stimulation is required, the surgeon recommends massage or friction, the internist rubefacients or counterirritants, the physical therapist external heat. As the

internist has a large variety of medicaments to choose from, so has the physical therapist his agents, such as the heat from a high candled power lamp, static sparks, vacuum tube discharges, superheated dry air or even diathermia. All of these agents accomplish similar end results. There is, however, one great difference, when a counterirritant or rubefacient is applied, we never know just what the effect will be until after that effect makes its appearance. Physical measures are applied continuously until the desired reaction is produced, then the application ceases at once; only the desired effect is produced, neither too much nor too little. Each application is under absolute control and the reaction is known before hand.

Every physician should have one or more physical agents in his office. He should thoroly acquaint himself with the underlying principles of physical therapeutics, which are misunderstood by many, appreciated by few and underestimated by nearly everyone.

Entirely too much credit is too often given to this, that, or some other agent. It is never the agent, but the reaction of living cells to an agent that must guide us in the selection of our therapeutic agents.

The first question that confronts us is, what is the desired reaction in any given case? Having definitely settled upon the physical reaction desired, we inquire as to the best agent under the existing circumstances that will produce the desired reaction. Whatever that indicated agent may be, that is the proper one.

Physical therapy must not be employed to cure disease, that is the function of physiology and cannot be usurped by the physician.

Physical therapy must only be used to initiate physiologic reactions. If the reactions on the part of the system are correctly chosen by the therapist, a cure will result by the *vis medicatrix naturae*.

It is a well recognized fact that in chronic states of diseases physical therapeutics produce far better results than all other methods.

Tuberculosis and Anemia.—For the past ten years the Editor of this department has pointed out the fact that tuberculosis never exists anywhere excepting as a secondary complication to local or general anemia. There is no part of the human economy that is so prone to anemia as the upper third of the lungs, the entire glandular system, the bones and the skin. It is a well recognized fact that just in these regions tuberculosis is most common. Indeed, we may go a step further in saying that phthisis cannot exist in a patient whose system, especially the blood, contains an adequate amount of lime salts in an organic state. In order to arrest almost any stage of phthisis only few essentials are necessary.

1. Common sense concerning this disease based up the immutable laws of animal physiology.

2. Hygienic conditions surrounding the patient, with especial attention to diet, hydrotherapy, rest, physical exercises, psychotherapy.

3. Blood and then more blood led into the lungs or other phthisis area, not by externally applied heat as mentioned above, because that furnishes only 10 per cent. efficiency, but by the daily application of diathermia; this does not heat the outside of the body, but the inside. If then a suitable diet is given and the heated blood stream directed towards the lesion, the results will be that 90 per cent. of all phthisis cases can be made closed cases.

Treatment of Otitis Media.—Earaches usually come on at night. Good, in a recent issue in the *Ill. Med. Jour.*, says at the very first indication of pain in the ear the patient should get up and drink a little water or eat something in order to make him swallow, as in the act of swallowing the tensor tympani and palati muscle contracts and opens the eustachian tube, thereby promoting drainage. In addition to this the nostrils should be opened with adrenalin and cocaine. One-half hour thereafter the patient should take a mouthful of water, and while in the act of swallowing, the nose should be held tightly shut, as in this way secretions are sucked out of the ear. The patient should then blow the nose with force and suddenly close the nose in the act of blowing. This will blow air up into the ear. If this is carried out immediately upon the first sign of acute otitis media, you will be amazed to find how many cases you have bridged over without developing otitis media.

The physician should make an early diagnosis before the drum membrane ruptures and have the drum cavity opened before serious pathologic changes have taken place in the tympanum where the ossicles, facial nerve, oval and round windows are located. By so doing you prevent mastoiditis, chronic suppurating ears and deafness. It is preferable that the operation of opening a drum membrane should be performed by a physician who has had experience in ear diseases.

It is not considered wise to irrigate an ear before one is certain that the discharge is purulent, for the reason that if we irrigate an ear that is not affected it will become infected. It is a well-known fact that if a drum membrane becomes perforated from a blow or a gun-shot explosion it will usually heal without infection if left alone, whereas if it is irrigated it always becomes infected.

The author believes that frequent irrigations in suppurating ears give the best drainage and keep the ear the cleanest. A twenty-five per cent. solution of argyrol, dropped into the ear after each irrigation, is non-irritating and at the same time a good antiseptic. A chronic running ear is like a charge of dynamite in the brain. You cannot tell when it will explode.

The Unphysiologic Use of Electrotherapy and Its Results.—Mr. W., age 46 years. Perfectly healthy up to six weeks ago. About one week after a visit to his barber an infection appeared in the nape of the neck, right side. This infection followed or appeared upon the site of a previously received slight trauma with the hair clipping machine. A son, age 16 years, who also patronized the same barber about the same time, also developed a carbuncle in the back of the neck upon the site of a slight trauma with the hair clippers.

Both father and son nursed a similar lesion about the same time with this difference in treatment:

The son was treated with the usual home remedies (hot fomentation) early in the disease. The infection ripened and in due time spontaneous rupture and evacuation occurred, followed by prompt recovery and practically no scarring. The father, on the other hand, was urged to submit to electrical treatment for the purpose of aborting the abscess. The effleuve from a high frequency resonator machine was used daily over the lesion. The result was a thickening and tanning of the skin overlying the lesion. The abscess seemed to retrogress, much to the delight of the attending physician, who, by the way, was not an electro-therapist, but an electro-enthusiast.

In the course of a few days the pain under this treatment became unbearable. The patient refused to submit himself to any more of such electro-therapy; instead he now made vigorous applications of moist heat. In a few days the skin became soft again, the abscess opened and discharged its contents, leaving a deep scar, which finally healed by granulation.

If the story ended here it would not be so bad, but the worst is yet to come. Two weeks after recovery from the abscess the patient came under my observation.

Mr. W. complained of headache over the right parietal region, pain in the right lumbar region, especially during the act of deep inspiration. The patient's appearance was that of a profound toxemia.

Blood examination showed a marked deficiency of leucocytes. Urine contained pus and the usual detritus pointing to a possible cystitis. The temp. per rectum in the forenoon 100-101° F., in the evening 102-104° F. After resting in the horizontal posture for a few days, the temperature gradually became less until April 13th, when the rectal temperature fell to normal and the patient felt perfectly well.

On the evening of April 14th a sudden and severe chill was the first intimation of something wrong. The temperature went to 105° F.; pain in the right lumbar region became worse. For the first time flatness could be elicited over the kidney. Metastatic involvement and a perinephritic abscess was suspected. Dr. L. Buerger was called in consultation. The diagnosis was confirmed and the patient removed to the Mount Sinai Hospital.

Exploratory incision revealed only a small amount of pus, but a large mass of an inflammatory exudate around the kidney, with involvement of the upper pole of the kidney itself, but not communicating with pelvis of that organ. The appearance confirmed the suspicion that the whole process dated back about two weeks ago.

The wound was packed, drainage pro-

vided for and allowed to heal from the bottom up. Then followed the usual four weeks in the hospital and the final recovery of the patient.

Abscess formation, no matter where located, is always a sure indication that germs, toxins or dead cells are about to be expelled from the body. If therapeutics means anything, it means that Nature ought to be assisted in her expulsive effort. The effleuve from a high frequency machine is a counterirritant. When this is used it must be used so early that absorption is still safe, but must never be used after the walling off process has once begun. It is just as unphysiologic to use the high frequency effleuve under such circumstances as it would be to make a crucial incision into a walled off abscess, breaking down the defences which the system has so carefully built up.

Diathermia applied early and often would have assisted in the dilatation, leucocytosis and diapedesis. Either a physiologic restitution would have occurred or else the ripening process would have disappeared and the pus could have been evacuated by aspiration or a simple small incision. All of this would have been physiologic; it would have assisted instead of interfered with the natural process.

It may be argued that it is speculative to connect the lesion in the neck with the infection of the upper pole of the kidney. There is such a possibility, but we are well aware of the fact that as long as we have a local focus, just so long is there danger of distal infection. Not only that; this same distal infection has occurred many times following attempts at a localized abortion of an impending abscess.

Abscesses once diagnosed should be treated with diathermia and every means furnished for external drainage.

Rational Organotherapy

The Thyroid After Operation.—According to investigations conducted by Kojima, *Quarterly Journal of Experimental Physiology*, Vol. XI, 1917, the remaining portion of thyroid, after partial thyroidectomy, undergoes proliferation of its epithelial cells and the vessels show marked polymorphism. There is little or no change in the parathyroid.

Partial parathyroidectomy causes no apparent changes in the remaining parathyroid tissue nor in the thyroid.

Pluriglandular Derangement.—Timme, in an interesting article in *Archives of Pediatrics* (Dec., 1917), discusses a case of pluriglandular disturbance which when first seen had an erythematous and pustular condition of the digits of both hands and feet, especially the latter, great fatigability, slowness in physical growth, with sluggish mentality and uneven temperament. This condition had existed for a year, and was steadily growing worse.

The author regards the history of the case as highly instructive, not only from the viewpoint of clinical diagnosis, but also from the analysis possible of the internal glandular disturbance. It shows the necessity of properly integrating the clinical data and not superficially treating the symptoms as they appear visually to us. A very small deviation from the normal of internal glandular activity, if under or overcompensated, may give rise to the most diverse pictures clinically—from vasomotor abnormalities to gastrointestinal disturbances. The same original glandular disturbance in each of two patients will give a clinical syndrome in one of acromegaly and in the other of Raynaud's disease.

It seemed as tho the key to this situation was the pituitary condition which, if corrected, would release enough of the suprarenal supply to perform the necessary work on the sympathetic nervous system, especially in the control of the smooth muscle fibre of the arterioles. The thyroid therapy is secondary in importance to the pituitary. It simply hastened the general metabolic processes besides making up for the slight primary deficiency.

If one merely takes the view that because certain symptoms are referable to a single gland, the administration of that gland will prove effective therapeutically, he falls into error, for the symptoms evidenced as due

to a particular gland, may have been produced by a disturbance compensatory to the original imbalance, and treatment directed to that gland will overcome by interfering with its activity any compensation that might have been established.

Treatment in this case consisted of pituitary medication in the form of whole gland capsules administered twice a day, one hour after meals. Together with these, 3 drops of adrenalin in salt solution were given by mouth three times daily, after meals. After a short period the adrenalin was stopped and thyroid gr. 1/10 twice a day was ordered. Later, the thyroid was increased to gr. ¼ twice a day. The condition of the patient improved so much that treatment was discontinued and started again whenever the mental condition became such that it was needed.

The Hormones in the Acute Infections.—If the endocrine organs constitute the defensive mechanism of the body, says Carpenter in the *Medical Record* (Mar. 30, 1918), then it is clear that by the administration of those organs or their products we should be able to prevent disease by increasing the body resistance at will; and in cases where disease has already become established in the body we should, by the same means, be able to restore it to the normal.

The writer first became convinced of the feasibility of such a method in the year 1900 when using the spleen in the treatment of malarial infections. The results of this work were published in 1906 without knowing of the work of Nouveau, which was published in 1902. The next year Paucot published his record-breaking account of his use of the spleen in malarial splenomegaly. Quite as important, however, as the immediate results produced in malarial infections was the discovery of its therapeutic limitations. Spectacular as are its effects in this condition, it failed utterly to give comparable results in other specific fevers. It was at first thought that it was going to prove valuable in typhoid, but subsequent experience disproved this.

But perhaps one of the most important developments from this work was that in the treatment of hundreds of cases it was found necessary to combine the spleen with the products of other organs to meet special conditions; first with pepsin, to overcome the effects of anemia, and second, with the sex gland to prevent mental effects. The combination with pepsin alone, however, will also prevent mental symptoms, but it is only where the hormonic output of the sex gland is lowered that this effect, that is, mental symptoms, need be feared.

These combinations to meet special conditions suggested the thought that perhaps combinations of the spleen with other organs might give better results in other infections. So a regular campaign of combinations was entered upon, in which not only was the spleen combined with other organs, but other organs were combined without the spleen.

The first thing that suggested itself in regard to such a course was, would not a combination of extracts of all the endocrine organs meet all conditions and cure all infections? This has been tried by other observers and proved a failure. But individual infections have been found by the writer to yield to special combinations, just as each infection, as a rule, requires for its treatment its special autogenous vaccine.

But here we find ourselves face to face with a gigantic problem, that of constructing combinations of organs that will produce specific effects in all the many infections that flesh is heir to. The problem that confronted the translators of the Egyptian hieroglyphics was not more hopeless in appearance than this. But to all cryptograms there is a key, we are told, and the key to this mystery is to be found in the spleen. Altho many useful combinations have been made in which the spleen does not occur, all those that have produced the most beneficial effects contain the spleen. So it has come to be looked upon as the central and most important organ of the defensive system; and the most of the building of combinations, or hormone equations, has been done by grouping various organs around the spleen, or by varying the proportions of the same organs.

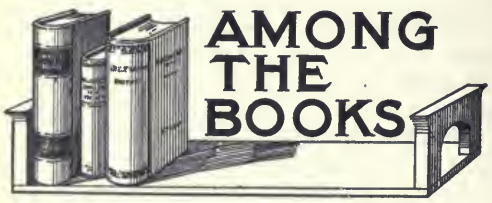
It is not claimed that hormone equations have been constructed for all infections. Only a very small number out of the many that have been tried have proved specific; but enough it is thought to prove the truth of the principles involved, and blaze the way for the profession, by which, if it will,

it may come into its own, and make habitual scientific use of those great vital forces that have so long escaped its grasp.

The infections in which practically specific effects have been produced are pneumonia, acute pneumococcic laryngitis, erysipelas, some pus infections, puerperal sepsis, measles, scarlet fever and dysentery, both amebic and bacillary.

Tuberculosis and Hyperthyroidism.—Santa Maria reports a case in which the marked hyperthyroidism suggested exophthalmic goiter, but unmistakable signs of apical tuberculosis disclosed its toxic origin from the tuberculosis toxins. Under appropriate treatment for the tuberculous condition, the apex cleared up and with this all the thyroid symptoms disappeared. In some cases of pure exophthalmic goiter, the writer has witnessed a spasmodic cough suggesting tuberculosis, of purely vagotonic origin, as also in some cases of simple poisoning from thyroidin. Hypothyroidism may accompany tuberculosis, and thyroid treatment may effectually supplement specific treatment of the tuberculosis, which without it may fail of success. Hypothyroid rheumatism, he says, is comparatively common and exceptionally amenable to treatment.

Toxicity of Eggs.—Dealing with the vexed question of toxicity of eggs, which has resulted in their exclusion from certain dietaries, (especially those intended for cases of albuminuria and enteritis), Linossier is of the opinion that in a majority of cases there is a predisposition, often existing from birth.—*Lancet,* London.



The Jewish Child.—The status of the Jew in the world's history has always been marked with interesting problems. The origin of his ceremonies, the reasons for his longevity, the causes of his racial continuity have given rise to numerous volumes, discussions, criticisms and speculative monographs. As a characteristic, various writers have emphasized the home life of the Jews, and particularly the care and attention devoted to the nurture of their children.

For those interested in unraveling some of the mysteries, or of coming into contact with the essentially Jewish literary bases relating to the development of Jewish character, a most valuable book on *The Jewish Child,* Its History, Folklore, Biology, and Sociology, has made its appearance under the most capable authorship of W. M. Feldman, M. D., B. S. London (Block Publishing Company). Few books are more comprehensive in character, more readable in form, more sound and rational in weighing facts and statements, or tinctured with greater scientific insight or literary grace. As James Crichton-Browne states, in his kindly introduction, the author has produced "a medley instructive and entertaining, showing how Rabbinical and Talmudic precepts anticipated many of the hygienic teachings of today."

In most readable language one finds discussions on heredity and eugenics, marriage and intermarriage, considerations of pregnancy and embryology in their hygienic and philosophic aspects. The various rules, ceremonies, theories and fantastic speculations regarding birth, infancy and childhood are traced back to their early origins and interpreted in the light of present day knowledge regarding hygiene, education, pathology, and vital statistics. The presentation of this volume at the present time possesses particular value in view of the fact that the saving of infant life possesses unusual interest during these days of stress.

A book of this type has a place in the library of the physician, the anthropologist and the teacher, while its general informational value recommends it for those interested in history, science, sociology and child welfare.

The Human Mechanism.—The importance of providing an authoritative textbook on physiology, hygiene and sanitation is emphasized by the growing interest of the nation in the health of communities. Too frequently the writers of textbooks have been filled with enthusiasm for book production without the contemplation of their fitness to act as an author. *The Human Mechanism* by Hough and Sedgwick (Ginn & Company) is of unusual merit, not merely because of the high standing and scientific achievements of the authors, but because of their ability to present technical material in an attractive manner and in a way that is adequately adjusted to the mental calibre of students of secondary schools. The most recent revision brings the subject-matter up to date in such a satisfactory manner that there is little room for criticism on the side of content save the complete omission of discussions concerning the reproductive systems and a lack

of reference to the important topics related to the hygiene of the organs of generation. It is patent that these omissions are not due to a lack of interest on the part of the authors, but is a part of the stupid policy of silence generally upon these subjects in educational circles.

Inasmuch as the health and efficiency of the human body are to no small extent dependent upon the welfare of the body as a whole, every textbook failing to give adequate discussion to the entire body and its organs must necessarily fall short in its teachings. From the publishers' standpoint, the demand made by pedagogs must determine the character of textbooks, and it is to be hoped that educators will soon reach the point of realizing the necessity for imparting due and proper information concerning the physiology and hygiene of sex. Criticisms of this character possess little value save as their constant repetition may serve to cast light upon the stupid attitude of teachers who regard pupils in high schools and colleges as unable to meet and grasp, in an intelligent and frank way, the numerous sex problems, acquaintanceship with which has already been secured from undesirable and questionable sources.

Men such as Hough and Sedgwick will be able to present the facts as they should be presented and as they have presented the vast amount of technical material which marks their book as one of the best available for supplying a practical and authoritative guide for students of physiology, hygiene and sanitation in high schools and colleges.

Morbid Fears.—The application of the generalization of Freud in a sense must serve as a test of their value. For this reason H. W. Frink has made a distinct contribution in *Morbid Fears and Compulsions*, Their Psychology and Psychoanalytic Treatment (Moffat, Yard and Company, pages 553, price $4.00.) In many ways there is presented undiluted Freudian doctrine, in many instances supported by free quotation from Freud's writings, while a considerable amount of the material has appeared in various medical journals. The bulk of the book evidences a conscious effort to define the wide field of application of Freudian methods in controlling mental phenomena so as to eliminate a large variety of physical and mental symptoms due to fears and compulsions originating in the unconscious. A large proportion of the book is devoted to an unfolding of the nature of the unconscious and the various mechanisms of psychopathologic manifestations. In fact so much space is devoted to casting light upon the elementary principles of Freudian psychology that the author was obliged to change the limits of his volume and reserve some of his clinical material as the basis for a supplementary volume in which analytic technic will receive more consideration.

The manner of presentation, the wealth of literary illustration, the aptness of analogy, the forceful tho heavy literary style, adds greatly to the convincing character of the argument, even if the reader should perchance be fundamentally opposed to the acceptance of homophilic phenomena as the mainsprings of human conduct.

There is considerable comfort in reading, "to tell the truth it seems to me that in the present state of our knowledge, the analytic cure cannot be fully explained." The chapter, however, devoted to the theory and mechanism of the psychoanalytic cure has as its central idea, psychoanalysis, by overcoming resistances, re-educates the patient. His restoration is accomplished, "not so much by teaching him new standards, as by unteaching old, erroneous and distorted ones."

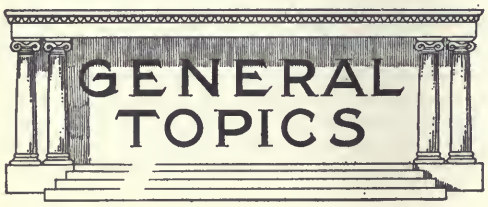
The chapter devoted to a case of anxiety hysteria affords a splendid opportunity for grasping the methods of analysis tho as the author admits it is not as concrete a discussion of many phases of the theory as might be desired. It is unfortunate that Dr. Frink could not have selected a case better analyzed instead of postponing it for a future volume devoted to a single detailed case report.

On the whole, too much space has been allowed for the more elementary phases of his subject, such as might be expected to be interesting to those seeking further enlightenment concerning morbid fears and compulsions. Psychologists, biologists and educators, and particularly those making application of the principles of psychology, biology and education will find a rich mine of information and a stimulus to further investigation along various lines by a conscientious perusal and study of this most excellent exposition of the part that motives play in our lives. Physicians particularly will appreciate what Dr. Putnam mentions in his valuable introduction that the author has written for physicians and those who are ready to take the physicians' point of view.

Alopecia.—Baldness is almost a characteristic feature of our civilization and the present age. Loss of hair, or partial loss of hair, is nowadays so common a sight as to attract little or no attention.

However, baldness is an undoubted detraction from the personal appearance, and cannot but be a source of worry to those who are afflicted by a premature loss of the hair on the head. Moreover, it is not infrequently a drawback to personal success. Employers are often chary of engaging the services of men who even look old, and of course no physical failing makes a person appear older than baldness. Dr. Richard W. Muller in *Baldness, Its Causes and Its Treatment and Its Prevention* (E. P. Dutton and Company) tells what modern science knows about the human hair, why it falls prematurely, how to preserve it and prevent its falling out. According to this authority not only baldness and thinning of hair may be cured or at least greatly helped but gray hair as well. It cannot be emphasized too often that the average physician knows too little about these conditions which may seem simple and unimportant, but which always loom large in the mind of the person who is afflicted and seeking relief. This book is one which every physician should possess.

Non-Secrecy in Modern Therapeutics.—Gradually it is being realized that secrecy in regard to therapeutic remedies is out of spirit with the times, and no self-respecting physician will use remedies whose active ingredients he has no knowledge of. Consequently during the past few years hundreds of "patent" and proprietary medicines have been analyzed with the object of giving the medical profession information that would be of vital interest to it. This work has been done by federal and state officials and especially by the chemists of the American Medical Association. The information, unfortunately, has been scattered thru many publications and, for this reason, has not been easily accessible either to the public, medical men, or to officials. The purpose of Mr. Street's compilation is to remedy this difficulty, in a measure, by bringing together in one work an accurate record of published analyses. This book, *The Composition of Certain Patent and Proprietary Medicines* (The American Med. Ass'n, Chicago), contains analyses (one or more) of over 2,500 proprietary medicines, including the most widely used and extensively advertised products offered to the American public. The analyses are published without comment and without prejudice and the compact form in which they are presented should prove of great usefulness to the physician, the pharmacist, the inspection official and the intelligent layman.



Sterilizing Rubber Gloves.—There are two general methods in use for sterilizing gloves, says *Amer. Jour. of Nursing*, April, 1918, namely, the wet which consists in boiling the gloves in water or in saline solution; and the dry, accomplished by means of live steam under pressure. If gloves are to be worn wet, immediately before they are needed they are sterilized by boiling for fifteen minutes in water or in saline solution and are then put into some such solution as lysol or bichloride of mercury. Before being placed in the sterilizer, they are wrapped in gauze, the edges of which are secured by weights to the bottom of the sterilizer to prevent gloves from ballooning and floating on the top of the solution. To put on these wet gloves, they are first distended with the solution and the hand is then slipped into the glove, the fluid being forced out at the same time.

In the dry method, the gloves are dried and powdered with talcum, wrapped in a towel or put in a folder, and placed in a pressure sterilizer where they are allowed to remain from ten to fifteen minutes, depending upon the kind of instrument. Before putting on the dry gloves, the hands are first thoroly dried and powdered. The advantage of the dry method is that the hand is not so likely to perspire and fewer bacteria are extruded in the event of the glove being punctured.

A third method of sterilizing gloves is by a combination of the wet and the dry methods, the gloves being dried by hand.

The Health Officer and the Big Fight.—It is said to take nine men working "over here" to keep one soldier fighting "over there." Clearly, therefore, it is wise to keep the nine workers husky and working as well as the one soldier.

Which health officer should stay at home and who should go to war? How is the nation bearing up under the war-strain? What are the special war-time health menaces of the civil population, and what are we going to do about them? What headway are we making against the venereal diseases? These are the questions to be considered at the convention of United States and Canadian sanitarians at Chicago, Oct. 14-17, to be held under the auspices of the American Public Health Association. Some of the military sanitarians who will address the meetings are Surgeon-General Gorgas, Colonel Victor C. Vaughan, and Major William H. Welch of the Army Medical Corps. Other speakers at the general sessions will be George H. Vincent, president of the Rockefeller Foundation, Dr. Charles J. Hastings, president of the American Public Health Association, Dr. W. A. Evans, Assistant Surgeon-General Allan J. McLaughlin, U. S. P. H. S., Dr. Ernest S. Bishop, Dr. Lee K. Frankel, Dr. Frederick L. Hoffman and others.

There will also be papers upon laboratory, industrial hygiene, vital statistics, food and drugs, sanitary engineering, sociologic, and general health administration subjects.

As the health of the civil population has a direct bearing upon the winning of the war, mayors and governors are being requested to send their health officers to the conference in spite of the present high cost of government.

The final program will appear in the *American Journal of Public Health* to be issued Sept. 25. For further information write to A. W. Hedrich, Secretary, American Public Health Association, 1041 Boylston St., Boston, Mass.

Burns from Mustard Gas.—The early burn, says a writer in the *Jour. de Medecine et de chirurgie pratiques*, consists of a large plaque of erythema upon which may appear blisters or only vesicles. Upon a hairy surface pus forms. These lesions may so resemble ordinary sunburn as to deceive completely the victim; naturally this is seen only on exposed localities. But the burns occur by locality in the most arbitrary fashion, the penis and scrotum, about the joints (knee, ankle), the thighs, buttocks, neck, and back in the order named. The exposed parts are rarely affected, hence the confusion with sunburn.

The treatment is very simple—sodium carbonate in 3 per cent. solution for ocular lesions and burns. Nothing avails much for the respiratory symptoms, altho symptomatic treatment should be given.

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Training for Public Health.—The tremendous impetus in public health administration thruout the world is sufficient reason for inquiring as to the source of trained public health men in the United States. E. C. Howe, *American Journal of Public Health,* August, 1918, presents the results of his investigation, thru questionnaires, of the public health courses given in the United States. His findings are not reassuring. Inasmuch as it is generally believed that physicians naturally should be best fitted for public health work, it is disquieting to realize that the medical schools with their conventional training in medicine fail to confer adequate appreciation of the scope of hygiene and public health and do not afford a large opportunity for the gaining of the knowledge or the technic requisite for a public health officer. It is true that most of the experts on public health subjects are physicians, but their training has arisen largely in the school of general experience, plus careful study and reading of the literature of the subject. A small but efficient group of health officers are graduates of special schools of public health.

A comparatively small number of medical colleges offer special courses leading to such degrees as Doctor of Public Health, Master of Public Health, Certificate in Public Health, Master of Science in Public Health, or Diploma in Public Health. The character of the courses leading to these various degrees varies considerably, from brief series of lectures to long series of lectures plus laboratory work. Some institutions demand one year, others two years for covering the curriculum. A few give a correspondence course, plus one week's attendance.

For the most part, hygiene and sanitation are merely appendages of courses devoted to pathology, bacteriology, therapeutics, medicine, and clinical microscopy. The catalog descriptions of courses are frequently very elaborate, but it is patent from the detailed subject matter that it is impossible to cover them adequately in the number of hours listed as devoted to hygiene and sanitation.

A striking criticism is made concerning the text-books and references named, which, with few exceptions, consist of an inadequate list of conservative text-books or compendiums of the health field of hygiene and sanitation. To quote Howe, "There is scarcely an instance of citation of any up-to-date monographs on personal hygiene, public health administration, sewage disposal, water supply, milk supply, epidemiology, ventilation, etc. There are no instances of reference to text-books or periodical literature in the foreign languages which are so generally required for entrance into medical schools."

The growing demand for capable and conscientious health officers and sanitary experts emphasizes the necessity for more

adequate attention to preventive medicine, state medicine, public health, hygiene and sanitation, or whatever name may be applied to this field of medical social activity. No branch of medicine has been of greater value to the conduct of the war than prophylactic medicine. Numerous difficulties arising in civil and industrial work are being met by an all too small group of earnest students, who are gaining their practical experience while attempting to solve their problems.

It is true that the special demands made upon medical schools for altering their curricula have not always received a warm welcome. Granting that the required subjects now demanded in medical colleges are numerous and burdensome, one may ask whether it is not time for a revaluation of the subjects taught, with a view to readjusting the daily schedule in the interests of practicality and serviceability.

Medical colleges are already undergoing marked changes in answer to the demands of a country at war and in need of competent medical military officers. It is to be hoped that, as a result of the present experience, matters of hygiene and sanitation or public health will receive attention commensurate with their civic importance.

Personal hygiene is important, but public hygiene is of equal significance in the modern health movement. The survey of the types of teaching in medical colleges indicates that broad steps must be taken to insure an adequate training of public health experts. If medical schools fail to recognize the importance of this branch of social science, it will be found that a new school of experts will be developed with engineering as a background, but providing sufficient subject matter of a medical nature to enable its graduates to function efficiently in public health work. The average medical practitioner need not qualify as a sanitary expert, but provision may be made in medical schools so that some form of specialization may be possible in the third or fourth year along lines that will permit certification in public health along with the presentation of the diploma conferring the right to practice medicine.

Medical Education in the United States.—The advances in medical education in the United States must be hailed with general satisfaction. The annual resumè of the statistical phases in medical education as published in the *Journal of the American Medical Association* (August 17, 1918) indicates that the number of graduates for the year ending June 30, 1918 was 2,670, a decrease of 709 from those of 1917. In 1900 there were 160 medical schools in the United States. At the present time the total number of medical colleges is 90, six less than last year. Of the 90 medical colleges, 79 are non-sectarian, six homeopathic, two eclectic, and three are nondescript. This curtailment in the number of colleges is a step in the right direction because it tends to develop institutions adequately outfitted to teach modern medicine on an educational basis for educational results, rather than for purely commercial purposes.

This educational direction is further manifest thru the increasing of the terms of medical colleges and the raising of the requirements for admission. In 1904 only four medical colleges required any college work of its matriculates, and only 20 to 25% demanded a four-year high school education. The low standards were largely responsible for a body of medical students in 1904 totalling 28,142 as opposed to the 13,630 during 1918. To quote from the editorial,

Journal of the American Medical Association, (August 17, 1918): "Instead of four (2.5 per cent.) medical schools which in 1904 required any college work for admission, now eighty-three (92.2 per cent.) are requiring one or two years of such work; instead of only 1,761 (6.2 per cent.) students enrolled in the higher standard colleges in 1904, during the past year, 12,999 (95.3 per cent.) students were enrolled in the higher standard colleges, and instead of only 369 (6.4 per cent.) graduates who were turned out by the higher standard colleges in 1904, at the end of the last session 2,412 (90.3 per cent.) graduated from those institutions."

The improvement in the type of medical students insures a higher grade of medical graduate. The increased training and the wider bedside and hospital experience are reflected in better qualified practitioners, who are more able to give adequate care to the sick and participate in the dissemination of knowledge directed against preventable diseases.

The proportion of physicians to our general population is two to three times as great as that existent in Europe previous to the war. The decline in the actual output of medical men is largely offset by the general improvement in public health due to public health education. The decrease of infantile illnesses, the moderation of the severity of many diseases as a result of prophylactic inoculations, the social and economic advances, decreasing such diseases as tuberculosis, the constant warring against venereal diseases, have resulted most naturally in a raising of the standards of health of the country, with a decreasing need for a surplus of medical graduates. The extensive changes in health departments, hospital and clinical facilities, the introduction of social service, the rapid growth of district nursing and medical inspection, and similar medico-social agencies, have safeguarded the populace so that one practitioner today is able to give better care to a larger group of the community than was possible twenty years ago.

Fortunately, the government has thrown the mantle of protection around medical students so that the yearly grist of physicians will not be completely destroyed. The number of doctors available for the civil community is at present greatly reduced, tho by no means to a point where public health is menaced. The number of students to be graduated next June will not much more than atone for the losses due to normal deaths in the profession, plus those incident to war. The sum total of the profession will not be greatly reduced and, comparing losses in the civilian and military forces, probably will not occasion a greater disproportion of medical service if peace were to come by 1920.

It is possible, however, for medical institutions, by having continuous study for twelve months during the year, making provision for a four-month hospital service during each year, plus practical training in military medicine, hygiene and sanitation, to speed up the graduation of students without sacrifice of the essentials in their education, particularly in view of the fact that a higher grade of students thus far tends to enter the profession. While this obtains for present classes in medical colleges, the future is somewhat indefinite owing to the relative depopulation of academic institutions thru volunteering and the draft.

Looking Ahead.—It is not at all improbable that, after the war, America will be called upon to supply the world with medical men, just as the nation has become re-

sponsible for supplying large measures of food, machinery and the other elements requisite to protecting a badly scarred civilization. The reconstructive phases to be entered upon will find France and England and other nations sorely in need of medical assistance. The United States will undoubtedly have available the largest number of capably trained men to administer to the health of foreign populations because other belligerent countries were not wise enough to protect their medical institutions and thus make certain of a constant output of scientifically trained and adequately prepared physicians. Undoubtedly, a large number of American physicians, particularly those who had not yet entered upon the practice of medicine, will find splendid opportunities in foreign lands. The total number may not be large, but it will certainly be more than enough to offset the graduates of a single year from American institutions. This will not effect a shortage for American needs.

Taking all items into consideration, the status of medicine at the present time in the United States is reasonably satisfactory considering the fact that more than 25,000 physicians are in the medical service of the country, and that another 30,000 are required to care for the new army forces soon to be drafted. Furthermore, the experience of the physicians engaged in military duty will redound to the advantage of the country because of the character of the training which is being secured and the thoro instruction and diversification of functions which have devolved upon them. Specialists have had their vision broadened, and general practitioners have found themselves becoming specialists in various phases of medical work without realizing the advantages of the alterations in their development.

Higher standards of pre-medical training, improved medical institutions, the extension of laboratory and clinical facilities, the employment of full-time teachers, and the advances in medical teaching have been responsible for raising the standards of American medicine to a plane secondary to none and vastly superior to those existent in most corners of the globe. The American medical profession has reason to pride itself upon its achievements which have originated in consciousness of the worth of service to communities and the recognition of the importance of adequate preparation for preventing and curing the ills which are fastened upon peoples and lead to the impairment of their physical, mental and moral welfare.

Respiratory Diseases in the Army.—The incidence of communicable diseases in the United States Army during the preceding winter gave rise to various criticisms, some of which were undoubtedly justified by reason of the rapid mobilization of the National Army. The hurried transformation to soldiers of untrained men from all parts of the country most naturally was accompanied by a marked increase in morbidity and mortality such as would have occurred, even if the purpose of the assemblage of such large groups had not been military.

An investigation into the causes of the frequency of communicable diseases in the National Guard and National Army during the six months from September 29, 1917 to March 29, 1918, by Colonel Victor C. Vaughn and Captain George T. Palmer shows that, all things considered, the death rate in the army was not as great as many estimated it to be. Exact figures are not available in view of the fact that the draft age, for example, was 21 to 31 years, while the mortality statistics by decades have been

based upon a group 20 to 29 years of age. The army includes more above than below the draft age, and for this reason the death rate in the army would normally be higher than that of the 20 to 29 year group in civil life.

It is striking, also, that the annual death rate per thousand varied exceedingly in different sections of the country during the period under consideration, to illustrate: Camp Wheeler had an annual death rate per thousand of 28.3; Camp Bowie, 23.1; Camp Shelby, 8.6; Camp Wadsworth, 2.5; Camp Logan, 2.3. These camps of the National Guard, containing for the most part men with some degrees of training had, as a whole, slightly lower rates than the camps of the National Army. Camp Pike had a rate of 30.7; Camp Funston, 16.3; Camp Upton, 5.3; Camp Dix, 2.9. The only facts evident are that camp life may be made reasonably safe, in fact, as safe as some of our best protected municipalities.

The wide variations in death rates were found to be due to a variety of causes, none of which was of more importance than the fact that the highest mortalities and morbidity were found in those camps which have acted as filters, thru which numerous troops have passed, leaving the most unfit behind. Data thus far available do not reveal very many important effects of race, nationality, or section of the country from which troops have originated, except that under similar conditions the negro has again shown himself to be more susceptible to acute respiratory diseases than the northern white man.

It must be a source of satisfaction to the medical community to learn that, "There is no reason for believing that either morbidity or mortality in any camp has been due to faulty sanitation, as we usually understand this term. All the camps are kept clean, have unquestioned water supplies, satisfactory garbage and sewage removal, etc." This is quite in harmony with the fact that the annual rate for the three organizations during the period studied was, National Army, 9.6; National Guard, 9.5; Regular Army, 7.8.

In civilian life, for the age group under consideration for the period of time studied, respiratory diseases, including pneumonia, meningitis, measles, scarlet fever, diphtheria and tuberculosis were responsible for 43 per cent. of the total mortality, while for all the troops in the United States the same group of respiratory diseases caused 77 per cent. of the mortality.

It is patent that the main attack upon the mortality rate of the army in camps requires attention to the respiratory diseases. Vaughn and Palmer call attention to the fact that about 80 per cent. of the deaths from the respiratory group are attributed to pneumonia, meningitis being responsible for 15 per cent., with five per cent. to be accounted for by tuberculosis, measles, scarlet fever, and diphtheria.

The prevalence of disease according to the authors may be attributed to one or more of the following causes:

"1. Weakening of the resistance of the soldier due to
   (a) Exposure to severe weather.
   (b) Insufficient clothing.
   (c) Inadequate housing, lack of heat.
   (d) Fatigue.
2. Unusual facilities for the transmission of the infective agent by
   (a) Close contact with carrier cases.
   (b) Undetected cases among new recruits.
   (c) Importation of mildly sick men and carriers from other camps.
   (d) Association with civilian communities.
   (e) Overcrowded quarters.
   (f) Inadequate hospital care of patients.
   (g) Insanitary conditions in general.

3. Natural susceptibility to disease.
   (a) Racial influence.
   (b) Effect of rural life.
   (c) Climatic influence."

A careful study of these above mentioned factors in a most impartial manner leads to the conclusion "that the greatest single factor in the prevalence of disease in certain camps and their absence in others has been the natural susceptibility of the men." Inherent susceptibility to respiratory diseases, physical inferiority, due to debilitating diseases such as hookworm, malaria, pellagra, inadequate dietary, and promiscuous spitting are more fundamental than the aggravating factors incidental to army life. Exposure, fatigue, the lack of warm clothing, insufficient bedding, cold quarters, naturally further decrease their resistance. The mere presence of a disease carrier is sufficient to start an epidemic.

The most significant suggestion made for preventing a recurrence of respiratory diseases during the coming winter is contained in the following paragraphs:

"First and foremost it seems necessary to graduate the introduction of civilians into army life. The change has been too abrupt. Men should be called first to a semi-active reserve army. Here they should get drill and the essentials of sanitation and self-care by lecture and by demonstration. The drill and calisthenics should be the hardening process. After this the transfer should be made to camp where a man's entire time is given over to his military training."

"Before entering camp men should be examined for incipient diseases. The suspects should be separated and watched before their despatch to camp. Vaccination for typhoid and smallpox can be completed while in the reserve force.

"Once established in camp the transfer of men from one camp to another should not take place without a careful examination and removal of those who show signs of illness. This will prevent this all too frequent transportation of sick men, who are dangerous to others because of their sickness."

"These precautions together with care in the proper mixture of work and rest, judicial selection in the quality and balancing of the food ration, the adequate protection of the man, especially the one from the warm climate, against cold and exposure, his protection against the sick thru effective quarantine measures, and discretion in the use of the physical hardening process should moderate to a large degree the experiences of the past winter."

The report of Vaughn and Palmer in the *Journal of Laboratory and Clinical Medicine,* August, 1918, is a most careful presentation of an epidemiologic investigation, and for careful estimation, appreciation and interpretation of facts is most creditable as well as reassuring. Considering the monumental performance of inducting civilians into military life with great rapidity, the morbidity and mortality rates have been remarkably low. The facts concerning illness and epidemics have secured unusual prominence because national attention has been focused upon the army. Had the same morbidity and mortality rates existed for the same group of men while living in their home towns, nothing unusual would have been noted, until the annual collection of mortality statistics revealed the fact that respiratory diseases were slightly more common than in previous years.

The health conditions among the American forces in the United States and overseas is a remarkable tribute to the care and judgment which have been exercised in looking after the physical welfare of the army. No war and no nation has ever presented such unusual figures for the physical wellbeing of troops as those now being made known to the American public as a result of the careful organization of the medical department of the United States Army, ably supplemented by the constant

efforts of the Public Health Service, aided by state and municipal health officers thruout the country. The efficiency of the American Army is in no way better exemplified than in the high health standards which have been achieved.

The Health of School Children.—The reopening of the public school system should reawaken interest in the physical wellbeing of the twenty million youngsters attending school. The principle of basing mental education upon a firm physical foundation has long been recognized, but the machinery for carrying out the details required has not been completely installed. The interest in physical training that has been engendered by a recognition of the various defects and handicaps discovered thru the examination of drafted men merits cultivation. Physical training itself demands a basic health, unimpaired by defects preventable or curable.

The situation in the United States is in nowise different from that existent in other countries. The new English education bill recognizes the importance of medical inspection, school playgrounds, school baths, physical drill of a non-military character, summer camps, infant welfare centers, and nursery schools where children may be looked after while their mothers are at work. Charles W. Eliot, president emeritus of Harvard University, pointed out in an address at Reed College, June 1, 1918, the various physical and mental defects existent in American education, and similar remedies for them.

It is natural that medical men should recognize the physical disabilities in school children, but their influence has not been directed towards securing their correction. The educators, ably seconded, and frequently stimulated by health departments, have taken an advanced position in building up systems for the detection and correction of the defects of school children. Organized medicine has not been as responsive to the needs of school children as would be expected by reason of their greater familiarity with existent conditions.

The development of society must necessarily arise from the improvement of the growing generation. Public instruction is recognized as a function of the state owing to the vast returns to the state arising from a literate and educated population. It is obvious that the state must take cognizance of those circumstances and conditions which hamper the fullest expansion of the educational system. No expenditure of public funds has a more legitimate reason than that devoted towards preparing the bodies and minds of children for the reception of the fundamental facts, processes, and ideals essential to normal functioning in a democracy.

Dr. Eliot points out the importance of medical examiners, school nurses and district nurses, systematic physical training, more careful attention to the development of rational dietaries, but emphasizes the importance of securing money thru taxation for the development of administrative programs to combat tuberculosis, alcoholism, and the venereal diseases.

The American cities and rural sections must seek to secure adequate relief for the physical and mental needs of their children thru legislatures, school boards and educational administrators. The burden of achieving the desired health results should, however, not be cast upon them. County, state and national medical organizations should be in the front rank of those urging the institution of the administrative reforms essential to protecting the growing generation from preventable and remediable

defects and the conditions producing handicaps.

The nation and the states have not attacked the problem with utmost thoroness. The Smith-Hughes bill grants federal aid for vocational training as an educational item to be encouraged and fostered thru national resources. There is every reason to believe that similar grants of money to states for the encouragement of more thoro organization in public health work thruout the school systems would bring greater national returns than a similar sum of money invested in any other form of assistance to educational projects. The expenditure of ten cents per capita is certainly not very large, and would total merely two millions of dollars for the country, but the benefits that would result by the proper distribution of even such a small sum would multiply the financial returns to the nation tenfold.

In this era when billions are being spent for constructive programs in every walk of national life, the question may properly be raised as to whether it would not be desirable to set apart a reasonable fund for the purpose of insuring a higher standard of physical wellbeing for the growing generation. Progress by municipalities and states will be made, but the rate at which progress will be secured is undeniably far slower than is desirable for the nation. In the readjustment of our educational systems to meet the criticisms that have resulted from the discoveries due to surveys of the recently matured population of the land, marked alterations will be required in establishing remedial measures protective of the rising generation.

The financial resources of the country undoubtedly will be available for certain phases of educational reconstruction. The distribution of funds will depend upon the urgency of the programs proposed and the enthusiasm of their supporters. The physical program must go further than the wider introduction of physical training. School children must be prepared for physical training. If the medical profession were to urge a rational health program for school children it would be a natural crowning of the efforts of the Children's Year devoted to the children of pre-school age.

The Prognostic Science.—The interpretation of symptoms is not difficult in the advanced stages of disease. The earliest symptoms of common ailments are not generally appreciated. Sir James Mackenzie, *Medical Insurance and Health Conservation,* August, 1918, quite properly points out that patients in dispensaries are penalized because for the most part comparatively inexperienced physicians attend them. As a result, symptoms of the earliest stages of disease, most difficult to detect, are frequently overlooked, and, in consequence, adequate therapeutic measures are not instituted as early as is desirable. Vague symptoms are a source of human distress and tax medical skill far more than frank indications of advanced affliction. Dr. Mackenzie makes the following statement which opens up a vast field of inquiry: "When you come to the study of symptoms, you discover that there is not a single symptom which the body can give rise to that we know thoroly and scientifically, understanding the mechanism of its production and the influence that it has on the man's future. This may seem to be an extreme statement. You say, "Has not every medical book got page on page of symptoms? Are there not big text-books written, full of symptoms?" That is true; but the symptoms as described at present are so chaotic that it is impossible for anyone to find out

by the study of books what meaning a given symptom has."

He accentuates, likewise, the necessity of a more complete understanding and interpretation of symptoms as a pre-requisite for rational prognosis. He deprecates the undue stress which has been placed upon laboratory aids that have made young clinicians less independent in the recognition of incipient disease. He regards the domination of pathologists and bacteriologists as detrimental to the normal development of capable practitioners or general surgeons. In striking corroboration of his belief of this principle, he himself gave up his consulting practice, moved to another section of London, and took up the work of a general practitioner. It was his intention, until called away by the war, to work and to lay the foundation of a new conception that medicine calls for—"assessing the value of symptoms." Herein he was to find the basic facts for building up a sound basis of prognosis.

The reconstruction of the science of prognosis would appear to be a difficult matter, but as a matter of fact, the science, if it exists today, is exceedingly elementary. No problem is more troublesome to the physician than the evaluation of the effect of conditions, represented by symptoms offered by the human organism. Patients are less interested in the names of their maladies or the scientific relations of an underlying pathology than they are in the influence and effects of their symptoms and disease upon their future. The questions asked are, "Will I get well?" "How long will it take?" "What work can I do?" and similar queries relating to human values in every-day-life.

In calling attention to the lack of systematic prognostic information, Dr. Mackenzie has performed a service that is most worthy. His years of experience, his profound studies and investigations constitute him an intelligent and challenging critic of medicine. His scientific inquiries into cardiology resulted from a desire upon his part to answer some of the questions of prognosis which have long been concealed in statistical reports that appear to answer questions by supplying numerical data. His own progress revealed to him a shortcoming of medicine, and instead of casting it aside, he was prepared to devote the rest of his life in an attempt to remedy it. The profound changes which he effected in the treatment of cardiac disorders and the light which he shed upon their causation, bear witness to his thoroness. It is to be hoped that the new road which he is pointing out may be traversed by him until much of the dead lumber is removed and a clearing effected thru which he and others may travel toward the widening field of rational prognosis, based upon an understanding of the value of symptoms.

Pertussis Vaccine.—The value of vaccines against pertussis is still a matter of different opinions. The recent discussion by Barenberg, *American Journal of Diseases of Children,* July, 1918, affords considerable data leading to the conclusion that the vaccine does not appear to possess very much value as a curative agent, nor even as a palliative, but does possess considerable prophylactic value. The percentage of children studied who had undergone vaccination against pertussis and later developed the disease was considerably less than that found among those who were not thus vaccinated.

Early prophylactic vaccination before exposure or the presence of any suggestive respiratory symptoms gave the most satisfactory results in that 70% of the children

thus vaccinated failed to develop whooping cough. Among those who had contracted the disease, however, the course was mild or moderate in 75% of the instances. Twenty-three children had received prophylactic or curative vaccination in 1915 and 1917, but, nevertheless, the duration and severity of their attacks did not appear to differ from those occurring among children who had not received the pertussis vaccine. Among non-vaccinated children exposed to the infection, 50% escaped, and only 44% of those afflicted had a pertussis course of mild or moderate character.

An important factor with reference to the advantages of pertussis vaccination is the age of the vaccine employed. E. J. Huenekens, in the same issue of the *American Journal of Diseases of Children,* reports some further studies on the prophylactic use of pertussis vaccine controlled by the complement-fixation test. In his investigations he employed a dosage of one-half billion, one billion, and two billion bacteria on alternate days. One vaccine was freshly prepared from three strains of the Bordet-Gengou bacilli. Before demonstrating the vaccine, the complement-fixation test was negative in all cases. Another series was tested out with a commercial vaccine probably two months old. There were four series of tests in all, concerning which the author states: "To summarize the last four series, four cases that were given three months' old vaccine showed no evidence of antibody formation; four cases, given two months' old commercial vaccine, gave a distinctly positive reaction in only one case, or 25 per cent. Of the nineteen given freshly prepared vaccine, eighteen gave a markedly positive reaction and one a questionably positive reaction or 94 per cent. In the last nine cases, in which a larger dosage was used, one, one and one-half and two billion, there were 100 per cent. positive reactions and these could be elicited within one week after the last injection."

To secure any benefit from pertussis vaccine it should obviously be used before or as soon as possible after there is a history of known exposure and the vaccine should be as fresh as possible. The commercial difficulties of securing a vaccine less than one week old are obvious, but are nevertheless not insuperable. The prophylactic value of the pertussis vaccine, or in other words, the conferred immunity, is in inverse proportion to the age of the vaccine employed. The more recent the preparation of the vaccine, the greater the degree of antibody formation.

The most effective dosage apparently is one billion, one and one-half billion, and two billion given on alternate days for three doses. Freshly made vaccine producing antibodies administrable within one week after the last injection are most effective as a prophylactic measure, but should possess considerable value in the early catarrhal stages of pertussis.

It would appear to be necessary in estimating the results of prophylactic and curative pertussis vaccinations to note the age of the vaccine employed. This single factor may be the cause of the apparent discrepancy of results of vaccine use in the hands of different investigators.

Some large cities have aimed to control epidemics of pertussis thru offering gratuitous service and free pertussis vaccine for all children in the community. The aim has been to reach children previous to exposure, in order that the full prophylactic value might be secured. This work has not been carried on sufficiently long to warrant a judgment upon its full worth. In the light of present experience, however, it would

appear to be a most rational procedure, as a measure protective of children against the severe attacks of pertussis with its attendant complications, sequelae, and possibly death.

Purchasing Public Health.—The reading of annual reports is ofttimes a bore or wastage of effort. The biennial report of the Louisiana State Board of Health contains much that singles it out of the common run of state records. The report of Oscar Dowling, president and executive officer, calls attention to some suggestive and thought provoking items that deserve more than passing notice. For the first time in the history of Louisiana, it has been possible to make a differentiated report of deaths with causes and by ages; and this accomplishment apparently is due to such a simple matter as the installation of an automatic tabulating machine. The cost of the instrument was not great, but the results achieved are of pronounced value for the future health administration.

An understanding of the basic value of morbidity reports as a means of controlling and preventing communicable disease is recognized among the first and most imperative of obligations. There is a certain comfort in the frank statement, "A high morbidity rate is an insult alike to our intelligence and our humanity. I speak advisedly and with the painful consciousness and regret that in common with many other states we have not lived up to our heritage in the knowledge, methods of control and eradication of many communicable diseases." Morbidity statistics that are incomplete, and the lack of sufficient funds, are suggested as "obstacles to successful control, insurmountable, until public sentiment demands efficiency, which implies adequate support."

The modern program of public health emphasizes the prevention of disease, and human efficiency is its ultimate aim. Dr. Dowling points out with directness and accuracy that to accomplish adequate and successful results, two factors are requisite. The first is an adequate budget. The second is the judicious and intelligent expenditure of funds appropriated. These two items are practically mutually dependent. Recognizing the purchasability of public health, and interpreting state health administration as a business venture, it is patent that definite accomplishment may be secured with equally definite expenditures. Altho the state health officer realizes that his potential accomplishments will be greatly limited, he modestly requests a budget of only 12½ cents per capita. Apparently, there is a feeling that the citizens of the State of Louisiana are not ready to set apart funds so as to permit a 50 cents per capita expenditure with which "we know the lives and health of our people can be well protected."

The business-like attitude towards health is particularly gratifying in view of the fact that the lowest morbidity and mortality rates are found in those states that have wisely expended money at the highest per capita rates. The call for adequate funds is only justified after the careful determination of a health program. The conception of health administration manifest in the efforts of the State of Louisiana points indisputably to the existence of a complete understanding of the administrative measures requisite for the complete protection of the citizenry of the state. This position is also true in numerous other states of the Union where the health budget fails to back up the far-

visioned planning of the state health administrator.

If citizens and legislatures and state boards of health can be brought to study and appreciate a financial balance sheet in terms of the economic benefits accruing from reduced morbidity and mortality, there would be greater possibility of securing funds to satisfy a sane and scientific budget for health purposes. Health is a commodity which can be purchased. The lesson of Louisiana deserves to be studied thruout the country. Health appropriations must not be made niggardly if the maximum benefits are desired. The business of health provides a richer profit than investments in any other form of state administration.

How long before the medical profession will unite to educate the public to demand efficiency in public health administration? The profession should back up competent health officers and urge the appropriations necessary to carry on public health activities in a proper and efficient manner.

He also serves who stays and saves.—*Druggists Circular.*

"Lead a natural life and walk on the sunny side of the street."

Oil of Cinnamon in Influenza.—Ross (*Lancet,* Nov. 3, 1906) speaks in the highest terms of the effect of the oil of Ceylon cinnamon in the treatment of influenza. This remedy allays the subjective sensations, rapidly reduces the fever, and prevents sequelae. Give 12 drops of the oil in a wineglassful of water, and repeat the dose in an hour. Two hours after the second dose 10 drops are given, and then 10 drops every two hours until the temperature falls to normal. After this 10 drops are given three times a day for three days.

Anthrax from Shaving Brushes.—Anthrax in its industrial forms primarily results from the handling of hides, hair and carcasses of infected animals. According to *Public Health Reports,* July 12, the Surgeon-General of the Army has reported the occurrence of several cases of anthrax due to infected shaving brushes. The experience of England indicates that a number of victims of malignant pustule have originated thru the use of new shaving brushes, the bristles of which have been found to contain the highly resistant anthrax spores. Some of the infected brushes, according to all accounts, were made from hair which had presumably been disinfected in accordance with all requirements.

Anthrax, generally a disease of animals, such as horses, cattle and sheep, does not possess a high degree of virulence for human beings, but nevertheless the occurrence of any disease of this character is sufficient warrant for drawing attention to the importance of the effective sterilization of hides and hair previous to manipulation and use by human beings. Hog bristles apparently are comparatively free from anthrax even when emanating from countries where infected horse hair is common. The great demand for brush material and the difficulties in securing an adequate quantity from the usual trade channels possibly have led to a letting down of the preventive measures in old establishments and the exhibition of carelessness on the part of new manufacturers less familiar with the inherent dangers arising from imperfectly disinfected horse hair. The anthrax spores are highly resistant to sunlight and dryness and require boiling for at least two hours in order to destroy them, or an hour in the autoclave at 220 F.

The horse hair which appears to be the source of greatest danger has come from China and Siberia and is of a gray or yellowish color and the imitation badger hair.

As a practical measure of protection,

thoro and repeated washings in hot soapy water appear to secure the mechanical removal of the dangerous infective material, and, in consequence, new shaving brushes should not be used without this preliminary operation of cleansing. Even with this precaution the danger of infection is not entirely removed as anthrax bacilli or spores may be found on the ends of the hair imbedded in the handle. The only certain measure of protection for the shaver is the elimination of the infection previous to the manufacture of shaving brushes.

The seriousness and high mortality rate of anthrax is sufficient reason for protecting not merely those whose occupations require the handling of potentially infective material, but also those who unwittingly make use of shaving brushes as part of their routine of cleanliness. There is virtually no sound excuse for the transferrence of malignant pustule to civilians or soldiers thru shaving brushes.

Railroad Fares and Invalids.—The increase in railroad fares was designed to serve a double purpose; to meet the higher cost of materials and operation, and to discourage all unnecessary travel. The spectacle of a huge enterprise wilfully limiting its business and its profits could only be achieved in a country severely devoting itself to a single, immutable object—the winning of the war. The national communications were needed for war purposes and pleasure-seekers were asked to stay at home. From what evidence there is at hand, it appears that travel has been appreciably cut down, and to this extent the increased fares have achieved their object. There was a little grumbling at first on the part of persons whose business called them to far reaches of the country and who felt they were assuming an inequable share of the burden, but these complaints have subsided, and the new schedule of fares has been accepted as a necessary measure thruout the country. At this time, therefore, when such a course will not be misconstrued as a criticism of the railroad administration, it may not be out of place to call attention to a class of travelers who have been severely affected by the increased rates and upon whom there has been imposed a burden which will involve great hardship in many instances and in not a few a serious menace to their wellbeing. These are the invalids and delicate individuals who are affected by climatic conditions and are obliged to move from one latitude to another with the changing seasons.

It was far from the purpose of the railroad administration to impose hardship on any one class of our people. In every department, the government has been at great pains to keep the cost of pursuing the war to a satisfactory end at a minimum, insofar as it might affect the social or industrial vitality of the country. It was with this in view that the authorities arranged for such liberal exemptions in the constitution of our armies. Married men, as well as men with family obligations, have thus far been excused from service. Family ties and family responsibilities were not to be interrupted. The social fabric was not to be impaired. But this wise and far-seeing consideration was unfortunately absent in the regulations that called for an increase in the fare rates without providing for any exemptions. There are many families in this country which, by carefully husbanding their resources, have been able to maintain the wellbeing of parents, grandparents, or other close relatives in delicate health by keeping them in climates suitable to their various conditions, moving them to the the South in the winter, to the North in the summer, to the drier atmospheres of the mountains or the West. The budget for travel expenses, even in normal times, often involved a severe measure of economy. The recent increase in railroad fares has added an increased burden which many will find it difficult to meet. Especially is this true as the burden is two-fold in the case of invalids; not only must they travel but they are obliged to travel comfortably, in Pullman cars. And there is an additional tax for using Pullman cars. This tax was of course meant to discourage travel among the wealthy, but in its operation it has inadvertently imposed a burden on a class of people which it certainly was not meant to affect. Not a small percentage of these sufferers belong to that hard-working, highly esteemed middle class which, tho always facing the problem of making their incomes cover the increased cost of living, have nevertheless contributed so largely to the success of every Liberty Loan and Red Cross Drive. Financially they have always

sailed close to the wind. More than one such family, with the approach of winter, will face the trying choice of keeping their invalid at home this year, with all the danger that will involve, or further straining their already overstrained resources. Surely, it would not be difficult to evolve a plan correcting this unfortunate defect in the operation of the new rate schedule, and removing a burden which it certainly had no intention to impose.

The Call for Doctors.—There will be a prompt and, we are certain, gratifying response to the call by the Council of National Defense for doctors for the Volunteer Medical Service Corps of the United States. The steps which this organization has taken, with the approval of President Wilson and the highest authorities, are commendable in the highest degree both from the point of view of the profession and of the needs of the country. Its purpose is to enlist the services of about 50,000 doctors for the welfare of the nation and its military forces, and so to assign them to their duties as to protect the interests of the doctors and the millions they will serve. Such a course will avoid the errors which the Allies made at the beginning of the war, errors involving serious losses to both the medical branch and military forces, as well as to the civilian populations which were deprived of their doctors and forced to depend upon a disorganized and depleted medical service inadequate to meet national needs. The value of the doctor at the front has been recognized to such an extent that extraordinary measures have been taken to protect him, and the call of the National Council of Defense is designed to serve the interests of the doctors as much as those of the army and navy.

In other words, with the early mistakes of the Allied medical service in mind, it has been apparent for some time that a wise organization of the medical resources of this country was necessary if the best interests of the nation were to be safeguarded. As a rational outcome of the situation, the Volunteer Medical Service Corps plan has been evolved with a sharp eye to the welfare of all concerned. It is the most logical, efficient and humane plan yet evolved. The mistakes of the past are not to be repeated. The doctor will be better protected, and thus the armed forces and civilian population will be better served. As far as possible, each man will be assigned to the branch of service he indicates his preference for, but in every case the paramount consideration will be that every volunteer be placed where he can do the utmost good. The needs of our armies will thus be adequately looked after, but those at home will also be adequately provided for under this plan. There are 144,116 doctors in the United States. With 50,000 called into the service of their country, more than one-third of the entire number, there is danger lest the civil population suffer. This danger, however, is eliminated by the program of the National Council for Defense, which provides for the organization and cooperation of those doctors who remain at home. There is great need now, there will be a greater need in the future, for vigilance at home. Thus, at the present moment, in several quarters an epidemic of Spanish influenza is threatening. With the civilian medical forces depleted and disorganized, such an epidemic might prove a severe menace if there were not an adequate and competent force of medical men, efficiently organized despite their reduced numbers, to meet such a contingency. The new plan provides for just such emergencies. In other words, tho 50,000 doctors are required, it is the aim of the organization to put 144,116 doctors into the service of their country. The plan is a far-seeing and thoro one, and every conscientious medical man is bound to give it his approval. We plan to have 4,000,000 fighting men in France by next summer, but meanwhile we know we have 100,000,000 loyal Americans in the service of the ideals which President Wilson has repeatedly and so eloquently expressed. The service flag of the country is dotted with 100,000,000 stars. It is gratifying that the service flag of the doctors will show 144,116 stars!

The Counter-Offensive Comes.—In our last issue, discussing the expected German peace offensive, it was suggested that the best way to shatter it would be by a counter-offensive. This counter-offensive has begun. Recently, at the Inter-Allied Labor Conference in London, a resolution was adopted declaring that no peace negotiations would be favored until Germany had been driven

out of Northern France and Belgium. The resolution, which came about the same time as Austria's proposal, together with President Wilson's answer constitute the peace counter-offensive which we had hoped for. It has operated much the same as Foch's counterblow on the Marne in July. Baron Burian's wet squib failed to go off.

Austria's purpose in opening her peace drive was two-fold. She meant to save as much of her tottering dynasty as she could by crafty, backstairs diplomacy; failing in this, she then might try to rally her shaken armies by demonstrating to them, if the Allies refused the proposal, that her enemies were bent on the destruction of the Central Powers and that they must fight for their salvation. Her first purpose was defeated by President Wilson's prompt and decisive reply. It was not only a refusal—it was a rebuke such as one power has rarely ever administered to another. Baron Burian, stammering and stuttering, sheepishly declared that he expected a refusal but would try again, undaunted. Austria's second purpose was equally thoroly defeated by the resolution of the Inter-Allied Labor Conference. This resolution was a message to the masses of the Central Powers, making it plain to them that the laboring populations of the Allied countries had consecrated their energies and their resources to the business of righting the wrong that had been done innocent nations. There was no talk of revenge, no threats of annihilation, and if Baron Burian tries to make capital of the Allies' refusal and persuade his people that they are fighting to save themselves from annihilation, the evidence of this stern and just resolve will give him the lie.

The German peace offensive was stillborn. And we owe it to the vision of our president and the good judgment of the labor elements in the Allied countries that it has met this fate. The Austro-German leaders cannot go back to their people and take refuge in the threadbare alibi that they are fighting a war of defense. They have been disarmed by a diplomacy shrewder and more effective than their own corrupt efforts. Burian's statement that he would try again is a confession of humiliating failure. Allied success in the field of diplomacy has been as decisive as their successes on the field of battle. But there are forces in this country, which perhaps unintentionally enough, are working to detract from the completeness of this success. The President and labor have given the proper answer. Declarations such as have come from Colonel Roosevelt and Senator Lodge are not only superfluous but come dangerously close to spoiling what has already been accomplished. The threats of "unconditional surrender," of "crushing Germany," so carefully omitted in all of President Wilson's famous propositions, can serve only to strengthen the hand of the German militarists. Immediately after Colonel Roosevelt made his widely reported speech, he was quoted in one of the great German papers as a promise of what would happen to Germans if they did not stick together to the last man. When this country is making such great efforts to shatter the morale and the solidarity of the German masses by making it clear to them that they are fighting a needless war, that the Allies desire only to achieve their dream of a safer, a decenter, and a better world, it is hard to understand why there should be elements in this country offering the Germans every excuse for sticking together and fighting to the end to save themselves from a destruction which is no part of the Allied program. Such ill-conceived efforts are as harmful to the Allied cause as any pacifist propaganda. They are injurious to the leadership which our president has assumed and which he is conducting so admirably. No doubt these efforts are fundamentally patriotic, but so are those of President Wilson, whose expressions are always well considered and who is guided by a vision truer and clearer than those who dissipate the vigor of their purpose in ineffective bitterness and antagonism.

Spanish Grippe.—The epidemic of Spanish grippe, which has for so long been ravaging the populations of Europe, has at last come to this country. How serious a threat this epidemic constitutes to the national health cannot yet be predicted, but if it is to take the same course that it did in Europe we can count on a considerable sapping of the nation's energy, and this at a time when "Utmost" has become the slogan of every activity. For the present, the country at large has not been seriously

affected. New England, particularly Boston and its environs, seems, however, to be facing a serious development of the disease. The military camps report crowded hospitals and the civilian population has been affected to a degree that has made the authorities very uneasy. Strangely enough, New York City, which is directly on the highway of the heaviest European traffic and thus in a more exposed position, shows only a very few cases which can be identified as Spanish grippe. Yet that is not so strange if we consider the very commendable energy which the Health Department of New York City has shown ever since the first case has been reported. There is a disposition to believe that the spread of the disease in Boston is due to a reprehensible degree of apathy and negligence on the part of the local authorities, who were stirred to energetic measures only when the epidemic had already made serious progress. The fact that the disease has made so little progress in New York points to the manifest conclusion that conditions in this country are not favorable to the spread of the epidemic, provided the authorities show a normal amount of vigilance. The people of Europe, worn out by four years of war, of severe anxieties and lower food standards, were especially susceptible and it has required energetic measures to keep the epidemic in hand. But in this country food conditions are still good, our vitality has not been sapped, and resistance to the disease should be high. That this is true is borne out by the experience in New York.

Immediately upon the identification of the first cases, an energetic program of preventive and educational measures was adopted. The cooperation of doctors, theatre owners, and the daily newspapers was invited. Wherever crowds assembled (and it is there that the danger of communicating the disease is greatest) the lesson of the necessary precautions was driven home. Meanwhile the bacteriologic department, under the capable supervision of Dr. Park, is making exhaustive investigations which we shall look forward to with great interest. All in all we may feel confident that if we keep a sharp eye on our ports and forearm the public with caution, there is little likelihood of the disease becoming as serious a problem as it has been abroad.

Regarding the origin of Spanish grippe in this country, there is a rumor going about that it was brought over in one of the German submarines operating on our coast, one of the crew coming ashore with a culture of the germ and liberating it in a crowd. There is just sufficient plausibility to the theory to make it acceptable to the uninformed. Such a course is possible and quite within the limits of German ingenuity. The truth will probably be found in the theory that it came to our shores by one of the numerous vessels that are constantly plying back and forth between Europe and "an Atlantic port." To some it is surprising that it did not come sooner.

The Medical Profession and the Fourth Liberty Loan.—The medical men of the country have shown their loyalty and devotion in no uncertain way. Well over 25,000 physicians have entered military service, several thousand more will be needed, and those who are forced by one reason or another to stay at home are carrying extra burdens and doing their duty in full accordance with the well known traditions of the profession. Substantial, therefore, as the contribution American physicians have already made—and must continue to make—to the war needs of the country thru their own work, we have been proud to learn how splendidly the profession has supported the several war loans. Indeed a private canvass among a considerable number of our colleagues has shown a willingness to participate in this Fourth Liberty Loan that has been truly surprising.

The average doctor is not a man of means. His income is moderate, measured by standards in other callings, and as his expenses are essentially large, he is rarely ever able to accumulate much of a surplus. In most instances, therefore, the purchase of bonds has entailed a real sacrifice, but there has been no wavering. This Fourth Liberty Loan will find no flagging of this spirit, and if the whole American people respond as liberally in proportion to their resources as the physicians will, the loan will be oversubscribed.

In taking bonds to the limit of their capacity the doctors of the land simply feel that they are doing what every American should do if he loves his country.

HOOKWORM INFECTION.

BY
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Once when the "Merry Monarch" of England was in a recklessly hilarious mood, he ventured to chaff the grave and reverend scientists of his day by proposing to the Royal Society a question of this import: Why does a live fish add nothing to the weight of the water in a tank where it swims, while the same fish, dead and floating on the surface, increases the avoirdupois of the liquid by a definite number of pounds or ounces?

The philosophers of that august body discussed the problem and advanced ingenious theories to account for the assumed phenomenon. Finally a hard-headed member suggested making the experiment, and then, of course, the royal hoax was discovered.

An inquiry equally absurd and diverting is sometimes raised in regard to hookworm disease, tho apparently propounded in good faith and with the air of uttering a formidable challenge: Why do people who never come in contact with infected soil suffer from hookworm disease? Why, indeed? As a matter of fact, they *don't*.

Anchylostomiasis or uncinariasis is a disease of occupation. But this designation does not imply that farmers, gardeners and others whose vocations bring them into immediate touch with larva-polluted soil are the only victims of the hookworm. Barefoot boys and all children that play in contaminated earth are liable to become infected. A majority of the cases occur, however, among brickmakers, miners, orchardists and truck farmers. It is legitimate, therefore, to class the disease as occupational, since it is generally contracted by exposure to an infection incident to the employment.

The so-called caisson disease is an analogous instance. Sponge-divers who have never seen a caisson suffer from the ailment, yet no one dreams of disputing its occupational origin. Two of the severest cases of lead poisoning that it has ever been my fortune to observe cropped out in patients whose vocations were as remote from lead working as preaching is from piracy. Yet lead poisoning is rightfully grouped with the occupational toxemias because of its preponderant incidence in lead-handling trades.

A distinct legal recognition of the vocational source of hookworm disease is contained in the provision of the California statute granting compensation to miners suffering from the infection. For it goes without saying that extra-occupational diseases are not compensable at all under the law.

For a hundred years the disease bore

various designations, such as Egyptian chlorosis, tropical anemia, etc., and, until within a recent period, it has been known in this country as miner's cachexia, gardener's anemia, ground itch, the lazy disease, etc. But now, since we are fully acquainted with the biology of the parasite, it has become entirely feasible to exterminate the infection, and reference may be made in passing to some examples which prove the possibility of controlling the disease.

In excavating for the St. Gotthard tunnel (9¼ miles long, 1872 to 1880) the workmen suffered severely from anchylostomiasis. This was prior to the discovery of the mode of infection. But in the construction of the Simplon tunnel (12½ miles long, 1898 to 1905) not a single case of this disease occurred. Many instances could be cited which demonstrate the fact that a crusade against the hookworm may be successfully waged. The mines of Westphalia, for example, were freed from the pest in fourteen months, and a like result was attained in the sulphur mines of Romagna.

In Porto Rico the United States has shown on a larger scale the efficacy of preventive measures. The mortality from hookworm infection in that island is less than ⅛ of the death rate which prevailed under Spanish rule.

Yet hookworm disease is suffered to prevail as a devastating scourge, girdling the earth with its malign influence. Its ravages are worst in localities where the temperature ranges from 68° to 86° F. The Rockefeller Commission reports that the parasite is common in countries having an aggregate population of 940,000,000. In India, Egypt, China, in the southern states of America, in Australia and in some islands of the Antilles it is always present. Dr. Macdonald found that it was the cause of the anemia generally affecting the English colony established at the Gulf of Carpentaria for the cultivation of the sugar cane; but he soon eradicated the infection. H. H. Johnston, the explorer, formerly governor of Uganda, writes: "It is this disease which has for centuries hindered the development of the tropical and subtropical regions by the labor of both whites and blacks."

In the United States, riparian lands are the principal foci of the infection. The species of worm most common in Europe is the *anchylostomum duodenale,* (Dubini) while in America the *necator Americanus* (Stiles) is oftenest encountered.

Siccardi's researches in Italy revealed the existence of the hookworm in 49 of the 69 provinces. In Sicily more than 16,000 miners were found to be infected. According to Trambusti, 100 per cent. of the sulphur miners were hosts of the parasite. In the province of Florence during recent years anchylostomiasis has been alarmingly prevalent, especially on the left bank of the Arno. On this account Prof. Passerini began an investigation of the conditions existing there. His report is a fine specimen of scientific work. In the endeavor to clear the subject of obscurities he sought to determine whether hookworm infection bears any relation to the nature of the soil, and whether the water supply may serve as a vehicle for diffusion of the entozoa. Accordingly, in the clinical history of each patient he has noted the place of residence by street and number, age when the disease was contracted, the occupation, source of water supply (surface or artesian well), proportion of calcium carbonate in the soil, date of admission to hospital, etc.

Without exception the patients were either gardeners or farm laborers. Occupation is therefore a factor of causation.

The data submitted show that the quantity of calcium salt in the soil has no relation to the prevalence of the disease. The potable water was free from suspicion as a source of infection, since, tho many families used water from the same wells where victims of the parasite obtained their supplies, none of the consumers contracted the disease except tillers of the soil. It is probable that anchylostoma carriers, tho hosts of but few parasites and not made ill themselves, may be the distributors of larvae.

Hookworm larvae enter the body of their host by way of the digestive tract or thru the skin. Penetrating the skin by insinuating themselves into the hair follicles, they find temporary lodgment in the subjacent tissues, but ultimately reach the upper portion of the intestinal canal where their work of infection begins. It is true that at the Fourth National Congress on Industrial Diseases held at Rome in 1913, Professor Montesano maintained that the penetration of the skin by the parasite had not been fully demonstrated. He thinks it more probable that the laborer conveys larvae to his mouth by drawing his hand across the lips. To this Perroncito replied by citing experiments made by Loos, Calmette, Lambinet, and, in his own laboratory, by Dr. Marzocchi, as proof that the larvae do pass thru the integument and invade the underlying vessels. However, he concedes that oral infection is the usual method. In the discussion, Prof. Mori and Dr. Giglioli expressed their substantial agreement with Perroncito.

The ova and larvae of the hookworm are highly resistant to the action of the gastric juice and to the ordinary larvicides. Formalin has no effect on them, and it requires forty-five minutes to destroy the larvae with a five per cent. solution of sulphuric acid.

Symptoms.—Anemia, lassitude, physical weakness and mental torpor are common phenomena in patients suffering from the infection. But a physician called to attend a hookworm patient should examine all other members of the household in order to detect the presence of a possible carrier of the disease who manifests no subjective symptoms.

Prevention by Personal Hygiene.—Since the infection can be acquired only by direct or indirect contact with soil which contains the larvae, the prevention of soil pollution is all important. Ordinary sanitation is sufficient for prophylaxis, but when the ground is once infected, the workman must practice the strictest regimen of personal hygiene. Especially must he give attention to cleanliness of the upper and lower extremities, and wear good shoes when at work in the field to keep the larvae from gaining access to the feet.

Gardeners, laborers on coffee plantations and all whose occupations necessitate exposure to the infection may fortify themselves against it to some extent by applying inunctions of thymol ointment. This serves a double purpose; it interposes a mechanical barrier to the penetration of the hair follicles by larvae and exerts a paralyzing effect on the larvae themselves by its toxic action.

Medical Treatment.—Experiments conducted under governmental authority in German East Africa to determine the relative vermifuge values of thymol, filix mas, naphthol and eucalyptus oil resulted in the discovery that naphthol is pre-eminently "easy and safe to administer, cheap and quickly effective." (Greisert.) In Dr. Greisert's opinion naphthol satisfies all the re-

quirements of medication better than any other drug. He prescribes 3 grams a day for three consecutive days. He regards other medicaments as either inefficient or dangerous, but naphthol given early prevents systemic infection and causes no unfavorable constitutional symptoms. (*Zentralblatt f. Gewerbehygiene,* Feb., 1915.)

Among American physicians thymol is generally considered the specific of choice in the treatment of this disease, tho some prefer wormseed oil, but all treatment is of secondary importance. Prevention is the primary duty.

Prevention by Sanitation and Mechanical Means.—In brick-making it is now possible by the agency of machinery to obviate the necessity of direct contact with infected clay.

For miners portable night-soil closets are available, and when utilized these preclude mine infection.

Sterilization of mines and other infected places may be effected by the use of lime or common salt. Signor Capaldo, Italian Under-Secretary of State for Agriculture, Manufactures and Commerce, writes that formerly 38% of mine workers in Italy were hosts of the hookworm. Now, in the mines treated with salt, only 5 or 6% of the men are infected; and in the mines treated with quick lime, only 3.5%.

Among recent publications on the subject, one of the latest is the report of an investigation of hookworm infection in the deep gold mines of California. It presents the results of a physical examination of 1,440 miners. Of this number 444 were found to be infected. The parasites are said to be present in practically all of the gold mines of the state and in those of Nevada. (*Bul. 189,* U. S. Bureau of Mines, 1917.)

Superintendents of all California mines have agreed to employ as workers only those men who hold certificates of their freedom from hookworm infection. The State Board of Health prescribes six rules for the prevention of infection:

"1. Never commit a nuisance in a mine.

2. Use surface toilets, if possible.

3. Scrub hands thoroly before eating lunch.

4. Scrub hands thoroly and take a hot shower at quitting time.

5. Boil out shift clothes at least twice a week.

6. Keep your mine shoes in good repair."

It is very difficult, however, to keep track of the men, since they shift about often, and, as Dr. W. W. Court remarks, "It is almost impossible to complete the survey of any particular mine." (*Bul., Calif. State Board of Health,* May, 1918.)

The official bulletin of the Florida State Board of Health (*Health Notes* for May, 1918) gives a concise clinical history of hookworm infection under the title:

"Ground Itch."

"How it is Gotten: By going barefoot or wearing leaky shoes on damp ground that has been polluted by hookworm sufferers. An abrasion of the skin is not necessary. It may also be contracted about cow lots.

How to Keep From Getting It: Don't go barefoot or wear leaky shoes.

How to Keep It From Spreading: Cure all hookworm sufferers. Stop soil pollution.

What the Encysted Embryos Do: They burrow in the feet of children, producing ground itch. They then get into the blood stream; then they pass thru the circulation to the lungs; here they are coughed up and swallowed. When they reach the intestine

they grow to be adult worms, and then they suck the blood of the patient, and lay eggs as their parents did."

In the course of a recent conversation with a Southern educator, the president of an important college, my interlocutor deplored the indifference to education manifested by the people of his State, and when asked to what this apathy was due, he answered, "It is due to hookworm disease." Then he added, "Our people have good blood in them; but this blighting curse enervates and debases the moral as well as the physical tone of whole communities which in a healthy environment would be enterprising and intelligent."

At present approximately 3,000,000 American workmen are invalided by the hookworm. Their manual and mental efficiency is below par. The sufferers are incapable of doing a full day's work at any productive labor. At a time when conservation of manpower is in fashion it behooves the government to adopt, as a war measure, some intelligent and comprehensive plan for the emancipation of millions of our countrymen from the bondage of this foul infection.

From the life history of the hookworm it is evident that polluted soil constitutes the sole medium of infection. Only by contact with earth containing the excrementitious parasites can any one become the host of the pestilent worms. Hence, common sense and common decency demand that this filth disease be eradicated, and its very name expunged from current nosology. When all the world shall have abandoned the customs of the cave dwellers and of nomad tribes, and adopted civilized methods in the disposal of bodily wastes, hookworm disease, as well as typhoid fever, will be known only to the medical antiquary.

ANAL FISSURE—ITS RADICAL CURE UNDER LOCAL ANESTHESIA.

BY

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Of all the distressing lesions of the human body there is none the suffering from which approaches in any degree that from so apparently slight a pathology as a fissure of the anus. The pain of which is so agonizing that it will break down the fortitude of the most stolid. If seen early these abrasions readily yield to treatment but usually by the time the patient presents himself to the physician, inflammation and infection have occurred and surgery is our only choice.

A fissure occurs more frequently in the posterior quadrant of the anus near the posterior commissure, or occasionally in women in the anterior quadrant but rarely upon the lateral walls. There is a depression of soft connective tissue in the posterior rectal wall between the external and internal sphincters, and fissures developing here are boatshaped in form, the lower margin being the so-called sentinel pile or it may sometimes be more distinctly seen as a ruptured crypt of Morgagni or an enlarged anal papilla. This tear in the mucous membrane is not always at the anus but may be found anywhere from the muco-cutaneous junction to the upper limit of the columns of Morgagni; the majority begin at the upper limit of the anal canal at the lower border of the internal sphincter, and extend downward. Infection readily takes place in the abraded surfaces and sinuses burrow up or down beneath the healthy

structures or lymphatics, carry the infection into the triangular space behind the anus, or perhaps the ischio rectal space and an abscess or fistula may result.

Pathology.—The anal fissure is an elongated rent in the mucosa and is limited to a sulcus between two radial folds of the anal wall. It spreads up and down by the action of the feces against the membrane, but not laterally. If the mucosa were dermined, with sinuses leading into the surrounding tissues. The whole ulcer and surrounding mucosa are distinctly congested and the underlying muscular wall, which has been laid bare, is spasmodically contracted. At the lower end of the fissure the mucous membrane or muco-cutaneous border is frequently hypertrophied, resembling a pile, the so-called sentinel pile (Fig.1), which is sometimes divided into two

FIG. 1. Anal fissure showing sentinel pile.

spread out the ulcer would prove to be somewhat circular in outline. The abrasion or tear which at first is superficial soon becomes an ulcer by infection. The edges are thickened by inflammation of the surrounding mucosa and undermined by the constant muscular spasm at the base of the wound. The whole depressed surface of the ulcer is at first bright red and bleeds easily when touched. Later fatty, grayish granulations, mucus, pus and pseudomembrane cover the surface. At this time the edges are pale, indurated and distinctly unparts by the fissure. It is excruciatingly painful to the touch, and if manipulated brings on the characteristic pains. Cicatrization and apparent healing are always going on, but repeatedly breaking down again. The ulcer may perhaps heal over temporarily, but will soon be torn open by hard fecal masses or straining at stool. Such conditions alter vascular and nerve supply of the parts. A thoroly inflamed fissure closely resembles a chancre and may be difficult to differentiate. The local history and the absence of other syphilitic

symptoms are determining factors.

Surgical Treatment.—Divulsion of the sphincter is a bygone method of treatment which, altho it did relieve and often cured the fissure, was so unnecessarily brutal, produced undue traumatism and sometimes left permanent injury to the sphincter whereby the patient had no sense of control of gas or liquid material and in some cases even lost full control over ordinary fecal matter. In some cases particularly fissure in the posterior median commissure it did not cure.

FIG. 2. Anal fissure in the posterior anal commissure showing thickened edges.

The technic I shall describe, consisting of incision with drainage, always produces satisfactory results and unless the patient is very nervous or hysterical the operation may be performed under local anesthesia.

Technic.—The peri-anal skin and the sphincter muscle must be carefully and completely anesthetized. One-eighth of 1 per cent. eucaine lactate or ½ of 1 per cent. apothesine may be used for the cutaneous infiltration. I use the latter. The patient is placed in the proctologic or the exaggerated lithotomy position as bests suits the conditions. The skin in the posterior raphe one inch back from the anus, where it is less sensitive, is touched with phenol on a swab and after waiting a few minutes the skin is picked up between the thumb and forefinger of the left hand and the needle introduced at the cauterized spot. A few drops of the apothesine solution injected here causes a wheal to arise and after waiting a few moments the needle is advanced and another wheal made while the needle is carried forward just under the skin at a distance of one-half inch from the anal opening. When the needle has been advanced its full length on one side, it is retracted to the posterior commissure but not withdrawn from the skin and the infiltration carried up on the other side of the anus. When the full depth of the needle has been reached on both sides of the anus

it is withdrawn and inserted at the most anterior wheal just made and the infiltration continued to the anterior commissure and around on the opposite side until the wheals meet those previously produced. In this way the whole anal opening is anesthetized while the needle is always kept one-half inch out from the edge of the mucous membrane. This procedure blocks the inferior sphincter nerves. When the cutaneous infiltration reaches the anal fissure the needle is carried down beneath the base of the ulcer and its surroundings including the sentinel pile are well filled. It is sometimes necessary at this time to place a cotton pledget wet with 2 per cent. apothesine into the fissure. Wait ten minutes for anesthesia to be complete and then carefully introduce the left index finger into the rectum above the external sphincter, hook the finger over the muscle and by slight traction draw it down and steady it while a long needle (at least 2½ inches long) is passed thru the skin at the anesthetized bullae into the sphincter muscles and 10 minims of ½ of 1 per cent. quinine and urea solution is deposited in the substance of the muscle. This deep injection is made on either side of the region of the fissure and in one or two distant parts of the sphincter. After waiting 10 minutes to insure complete analgesia the fissure is dissected out in such a way that a "V" shaped wound results which is twice as deep at the lower skin end as at the upper extremity within the anal canal. The base of the fissure is removed deep enough to expose the muscle wall and the outer end of the wound extends well out onto the skin to facilitate drainage.

The sentinel pile, if present, is carefully included in the parts cut away and also any papilla or small polypoid growths at the upper end of the fissure, which might fall into the rent and hold the wound apart. Sinuses burrowing under the mucous membrane are sought with a probe and when they are found should be widely opened.

The whole wound is now well anointed with heavy vaseline and the wound packed with parafined gauze laid in narrow layers. A slight anal dressing fastened with adhesive strips concludes the dressings.

In 24 hours the gauze packing is removed and its removal is painless, quite a contrast to a dry gauze packing which becomes filled with granulations and blood clots. As the gauze is removed the wound is flushed well with saline solution or sterile water and these flushings are repeated once each day and also following each bowel movement, until the field is completely healed, which requires about three weeks. During these dressings the edges must be carefully separated by the attendant pulling the buttock apart. The whole wound is exposed and regeneration develops from its base. Particular attention must be given the upper limit of the wound and also the lower skin outlet that perfect drainage may be provided. It is advisable, altho not necessary, that the patient keep his bed for a day or two after the operation. No effort is made to confine the bowels but the evacuations should be kept free and the movements soft, and after each defecation the patient should take a warm antiseptic sitz bath.

30 North Michigan Avenue.

Yeast.—It is said that yeast is being used to considerable extent in Germany as a substitute for meat (*Med. Summary*, July). It is easily absorbed, very nutritious and can be made quite palatable. It has been found to be bad for people with rheumatic or gouty tendencies.

BLOOD PRESSURE AS AN AID TO DIAGNOSIS, PROGNOSIS AND TREATMENT.

BY

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No physical examination of a patient is complete until after an accurate measurement of blood pressure has been obtained, and no blood pressure analysis is complete until both the systolic and diastolic pressures have been ascertained and the pulse pressure computed. The technic of the sphygmomanometer is so simple and the time consumed in using it so short that there can be no logic excuse offered for neglecting this important aid in determining our diagnosis, prognosis and treatment.

There are several methods of obtaining blood pressure, but the only one productive of anything like accurate results is the auscultatory or Korotkoff's method which should be employed in preference to all others. The palpatory method has the disadvantage of registering the systolic pressure only, and therefore precludes the possibility of ascertaining the pulse pressure so necessary in diagnosis, while the oscillatory method is influenced by so many conditions that it has been almost entirely discarded.

There are wide variations in the normal blood pressure in the same individual which are dependent upon his state of being. Exercise, excitement, digestion, etc., increase the pressure, therefore allowance should be made for this normal increase, or, better still, a time should be selected which will find the patient in a state of comparative repose. An exception to this rule will be found in cases where the myocardium is suspected or where it is desired to record the difference between the pressure during exercise and repose. It should be remembered that atmospheric conditions will vary the normal pressure, it being materially lowered by excessive heat or humidity. In old age the tendency is toward considerable increase in arterial tension.

Generally speaking, most cases of hypertension are due to some form of toxemia such as follows overeating, acute infectious diseases, improper metabolism and elimination, abnormal renal conditions, excessive use of alcohol or drugs, etc., altho long physical or mental strain is productive of the same results.

Arterial hypotension is usually associated with tuberculosis pulmonalis or any disease which results in a general debility, especially of the nervous system, such as neurasthenia, shock or exhaustion of the nerve centers. Venesection and diarrhea present low blood pressures, but these are transitory. Acute or chronic toxemias, while ordinarily presenting increased arterial tension, may be accompanied by hypotension on account of the direct action of their poisons upon the vasomotor centers.

In the treatment of heart affections, blood pressure is indicative of very little of importance except where the heart muscle itself is concerned; in other words, a well compensated heart lesion will usually show nothing pathologic in the findings of the sphygmomanometer. In myocardial weakness, however, there is a relative lowering of the systolic pressure and when this condition is complicated by a high diastolic pressure (making the pulse pressure low), especially where there is an additional renal disease, it renders the prognosis far less favorable. It is, therefore, clear that we have at our disposal an instrument which is of valuable assistance to us in determining the action of the various drugs in the treat-

ment of a given disease of the heart and one which not only dictates the proper drug, but the proper dosage to be used in upholding a normal action.

In aortic regurgitation we invariably find that the pulse pressure is extremely high, often registering half again as high as the diastolic pressure, which, itself, is usually very low. This is easily accounted for by the fact that there is little to sustain the backward pressure of the blood stream during diastole, thus giving a low diastolic reading. While we usually find the systolic pressure near the normal point in this form of heart lesion, it is possible to find the diastolic normal with a greatly increased systolic pressure. At any rate, the high pulse pressure as found here is almost pathognomonic.

During pregnancy the arterial tension does not vary much from the normal unless some condition be interposed which points to a pathologic change. If the systolic pressure become much increased during the period of pregnancy or reach a point above 125 or 130, care should be directed toward the kidneys in an effort to prevent a possible eclampsia. If, on the other hand, it should show a tendency to decrease or should reach a point below 100, or if the pulse pressure should reach 20 or lower, the patient's vital powers should be sustained in order that she be in condition to successfully undergo the strain of labor.

In differentiating the different comas, blood pressure examinations are valuable, especially where history is lacking. In alcoholic or epileptic coma, late opium cases and concussion of the brain, the systolic pressure is usually low, while in cases of uremic coma, apoplexy and in certain cerebral injuries, it is found to be increased. In diabetes the increased tension occurs only after renal or vascular changes have taken place. It also may be found to be low, in which case it is probably due to degenerative changes in the heart muscle.

In the treatment of pneumonia, an accurate knowledge of the patient's arterial tension is of the utmost importance, especially where there is circulatory failure, but in this complication it is necessary to determine whether the failure is accompanied by high or low tension. If the former, an effort should be made to reduce the tension, but if there be hypotension, the heart muscle should be stimulated. A little logic reasoning along this line may avert serious consequences which might follow an attempt to stimulate a heart which is beating against an increased resistance in the blood vessels without first lowering that resistance. A good plan is to follow Gibson's rule which is to the effect that when the systolic pressure (in millimeters) does not fall below the number of pulse beats to the minute, it denotes that we have a stable equilibrium, but when the pulse rate exceeds the systolic pressure, the circulation requires attention; that is, the heart requires direct stimulation, preferably by one of the digitalis compounds which, while it slows and increases the heart force, also aids in controlling the arterial tension.

While we expect to find that most asthenic cases will present a marked hypotension, a persistence in this condition should lead us to suspect tuberculosis, especially where the pulse pressure remains below 20 or 25. Myocardial weakness will produce a similar condition as may also cases of aortic stenosis of any marked degree. Aneurysm may produce a wide variance between the tension on the two sides of the body.

In myocardial degeneration, as mentioned before, we naturally expect to find a degree

of hypotension commensurate with the amount of degeneration. This, however, is true only in so far as it is uncomplicated by such diseases as arteriosclerosis or nephritis. When they make their appearance, as they usually do in connection with degenerated heart muscle, there is a change to hypertension as the disease progresses, and this continues as long as the power of the heart lasts. When compensation begins to fail, the systolic pressure is again lowered but the diastolic usually remains the same or even a little higher. Their relationship is thus disturbed and the pulse pressure is reduced to the danger point. In chronic myocarditis, there may be hypertension and this, when it occurs, is probably due to general stasis and asphyxiation of the medullary centers which results in stimulation of the vasomotor centers and constriction of the arterioles.

In arteriosclerosis we usually find a high systolic pressure, a low diastolic and a high pulse pressure. This is probably due to the inelasticity of the blood vessels. There is a momentary rise in pressure until the systolic wave has passed, but the blood, being rapidly diffused thru dilated and inelastic vessels, undergoes a rapid diminution in pressure until the succeeding wave. It is believed by many, however, that hypertension does not occur in arteriosclerosis until after hardening of the aorta and splanchnic vessels has taken place. This may account for the fact that many cases in which the peripheral arteries are sclerosed do not present increased tension. Persistent high tension is so frequently associated with chronic interstitial nephritis that it should lead us to make repeated examinations of the kidneys until we have thoroly satisfied ourselves that no kidney lesion exists. In cases where a positive Bright's disease does exist, a sudden rise in tension forebodes an attack of uremic coma, while a marked decrease is indicative of a failing heart and it is by ascertaining pressure in this condition that we are enabled to be of most service to our patient.

Chloroform anesthesia shows a decrease in the systolic pressure of from 5 to 30 mm. in about 80 to 90 per cent. of all cases, while ether causes a moderate rise until the point of deep anesthesia is reached, when it again falls to normal or below. The increase in tension from the use of nitrous oxide is probably due to asphyxia and the subsequent action of the poison upon the medullary centers. Nitrous oxide is rendered far safer by the addition of oxygen, thus preventing profound asphyxiation. It will therefore be seen that frequent blood pressure analyses during anesthesia is to be encouraged, especially in long cases.

In the foregoing notes I have merely touched upon a few of the more important points in sphygmography, and while not attempting to cover the subject in an exhaustive manner, I trust that what I have said may, in a manner, lead others to take advantage of the opportunities which are before them.

360 Wadsworth Avenue.

Trench Shin.—Trench shin has been successfully treated by injections of colloidal sulphur.—*The Lancet.*

Quinine in Treatment of Anal Fissure.—Owing to the granulating power of quinine, very good results have been obtained by packing anal fissure with quinine hydrochloride (about 5 grains), after swabbing with cocaine solution.—*British Med. Journal.*

THE IMPORTANCE OF THE SUBJECTIVE SYMPTOMS OF HEART DISEASE.

BY

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Medicine is a science and the practice of medicine is an art. There is no limit to the amount of science you can learn in the medical school because it is there to be learned, but there is a very great limit to the amount of the art that you can learn in the medical school and in the hospital because it is not there to be learned.

The art of medicine is exemplified by physicians in the actual practice of their profession.

Pertaining to the art of medicine, as founded upon science, there is no question of greater difficulty than the interpretation of the sick person's subjective sensations, and yet upon the interpretation of these sensations depends the detection of disease at the stage when it can be successfully treated. If you wait until the disease has caused marked pathologic changes in the organs or shows itself objectively by enlargements, by swelling, by heat, by any objective manifestation that a diseased organ can show, you have waited beyond the beginning of the disease until the establishment of definite disease, which is less often amenable to treatment.

There is much loose expression concerning the sensations dependent upon defective observation and wrong interpretation. You say, "That man has a tender liver." As a matter of fact, no man living ever had a tender liver, because the liver has no nerves of sensation and is not susceptible to pain. A careful observer and a man who correlates his current ideas with his knowledge of physiology will say that the patient has tenderness over the region of the liver, meaning that on account of some change in the liver there is a tenderness of the skin and subcutaneous tissues of the abdominal wall over the liver.

The trouble with clinical research in hospitals and taught in medical schools is that it has too much to do with the advanced and completely developed disease and not enough to do with the earlier manifestations, and because the interpretation of subjective sensations is difficult we are apt to fall into the habit of explaining them all by some plausible phrase or else accusing the patient of imaginary pains.

My observation is that the medical student and the young doctor fail more often in the true interpretation of pain and subjective sensations than they do in any other department of the work. The young physician does not fail, if he has been properly trained, in the detection of a heart murmur, in the recognition of kidney disease by examination of the urine, or in finding well-established tuberculosis of the lung. He does fail, however, in the interpretation of what people complain of. It takes years of study to acquire this art, nor is it possible to forestall the amount of time necessary to learn.

The point that is most important to remember is that the internal organs are as a rule without sensory nerves, that the pain that is arising from disorder of the internal organs is a reflex and is referred to the distribution of such sensory nerves as are put into operation thru the spinal cord by the organ that is in trouble.

It is necessary to remember that the sick person is untrained in the observation of symptoms—that his memory is defective and his description of the location of pain,

the duration of pain and the character of the pain is very fallacious.

You should form the habit of making plenty of records of the location of pain in the chest in every person who is suspected of any trouble in the heart, because there is no matter that is so misunderstood as the location of cardiac pain. The heart is a hollow muscular organ without nerves of sensation, an organ of such importance that it is absolutely necessary to appreciate the earliest signs of its failure to perform its function. This is particularly true after middle life because as a rule in young people, except in the presence of very definite disease, failure of the heart rarely occurs.

In older people, particularly those who consider themselves perfectly well, often enough the first sign of heart failure is discomfort in the region of the apex beat. This discomfort comes at such time as there is an extra strain put upon the circulation, which happens after eating, when the machinery of the body is whipped up by digestion. It comes on attempting any unusual exercise, such as climbing stairs.

This little discomfort in the region of the apex beat is probably caused by a moderate amount of stretching of the muscular structures of this part of the heart, which gives rise to a sensation referred to the chest wall over that part of the heart. There is no direct nervous connection between the apex of the heart, which is a freely movable organ inside of the body, and the chest wall, which is fixed in its position. The nearest nerve connection you can find leads you back to the spinal cord and out over the posterior nerve roots to the surface of the body over that region. Even then there is no direct connection between any nervous structure of the heart and the sensory nerves. The connection is thru the spinal cord—first the spinal cord and then the sensory nerves.

The nervous mechanism of the heart is very intricate. Except for the absence of the sensory nerves, all kinds of nerves are represented. We have the sympathetic nerves and various special nerves which send the pain reflex back to the heart. Thus the connection between the spinal cord and the heart is very elaborate.

The heart obeys the general law of all hollow muscular organs, that when they are functionally deranged and unable to do their work without strain they pass along an irritation to the spinal cord which reaches the sensory nerves distributed to the surface of the body over the organ.

You will say right away that there are a good many other organs at the same level irritating the same part of the spinal cord. Herein lies the difficulty, which is overcome by your power of co-ordinating and interpreting symptoms. There is something in the way a person describes his pain and the systematic way in which it returns on exertion, which makes it perfectly easy for the man of experience to pick out a cardiac pain.

However, the habit has arisen, perhaps thru the humane intention of relieving people's minds, of attributing pain to disturbance of other organs, particularly the stomach. The diaphragm pushed up by gas is often accused of giving rise to pain in this region, which in reality is true cardiac pain. This apex discomfort is the earliest appearance of cardiac pain.

As the heart disease continues and advances, this pain becomes of wider distribution because of the longer segment of the spinal cord that is irritated, the greater area of cord involved, and the greater number of

sensory nerves that will give rise to pain. So in studying the progress of any person suffering from angina pectoris, as you make your notes from month to month, or year to year—if the patient is not submitting to treatment and following a suitable regimen—if he is allowing his disease to advance and progress, you find the pain covers a larger area of the chest, goes down the arm and spreads sometimes to the right arm and even to the abdomen and legs, showing the spinal irritation from a badly diseased heart may involve the whole length of the cord.

Going back to the history of a completely developed instance of cardiac pain, you find the pain first only at the apex, with more and more of the chest, the left arm and so on, involved.

A very interesting observation in treating people with angina pectoris is that as they improve under treatment, the pain retreats and gradually goes back until the only pain they have is located at the point of the original pain.

Remember that the pain of heart disease is the pain of a hollow muscular organ that is in distress because it cannot do the work it wants to do in the way it would like to do it. It can be explained the same as the pain that is felt in the intestine, which has its origin in the intestine but is felt in the abdominal wall. It is the same pain that the small boy suffers who eats the green apple. He has a mass in his intestine which it is trying to dislodge. The intestine is a hollow muscular organ in distress which irritates the spinal cord at the level of the intestines and gives rise to the sensation of pain in the abdominal wall. Yet you could take that intestine out and cut it with a knife, and there would be no sensation of pain.

To properly interpret such sensations we have to be guided in a great measure by clinical experience. Unfortunately the anatomy of the nervous system, as far as worked out, does not give us a satisfactory ground for the explanation of all these reflex pains.

For some reason or another, if a man has a pain in a particular organ the irritation of the spine will be in a particular place and will affect particular nerves. You find out more by experience than by an actual knowledge of the physiology of the nervous system what the distribution, the character and the duration of such pains will be.

This matter of the interpretation of subjective sensations of people is a matter of legitimate research for every practitioner of medicine. This knowledge has advanced more by the careful observation of particular cases by the practicing physician over long periods of time than it has by the actual study of severely ill people in hospitals. You will find that true as you learn the practice of medicine. It is the experienced man who gives the proper weight to these subjective symptoms. It is the overtrained and inexperienced man who gives the wrong interpretation and places undue emphasis or not emphasis enough on these pains.

Take cardiac pain as a typical example and study all the patients you can with heart disease. Listen as carefully as you can to all their sensations and correlate them with what you know, for you can make a detailed study of the subjective sensations of gastric indigestion, gallstones, intercostal neuralgia and a thousand other things. This will make a splendid foundation for a lifelong study of the subjective sensations,

which is fundamental to the proper practice of medicine.

Every specialist is accused more or less of attributing his particular disease to pretty much everybody that comes to him. That is not very fair to very many careful specialists. Of course, when a man does an exclusive kind of work, each one he sees has been examined by other physicians and a diagnosis of the condition has been made. Nine out of ten who come to me have heart disease, perhaps more than that, and most have a very definite and advanced condition, but I feel that I am able to rule out the pain in the region of the heart other than that of cardiac disease.

One of the most satisfactory undertakings is to reassure those people who are unduly anxious on account of some subjective sensations in the region of the heart. However, if a person over forty has a discomfort in the heart in time of undue exertion and if he has discomfort in the region of the heart during the progress of digestion or during the progress of anything else that causes increased activity of the heart, I say that person has some reason in the heart which keeps it from doing its work with sufficient ease. This is an extremely common symptom of heart disease, but one which is often overlooked and neglected because it is attributed to indigestion. The pain of indigestion is very different. Its location is different, its onset is different, and it does not come on after exercise without any relation to the ingestion of food.

The next thing to be considered in deciding whether a person has heart disease or not, after we have discounted his subjective sensations, is a consideration of those things which indicate not a complainingly accomplished function, but an actual failure to accomplish its task.

The cardinal symptoms of heart disease are founded upon a failure of the heart to do its work. They are: Shortness of breath, dropsy of the dependent portions of the body and tenderness over the liver.

These are a late manifestation because the heart has a good deal of reserve strength. A moderate degree of heart disease does not cause shortness of breath. It does not cause an over-accumulation of blood in the liver to make it become swollen sufficiently to cause tenderness on pressure over the liver region. It does not cause a sufficient failure of the circulation to lead to dropsy of the dependent portions of the body. Long before this happens an examination of the subjective sensations of the body would have suggested a failure of the heart to do its work in a satisfactory manner.

The production of shortness of breath is purely relative to what the person was able to do before. It is only in very advanced cardiac diseases that there is shortness of breath when a person is sitting still, and there is not one young man in a hundred who has a good enough heart to climb a telegraph pole without getting out of breath —at least I don't suppose there is. If somewhere between being perfectly quiet and during exercise you lose your breath and the point where you lose your breath approaches inactivity, then your heart is losing its healthy condition. You question a person whether he loses his breath at that point of exercise where he did not before. For a young person to lose his breath running upstairs would mean that there was something the matter with his heart. An old man who does not lose his breath walking up a steep flight of stairs is rather unusual, so we have to interpret this question of breathlessness in the light of what the

person is accustomed to doing and could do before.

There is a great variation in regard to response to exercise, which is dependent on training, age and all kinds of things.

In general, the first thing noticed is when people lose their breath in very ordinary occupations. If a man comes to you for an opinion as to whether his life is insurable, you send him up a flight of stairs and see if he loses his wind. This you do to test his heart. It is a much better test than any physical examination you can make or any conclusion you can draw from your direct findings. Whatever the life insurance company may think of it, the man who can climb stairs has a better heart, even if he has murmurs, than a person without murmurs who cannot climb stairs. It is the functional test that is important. In the examination of heart disease symptoms you indirectly observe functions.

Dropsy is another symptom of the failure of the heart to perform its function. Of course, it may occur from renal disease or various other causes, but it always happens when the heart is failing seriously in function.

In valvular disease, in young people, particularly, the amount of engorgement of the liver is a very good index to the functional integrity of the heart. If you watch that carefully you will find that valvular disease with accompanying broken compensation is very often accompanied by swelling of the liver and tenderness over it. You know the heart is practically a pump. It sits on top of the liver and keeps the venous blood pumped out. The liver is very sensitive to the accumulation of venous blood when there is a failure of this pumping action of the heart.

Of course, as you go on to the more serious heart conditions, in the very advanced stages you get certain disturbances of respiration which are much more severe. You may get Cheyne-Stokes breathing, such as occurs in other diseases than pure cardiac disease. You may get cardiac asthma in which the sufferer is terrifically pressed for breath in attacks. These attacks quite frequently happen in the night and are very terrifying.

Fainting is a symptom which I must mention because it is so often attributed to heart disease, tho in the vast majority of instances it has nothing to do with it.

The only type of heart disease in which fainting is really a characteristic is so rare that when I had an example of it in the hospital ten years ago and published it, it was quoted all over the world. The case is still used in the clinic in Dublin of the man who discovered the disease because the case happened to lend itself to a most perfect demonstration. This condition is heart block, an interference with the integrity of the Bundle of His. In this disease there is a characteristic recurrence of attacks of syncope. I mention this disease, which is entirely out of place in this lecture, because it emphasizes the extreme rarity of syncope or fainting in the cardiac picture.

The only other possible example where fainting becomes a symptom of heart disease is when there is extreme palpitation. Palpitation is an acceleration of the heart rate. There are a few sufferers from palpitation who faint during an attack. It is important to know this because fainting is so often attributed to heart disease, while in fact it is usually a nervous manifestation which causes a temporary interference with the function of consciousness.

No consideration of the general principles of the diagnosis of heart disease

would be complete without a study of the relation of the hypersensitive nervous system to the heart. When we come to study disorders of the heart beat, we find that there are some extremely common and very definite disorders of the heart beat which are due to the effect of the hypersensitive nervous system on an otherwise healthy heart.

It is on account of the existence of this class of sufferers that it is very important to appreciate the cardinal symptoms of heart disease.

People with functionally disordered hearts very often get well for the time being when they become interested in a game of tennis or horseback riding or anything that leads them to active outdoor exercise. A person with a really weak heart may forget he has a heart that is weak, but if he has played a set of tennis he cannot forget it any longer because he loses his breath and cannot go on. The functional trouble is covered up by anything that puts the heart to actual labor, and such a person has more discomfort when sitting still with no demand on the heart for real work.

In an examination of a heart patient, at least 75 per cent., as to time, should be spent in interrogation and the study of the history and subjective sensations of the patient, and 25 per cent. of the time should be put on the physical examination and the objective examination of the disease.

The reason that the art of the care and treatment of heart disease has lagged so far behind other conditions is because it has always been in the hands of men who were essentially devoted to physical diagnosis. To map out the border of the heart, to measure blood pressure, to take polygraph tracings and determine the nature of disorders of the heart beat is the end of their work. To my mind, it is infinitely more important for a physician who has to treat a person to know *that person* from A to Z, from the age of one to his present age, because it is only in the light of this knowledge that treatment can be properly administered.

A general philosophy of heart disease founded upon physical diagnosis can lead to nothing but bad prognosis, a hopeless outlook and a foolish attempt to find out how long the person is going to live.

In actual practice in the study of your heart patients and if you are spending 75 per cent. of your time in the diagnosis and interpretation of subjective sensations and consideration of the history and the relation of the patient to his symptoms, food, work and recreation, and 25 per cent. of your time to physical examination, then you are really doing the right thing in this work. But if you are doing what is done by hundreds of men in the heart work of the country, spending 75 per cent. of your time in physical diagnosis, in the laboratory work, X-ray, etc., and 25 per cent. on your patient, you have not mastered the care and treatment of heart disease. Of course, a man who is devoted to general diagnosis is naturally hampered for time and so on, and a great many people are brought to him for a particular reason—to get his particular physical examination.

In this country there are very few places where heart patients are properly treated. In foreign cure resorts, such is not the case, where a great deal of stress is laid upon function and only a moderate amount on structural change, these patients are adequately and properly treated. In this country in the past the subject of heart disease has been purely a subject of diagnosis and prognosis. People have not felt the neces-

sity of a sufficiently close study of the person himself for the institution of a proper regimen, and so bring about the prolongation of life and efficiency.

More men should be added to the ranks of real heart physicians and not to those who stop short at the objective diagnosis.

109 E. 61st Street.

ACUTE LARYNGITIS WITH EDEMA OF THE GLOTTIS.

BY

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During the past winter I have been impressed with the large number of cases of laryngeal stenosis requiring intubation. In almost all of these cases there was an acute catarrhal rhinitis, a marked lassitude, cough, anorexia and fever. The temperature averaged 102 on the first day of illness, and rarely reached higher than 103 on the second or third day. The pulse rate showed greater variation as it ranged between 140 and 160. In some of the very toxic cases the pulse rate dropped from 100 to 90, 80 or even 70 after three days of illness. In all of the cases the pulse was irregular and intermitting.

Cultures taken from the throat showed the absence of the Klebs-Loeffler bacillus, but smears showed, in addition to the micrococcus catarrhalis and the pneumococcus, the streptococcus pyogenous aureus. As more than one member of a family was affected it was believed to be a communicable affection; hence isolation was ordered whenever possible.

Case I. M. R., 18 months old, was seen by me in consultation with Dr. S. Herrmann on the ninth day of illness, with the following history: Present illness began with cough, rhinitis and fever; later spasmodic cough, croup and hoarseness. Fifteen thousand units of diphtheria antitoxin were injected within twenty-four hours. Stenosis was so severe that intubation was performed. Extubation was followed in one-half hour by severe stenosis, requiring reintubation. The tube remained in the larynx two days, when a severe coughing paroxysm, associated with cyanosis, followed. The tube could not be palpated in the larynx and was probably swallowed. A new tube was then inserted, this being the third intubation. The temperature rose to 105 and gradually came down to 100⅘.

When first seen by me the pulse was 120, respiration 36. Owing to the strict supervision demanded by intubated cases I sent the child to the Minturn Hospital September 21st, the ninth day of illness. I extubated the two-year size tube, and inserted a three-year size. This was the fourth intubation. During the following week there was thoro oxygenization, no stenosis, no retraction, heart sounds clear, color good, and no cyanosis. On September 27th the patient was extubated. Forty minutes later it was necessary to reintubate. Six hours later the tube was swallowed. I then introduced a size two tube dipped in hot gelatine, containing 10 per cent. ichthyol. This medicated tube was left in the larynx five days, when the patient swallowed it. Reintubation was unnecessary, as there was marked retraction for a few moments only. Patient was discharged cured a few days later.

Case II. Milto F., seven years old, was seen by me December, 1917, in consultation with Drs. Ritter, Clinton and Feinberg on second day of illness. He had received 5,000 units of diphtheria antitoxin. There was cyanosis, marked retraction in the subclavicular region, and laryngeal stridor.

From the previous history I learned that the child had had an attack of diphtheria four years ago, and received antitoxin. Later had an attack of nephritis. Has been subject to recurring tonsillitis every winter. Has had chickenpox and measles twice.

The pulse was irregular and intermitting, the skin was livid in color, due to deficient oxygenation. Wheezing with coarse mucous rales was heard on both sides of the chest posteriorly. There was a slight dulness

on percussion at the base of both lungs, and with acute pulmonary congestion the beginning of pneumonia was suspected.

Several attempts at intubation had previously been made and it was with considerable difficulty that I introduced a five-year tube. The epiglottis was thickened and almost rigid. No force was used, but the tube was slowly guided into the chink of the glottis. The cyanosis disappeared after a large quantity of tenacious secretion was coughed up.

The child was sent to the Minturn Hospital for better supervision and nursing. Five thousand units of diphtheria antitoxin was ordered on admission. Steam vapor was used to relieve coughing paroxysms, and a hypodermic injection of codeine ¼ grain was given at 8:45 P. M., and repeated in two hours. The condition improved. The appetite improved until the fifth day, when a severe urticaria covered the entire body. This serum rash caused considerable itching, which was relieved by bicarbonate of soda paste applied over the body, also a 5 minim hypodermic injection of adrenalin chloride 1 to 1,000.

The tube was removed on the seventh day, with no recurring stenosis. Hoarseness and cough continued for a number of days. This was relieved by steam and small doses of glycerine.

Case III. M. M., two years old, was seen by me in consultation with Dr. J. Littenberg, with the following history: Breast-fed infant, walking at eighteen months. Had a convulsion six months ago. The temperature when first seen was 105, pulse 150, respirations 36. Had a convulsion in the morning lasting one hour. There was labored breathing, marked retraction of the chest, and laryngeal stenosis. Five thousand units of diphtheria antitoxin had been injected. It was decided to intubate. A two-year tube was inserted. Immediately following the intubation the child had a severe convulsion. The hands and feet were cyanotic. I removed the two-year tube and inserted a one-year tube. This seemed to relieve the labored breathing, the color returned and the child became more comfortable. The child was seen again four hours later, when it was found that the breathing was quiet—there was no retraction of the chest.

A consolidation of the lung was located, and extubation was performed. Laryngeal stenosis did not recur. The pneumonia progressed favorably and the child made an uneventful recovery.

It is interesting to note that the tube remained in the larynx but a few hours, which gave sufficient time to cough up catarrhal secretions, and sufficient mechanical dilatation was evidently accomplished by the tube remaining *in situ* for four hours. The culture was negative as to the Klebs-Loeffler bacillus.

From a study of the three cases here described we find all presented the same class of symptoms—rhinitis and catarrhal manifestations of the naso-pharyngeal tract several days prior to the acute laryngeal stenosis. There was fever in all cases. The temperature ranged between 102 and 105; it invariably rose two degrees after antitoxin was administered. The pulse rate was accelerated and rose from 110 to 140 in several cases. The respirations were labored and the frequency was double that of the normal child. These catarrhal symptoms were associated with a barking, rasping or croupy cough, and in several cases with marked respiratory interference. The cyanosis of the lips and face was also manifest in the hands and fingers—a distinct circulatory disturbance. There was also marked retraction of the chest walls, overacting intercostal muscles, and accelerated and difficult breathing. The retraction at the ensiform cartliage and at the epigastrium was distressing at each inspiration.

Deductions from the symptoms just mentioned would indicate that a stenosis of the larynx was present. On palpation the epiglottis was found swollen, the larynx was thickened, hardened and infiltrated, and it was with considerable difficulty that an intubation tube adapted for the age was introduced. Such tube usually remained in the larynx two to three weeks and was then coughed up. In one case the tube re-

mained but four hours. In another case the child coughed up and swallowed tubes twice in one week.

Several points should be remembered in the management of laryngeal edema. Be careful not to force a tube into the larynx, even tho the size may be suited to the child's age. In one case an attempt was made to introduce a three-year tube in a child of three years; the tube could not be inserted and apnea followed, which immediately improved on withdrawal of the distal portion of the tube. A two-year tube was also introduced with difficulty, so a one-year tube was tried. This proved to be the proper size tube for that particular case. The clinical picture changed within six hours, the edema subsided and as the small tube was coughed up, a two-year tube was used. This tube remained *in situ* for two days, and was then coughed up. Twenty minutes later a three-year tube was inserted. This tube remained six days. On extubation stenosis recurred after twenty minutes. A two-year tube covered with a gelatine film containing 5 per cent. of ichthyol was then inserted. The child wore this tube for several days, finally coughed up the tube and has remained well.

All cases should be given sufficient antitoxin. Do not expect a laryngeal stenosis to improve by giving less than 5,000 to 10,000 units of antitoxin. It is preposterous to expect specific results in membranous or even non-membranous laryngitis when thickening due to edema causes stenosis. There is marked danger from acute swelling unless the same is modified by intubation, but time should not be lost. When, however, intubation has accomplished its result in relieving stenosis, as in the third case reported by me, then the tube should be removed, otherwise it acts as a foreign body.

A laryngeal spray of 1 to 2,000 adrenalin chloride or a local application of adrenalin by means of a swab, several times a day, has a very soothing effect. One grain doses of sodium iodide will relieve and reduce the swelling in the larynx. If the child is very anemic 5 to 10 drop doses of syrup of iodide of iron, three times a day after meals, is a good restorative and should be tried.

The after treatment consisted in giving 1 grain doses of thyroid extract, three times a day, for one week. This thyroid extract was given to stimulate the internal secretions and to supply the supposed deficiency of thyroid. This was followed by Basham's mixture, 1 drachm three times a day after meals. To stimulate the circulation tepid tub baths, followed by cold spray or shower and massage, were ordered daily. The bath and shower was given to stimulate the circulation and as a vasomotor tonic. Excellent results followed this plan of treatment both as to the circulation and as a general restorative.

Resumé of Diet for a Child Two Years or Older.—During the febrile stage skimmed milk and sour (Bulgarian) milk was ordered. For thirst, orange juice and pineapple juice were given. After the febrile period subsided farina, oatmeal, cream of wheat, rice, junket, spinach, raw scraped apple, apple sauce, grapes, ice cream, toast, zwieback and jelly were given. Later chicken and lamb were added to the dietary.

155 W. 85th Street.

Tuberculosis.—It seems reasonable to conclude from experience and clinical observation that in a large number of pulmonary tuberculosis cases that terminate fatally, a considerable time intervenes between infection and diagnosis.—*The Practitioner.*

TUBERCULOUS GLANDS OF THE NECK IN YOUNG GIRLS.

BY

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From time to time I have seen indurated glands in the neck of children, notably young girls. The question has arisen what is best to do. Wait and see if the glands under proper local and general treatment and good hygiene will disappear, or recur very soon to surgical interference. In this determination we should be guided by circumstances.

If the patient has already had what seems to be good advice and treatment and no obvious good effects have resulted so far as diminution in size, or number of palpable glands is concerned, it is wisdom with the knowledge we have at present, to have them removed surgically. If on the other hand, no adequate advice or medical treatment has been followed, *that* should first be given a fighting chance.

If surgical treatment is determined upon it must be radical, so far as possible, to be remedial permanently. If not, if some palpable or concealed, tho already infected glands remain behind, very soon possibly, or probably, a second operation will become obligatory. This is a real misfortune to the patient, not to speak of the parents. The scar already resulting from a previous operation will be added to and of course additional disfigurement will follow. But this must be, unless we should risk an uglier scar from the suppuration and natural opening of a glandular abscess and subsequent slow healing, despite the best advised surgical dressings. These glandular abscesses may be easily opened, their cavities scraped out and the interiors painted with iodine tincture and altho they heal for a while, there may still occur a reinfection of adjacent glands. Possibly too, other lymphatic glands may later become involved as those of the mediastinum, or the peritoneum. The lungs indeed may become affected and subsequently the patient may develop pulmonary tuberculosis.

As to the medical treatment, this to my mind, operation or no operation, is very important. To some girls cod liver oil, when well borne, is essential. With others, it does not agree and in these instances I have now one main reliance and it is the systematic continued use of pills of iodide of iron. Nothing in my mature judgment takes its place in very many instances. In some instances, when given at an early period of the disease, it will prevent its further development. When given even at a later period, before or subsequent to operatory procedure, it will serve to lessen greatly the probability of other glandular involvement or the outbreak of pulmonary tuberculosis or that of the bones.

As to the best climatic surroundings for such cases, it is at times difficult to state positively, at first. If the patient has lived near the seashore, send him preferably to the mountains or inland. If living inland, send him to the seashore. There is no absolute panacea in either climate. Experience in the individual case must rule. If there is clear evidence of an underlying dyscrasia, which formerly was known widely as scrofula among medical men, we should be guided as to the selection of climate, as of food, by the manifest effects upon certain accompanying conditions in the patient. For example, if colds are frequent, if catarrhal symptoms of throat and nose are present or persistent, a dry, inland climate is usually preferable to the seashore. If, on the other

hand, we are apt to have certain cutaneous symptoms or signs, such as irritability of skin, or eczema, hives, etc., sea air and sea baths in July and August are frequently sovereigns as to cure. Of course, in all cases where catarrh is present, the nose and throat should be carefully examined and treated. There is sometimes no permanent cure without the removal of tonsils and adenoids.

IMPACTED THIRD MOLAR CAUSES FACIAL PARALYSIS.

BY

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An interesting case that came under the writer's care recently was that of a young man, 18 years old, complaining of pain and stiffness of the muscles on the left side, with watering of the left eye. On the right side there was marked facial paralysis, with all the symptoms well defined.

The case had been under the care of the family physician who diagnosed the condition as congenital.

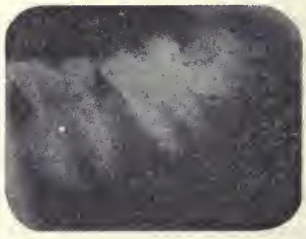
Inflammation in the region of the left third inferior molar, which had not erupted, led to thoro examination, and the author's radiograph disclosed an impacted tooth, the roots of which, owing to the youth of the patient, had not completely calcified.

The intense pain and stiffening of the muscles influenced an immediate operation and with some difficulty the offending tooth was removed.

Novocaine solution was injected, an incision made in the overlying gum and access to the tooth gained by chiseling away considerable bone; the tooth was then removed but not easily, the operation lasting two hours and ten minutes.

The recovery was uneventful; there was complete disappearance of the paralysis and accompanying symptoms and there has been no indication of recurrence.

The above history is of extreme interest, showing one of the many peculiar cases caused by impacted teeth, but the phenomena that followed I believe will cause the readers to ponder deeply and study the cause.



An Impacted Tooth.

The boy before his operation was small, thin and anemic; was about 5 feet 2 inches tall; about two weeks after he had gained five pounds and had grown two inches, in eight weeks he was 5 feet 7 inches tall and had gained about 18 pounds.

I cannot attempt an explanation of the foregoing facts, but there is no question in my mind that the quick growth and taking on weight was due entirely to the removal of the impacted tooth. Perhaps some one may be able to elucidate this mystery in a more scientific way.

Tonsilitis.—In the February number of *The Therapeutic Gazette,* Rodman says: "If the medical fraternity knew the influence aconite has on the tonsils, its diseases would be much less troublesome. Rodman when called to treat quinsy and finding the tonsils inflamed and largely swollen, used aconite quite freely in the treatment, and soon found he had a very effective remedy for that painful disease, and that, unless pus had already formed when called to the case, he never had that disagreeable termination of the disease."

A PLEA FOR THE SO-CALLED NEURASTHENIC.[1]

BY

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In 1879 Beard described a syndrome which he designated as a disease and named neurasthenia. Translated into English, the word means nothing more or less than nervous exhaustion. In Europe the disease was nicknamed "the American disease." In his complete description Beard, as well as subsequent writers, did not leave out any part of the body that might not have been involved in this disease. It followed that the disease assumed several subdivisions, such as sexual neurasthenia, spinal neurasthenia, cardiac neurasthenia, neurosis of the stomach, etc. Not only were what were considered nervous symptoms, but also well defined psychic phenomena involved in this disease.

In 1904 the renowned American neurologist, Charles L. Dana, denied the entity of such a disease. William Browning, another famous American neurologist, not only supported Dana but pointed out the harm the name neurasthenia had done and suggested dropping it. At first thought the stand taken by these two gentlemen seemed surprising. Dana and Browning are both good Americans, proud of their national honors and both of them had either associated with Beard or studied under him. The explanation lay, however, in the intervening twenty-five years of medical achievement.

In all their writings, neither Beard nor his followers showed any correlation of symptoms, with biochemical or anatomical changes in the organism on the one hand, and on the other hand, the vastness of symptoms could not be grouped under a definite clinical entity of psychotic origin. Subsequently each new discovery in medical science and each close observation at the bedside robbed neurasthenia of large numbers of adherents. A severe blow was dealt to the term neurasthenia by Riva Roci when in 1896 he made a blood pressure apparatus easily accessible and applicable at the bedside. It was soon shown that incipient and even moderately advanced arteriosclerosis gave the symptoms that were formerly classed as neurasthenia. The damage done to neurasthenia by Roentgen cannot of course be estimated, and Wassermann made many physicians turn their backs on neurasthenia forever, for in their clinics they saw how many grave sins were committed under the name. They saw that when people over forty first developed the symptoms of "neurasthenia," a Wassermann test of the blood proved this was practically a forerunner of general paresis. It was often demonstrated, thanks to the Wassermann reaction, that a "neurasthenic spine," was the beginning of tabes and a "gastric neurosis" really a gastric crisis.

Within the last decade the study of endocrinology has shown that many of the symptoms that were attributed formerly to neurasthenia can now be classed as definite entities due to disturbances of one or the other or all the endocrinal glands in their combined activity. Frequent urination and some sexual disorders that were grouped under sexual neurasthenia have been shown to be the result of pituitary disturbance. I need only mention the cardiac disorders that are now admittedly known to be of thyroid origin but which formerly were classed as neurasthenia. Höppinger and

[1] Read before the Clinical Society of the Montefiore Hospital, April 11, 1918.

Hess, while carrying their "vagotonia" a little too far, have, nevertheless, added enormously to our knowledge and understanding of some of the perverted visceral secretions and have done away with many of the gastric, intestinal, etc., neurasthenias. The mental symptoms that come with a disturbance in this glandular confederacy, such as disturbances in the ovarian or gonadal secretions, have also helped us partially to understand the so-called psychasthenia, a brother, or rather a sister of neurasthenia.

I will not enumerate any further the results of endocrinology save to mention the valuable discovery of Cannon who proved that in experimentally produced phobia or fear there is a definite increase of adrenalin in the blood. Who knows but that the exertions of the neurasthenic, his fears and phobias are not the result of a deficient adrenal secretion.

With all this, and in spite of Dana and Browning, diagnoses of neurasthenia are made daily both in the clinics and in private practice, for honest physicians will testify that patients will come into their clinics and offices giving a syndrome of neurasthenia and in them all biochemical and physical tests will reveal nothing. We must admit that in such cases we know neither their etiology nor their anatomy. Mackenzie, in an excellent work on heart disease, pointed out the fact that today we are able to detect clinically a so-called organic disease only when there are well established anatomical changes in the organism. We have no means to detect clinically a disease in the process of its formation. The only expressions of such change are the subjective changes and it is these patients that we call neurasthenics. When we have a chance to observe some of these patients for a long time, often for years, we frequently see that the so-called subjective symptoms are really forerunners of anatomical changes in the organism which we are finally able to detect.

To illustrate this I will cite a few cases that came under my observation. Some two or three years ago a man died in the ward of an institution from multiple fibromata of the roots of the spinal nerves. I saw this patient when the disease was in its incipiency and the only symptom he had was a burning sensation of the spine which made his life miserable. He was a glazier and, of course, the diagnosis of occupational neurosis and neurasthenia was made by almost every physician who saw him. A famous neurologist also made the diagnosis of neurasthenia and demonstrated the case as a functional one before his classes. A few months passed and the disease began to show somatic symptoms. The patient became more and more paralyzed from above downward. I saw him a few days before his death when all he could do was to move his head from side to side thru a slit in a sheet especially arranged for his convenience by a resourceful medical director, all motion being limited to the neck. Had Henry Head completed his sensory studies a few years earlier, the Professor could have made a timely diagnosis.

Another case, this time a woman, was admitted to a hospital for neurasthenia. She was beginning to show some intestinal symptoms. A consultant internist of international fame was called to see the case. After as thoro a physical examination as could then be made, his diagnosis was intestinal neurosis. A few months later the unquestionable signs of intestinal cancer had developed. Had we then used the X-ray to such extent as today and had we

then applied the laboratory tests we do now, such a diagnosis would not have been made.

When I was working in the clinic of a New York hospital, we had a patient who complained of headaches. His status was negative, yet he could not work because of his suffering and all our medication was futile. A diagnosis of nervous headache was of course made. Wassermann tests began to be generally applied and we decided to get this patient's reaction. The blood showed four plus. Thoro antisyphilitic treatment cured him and made us change the diagnosis.

Apropos to headache: In my clinic at Mt. Sinai I often find that some of the so-called neurasthenic headaches are relieved by small doses of thyroid extract. I prefer rather to call these cases hypothyroidism than neurasthenia. A few months ago a girl came in complaining of weakness, nervousness, flushes, irritability, etc. All the tests proved negative. Neither my associate nor myself could make the diagnosis other than neurasthenia and we were greatly surprised when a few months later our patient showed undoubted signs of juvenile paralysis agitans.

Such cases could be cited by scores by every physician who will take the trouble to look thru his records. I will ask you to stretch your imagination and place yourself in the time when the ophthalmoscope, nay even the stethoscope was not known. What a rich field it would have been for neurasthenia had Beard lived in those days.

A famous neurologist has stated that all the neurasthenias, or psychasthenias that he has seen were brought about by a psychical and never a physical trauma. Let us stop and consider this very important statement made by an eminent authority. A factor can be called a trauma only in proportion to the effect it has on the patient. Shrapnel fragments of a given size traveling at a given velocity will kill or inflict an injury on every man equally struck. By psychic trauma, however, we understand a condition which will deprive a certain individual of some of the advantages accorded to him in modern society. A man may be deprived of his wealth, go into bankruptcy and lose his beautiful wife and beloved children. This, according to the authority mentioned, will work on the man's mind as a trauma, producing psychasthenia. The question immediately arises, does every man who has lost his money, his social standing, his wife and children, also lose his peace of mind to such an extent as to develop neurasthenia? The fact is that only a few such people come to the neurologist; the vast majority plunge again into the struggle trying to regain what they have lost, or to pursue new happiness. If, instead of saying a psychic trauma is the cause, we should say that a given individual cannot adjust himself to the new conditions accompanying the psychic trauma, our reasoning would be more correct and probably would be of more help to our patient. It would then behoove us to look for those factors that are responsible in this individual for his non-adaptability to his new surroundings. We may find, as Cannon did, that some physical force is at the bottom of the psychotic symptoms. For after all, every new discovery in medicine that is of any value is either physical or chemical.

I would therefore recommend that each so-called neurasthenic be closely studied in relation to all the physical aberrations that we have now the means to detect. If such cannot be found, let us not label them neurasthenia, but watch their symptoms, treat them as best we can and test for

changing conditions, handling them with the same care the surgeon exercises with an abscess or other painful condition not ready for final therapy.

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METRITIS AND ENDOMETRITIS AND CERVICITIS (Cervical Catarrh).

BY

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These two conditions common to females have so far resisted our best efforts. The tampon with the stereotyped boro-glycerine or the more odorous ichthyol has been relegated to the background except by a very few gynecologists. Curettage and the application of iodine seem to be the method that has stood the test of time. The reason for this is not difficult to find. The wounding which results from the curettage plus the application of the iodine caused a reaction resulting in an inflammation. If no harm resulted from the mode of treatment and the inflammation was of just the proper degree, the results were more or less favorable.

The high frequency current far exceeds all expectations when employed in these ailments. The entire body of the uterus becomes heated from two to five degrees above the normal, active hyperemia is produced thruout the entire organ, a physiologic inflammation is set up instead of a pathologic one, and healing and absorption go on in a natural manner. If a previous curettage has been performed, then the use of this current will cause the absorption of the fibrous and scar tissues which form as a result, and the entire organ is once more made normal. Even after a very few treatments, the headache, backache and the long list of reflex manifestations begin to subside to such a degree as to cause favorable comment by the patient. Many of these patients are described as neurasthenics and hysterics, yet it is a satisfaction to see all these symptoms disappear in one month's time.

Technic.—The patient is placed upon the gynecologic chair, with a douche pan under the butt, the parts are thoroly douched with hot water and sodium bicarbonate. A vaginal speculum is put in place. A large tinfoil electrode ten by twelve inches is placed over the abdomen in such a manner that good firm contact is insured. One rheophore is attached to this, the other to the usual uterine electrode. Insert the uterine electrode to its fullest extent, turn on the current gradually up to 500 ma.; after a few minutes increase to 750; in some cases to 1000 ma. for twenty minutes every other day. From one to four months will usually be required to really cure these cases.

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LONDON LETTER

(From our Regular Correspondent.)

THE MORTALITY OF INFECTIOUS DISEASE IN LONDON.

The annual report of the Metropolitan Asylum Board, the body which, under the aegis of Local Government Boards has charge of the in-patient treatment of notifiable infectious diseases in London, has just appeared, and the following facts emerge from it. The death rates from scarlet fever and diphtheria have remained stationary after 3 years of war (the report is for 1917); those of enteric fever and cerebrospinal fever have risen; the death rate of measles is the highest for 7 years; and that of whooping cough is the highest on record.

THE REFORM OF MEDICAL EDUCATION.

A very important and suggestive memorandum has been addressed to the President of the Board of Education by Sir George Newman, who is both Chief Medical Officer and Chief Assistant Secretary to that Board, upon the present position of medical education in England. The significance of Sir George Newman's Memorandum lies in the spirit which has inspired it, for in every line we can see that the criticisms which he levels against the existing system for the training of medical men have been made with an eye on the public interest and not with any narrow endeavor to benefit a particular professional class. Criticisms are numerous and are directed now against the educational conceptions and now against the details of administration, but in each situation the proposition set out by Sir George Newman is as follows: that medical education should be raised to the highest point possible and raised proportionately as the nation progresses, because a well educated medical profession is an asset of the first rank in the national work. And the inevitable rider to the proposition is that the improvement in medical education should be guaranteed by State intervention.

The memorandum is practical, not theoretical, for it is the outcome of good work already done. The Board of Education, in rather interesting circumstances, has already subsidized the medical schools of England and Wales, and the memorandum takes the form of notes explaining the circumstances in which those subsidies were granted, the methods of their administration, and the results up to date. Sir George Newman finds by experiment that State support, as far as it has gone, has already produced good effects upon the medical curriculum, and, from that sure position, proposes that the subsidy should be extended in substance and scope in order that a better training may be provided for the medical man "whose influence reaches the very foundations of human life."

It was a happy thought on the part of the Medical School attached to St. Mary's Hospital, London, to apply to the Board of Education for pecuniary assistance—the technical phrase is "A Grant in Aid"—on the ground that the work done at the school brought it within the scope of such assistance as a "Technical School," technical schools being eligible for State assistance. That the technics of medicine are as valuable to the public at large as the technics of engineering or domestic economy have been quite evident for a long time, but altho the fact has been constantly pointed out, to the School of St. Mary's Hospital belongs the credit of having constituted the position of that school a test one. The application of the medical school was in the first instance refused, but on being amended in certain directions and fortified by additional argument, the plea was attended to. A grant in aid having been made to St. Mary's Hospital Medical School, the other medical schools, both in London and the Provinces, followed suit with such alacrity that today only four schools in England are without the receipt of State help. But the Government Bureau has taken up the proper position on finding money for the support of medical schools, of ascertaining the standing of the schools and the proposed allocation of the grants in aid. Before recognizing that a medical school is eligible for a grant the board must be satisfied as to its management and as to the security for the permanence of its work; while it has also to come to definite conclusions as to what proportion of the medical curriculum can properly be called technical and thus fall within the scope of a grant. Consequently the board devised a system of inspection by its chief medical officer and a small committee of distinguished nominees, so that all the circumstances under which applications were being made should be clear to those who had to write the cheque. Such an inspection of educational centers for medicine is already conducted by the General Medical Council, the body which under the aegis of the Privy Council keeps a register of the medical profession, admitting to that register only persons who have passed the examinations of certain recognized university faculties, corporations and companies. But the inspections of the General Medical Council take stock of the whole curriculum and especially of the examination tests exacted by the various qualifying bodies. Such an inspection is of extreme value from the scientific and educational point of view because it ensures that at all the recognized centers medical education is proceeding up to a uniform standard, but the General Medical Council is not particularly concerned, as the Board of Education now is, with those features of the educational scheme which can properly be called technical. There is therefore no overlapping of energy in the institution of a further official enquiry into English medical education.

Sir George Newman's memorandum sets out the nature of medical education in the country at the present moment, reviews the functions of the General Medical Council, and shows that while differing between themselves to some extent in standard, the scheme of medical education at all the centers is a common one. The student first learns the general sciences of chemistry, biology and physics up to the point where he is introduced to the special sciences of human anatomy, physiology, and pharmacology, those being the subdivisions of biology and chemistry on which his professional training will be founded. Then come hospital practice, clinical and theoretical, medicine, surgery, obstetrics and pharmacology, the pathology and therapeutics of all these being illustrated by the patients receiving attention at a hospital either as in-patients or out-patients. In this recital there is no difficulty in proving that the medical curriculum is already overloaded, and also that the continuity of teaching in the various subjects is not properly preserved. Teachers in physiology educate their pupils in physiology, but do not, because they do not have the proper opportunity, further instruct them that their business in life will be to ascertain and remedy those failures in physiology which

constitute disease. Hospital practice is largely divorced from school training, altho the two should be interdependent. At each of the three stages in the medical curriculum the student is examined, and, owing to the accurate knowledge required in a multiplicity of subjects, the percentage of failures is large. The consequence is that altho the legal period of medical education is put down as five years, the average student takes over six years to obtain a hallmark, which is a genuine hardship from the pecuniary point of view to medical students and their parents, who do not as a rule belong to a wealthy class of the community. The position has also its drawback for the teachers, inasmuch as they have themselves to be highly qualified persons, while the poverty of the medical schools precludes them from receiving adequate salaries. The fees, provided with difficulty by the students, are swallowed up in the material expenses of instituting and running laboratories, special class rooms and mechanical facilities.

The position to be met then is this. The curriculum must be lightened without lowering of the ultimate standards, and money must be found to provide or assist in the provision of material facilities for medical education as well as for the proper emolument of highly qualified teachers. "Let those who help themselves be helped" is the message of Sir George Newman's practical document. He suggests a rearrangement of the medical curriculum by which the general introductory subjects of chemistry, biology and physics should be relegated to education at a secondary school, so that the student should join his medical school sufficiently equipped in these directions to enter upon the study of anatomy, physiology and pharmacology with a good grounding. At the other end of the curriculum Sir George Newman suggests that much of the special instruction in particular phases of clinical medicine and surgery should be left over to be dealt with in post-graduate courses, when the newly qualified doctor will be in a position to judge along which special line he requires further to develop his talents. This would leave for medical education proper those branches of biology and chemistry on which strictly professional knowledge is founded, namely, anatomy, physiology and pharmacology; and pathology along the main divisions of medicine, surgery and obstetrics, as illustrated by hospital practice, further, every means should be taken to maintain the close connection between the scientific study and the practical results in therapeutics. It may be remarked incidentally that one reason for omitting to consider the position of Ireland and Scotland in the memorandum dealing with England and Wales may well have been the fact that in those two divisions of the country there is not a sufficient number of secondary schools at which a training in elementary science can be obtained, and therefore to recommend such training, without a definite promise of the facilities to ensure it, would have been idle.

The best English medical teaching need not fear comparison with medical teaching elsewhere. This fact is made clear in the memorandum, but it is also made clear that in many directions improvement would follow upon any general rearrangement supported by judicious expenditure. Sir George Newman has succeeded in justifying State help in the education of medical men because of the supreme value of medical service to the State, but he also shows good ground for his general recommendations that the existing medical curriculum should be lightened at both ends.

THE MENACE OF SMALLPOX.

All over the world there is now great interfusion of the inhabitants. It is true that the war circumstances of the world-war have dictated that this interfusion should take place in two great groups, a central group consisting of the German and Austrian Empires and their dependents, and a peripheral group comprising everybody else, but there is no hard and fast barrier between these two divisions, while the populations contained within each are so huge that without any admixture catastrophies of appalling magnitude can well take place. There are many parts of the world in which smallpox may be called endemic: the disease is, for example, uniformly present with the Arabs who come into close contact in Persia and Europe with British and French forces on the one hand, and with German and Turkish forces on the other. The risk of smallpox being conveyed to our armies is therefore considerable, tho the distance is so great that neither the United States nor Great Britain need particularly fear infection from the far East. But in the West, where as yet smallpox has not made any formidable appearance, the conditions are more threatening. The Central Empires have been compelled to transport troops from the Eastern to the Western zones of activity, and thus our troops and theirs are in close communion with populations who present every circumstance likely to lead to outbreak and spread of the disease. The displacement from home of large numbers of the poorer classes, refugees and populations deported frequently from slum areas, unvaccinated prisoners of war—all these people in conditions of gross overcrowding and distress of mind form material for a spread of the disease, while the conditions would intensify its quality.

In a report to the British Local Government Board on the incidence of smallpox thruout the world in recent years, Dr. Bruce Low has given a detailed account of the behaviour of the disease in every quarter of the globe as a preface to a solemn warning as to the dangers which are likely to arise from a continued neglect of vaccination and revaccination by a large section of the British public. It is to be hoped that his warning will not fall upon deaf ears, for should a virulent strain of infection, such as followed the Franco-German War 40 years ago, be introduced into this country our accumulations of unvaccinated children and unrevaccinated adults might lead to a serious

epidemic. For us, and perhaps for the United States, this would be a disastrous occurrence at the present moment, when the younger generation of our medical men have had little or no opportunities of becoming acquainted with smallpox and no experience whatever of the accepted ways in which to deal with an epidemic. Many of our medical officers of health, public vaccinators, and inspectors of nuisances, who before the war could be trusted to cope successfully with the early manifestations of a smallpox epidemic, have now been called upon to serve their country in the Navy or Army, and their posts are lightly held by men of small special experience, who, moreover, have to deal with populations which regard lightly the risks of a disease which has made no serious epidemic visitations for many years. Dr. Bruce Low's report is a vigorous reminder to the public that in vaccination and revaccination we have at least a great preventive of disaster.

Physical Therapy

Under the Editorial Direction of Albert C. Geyser, M. D., New York.

Fundamentals in the Practice of Physical Therapy.—In the practice of physical therapeutics it is essential that the reaction of the tissue cells to the agent be constantly kept in mind. The possible reaction depends to a considerable degree upon the physical properties of the agent employed.

When the physical properties of an agent are in the main of a chemical nature, the resultant effects upon living tissue are principally chemical. If the physical agent is a thermic one, the effects upon tissue reaction are mostly thermic. The physical properties of an agent may be almost entirely mechanical; such an agent, employed for therapeutic purposes would produce mechanical effects, at least, primarily. A sharp line of demarcation cannot be drawn under all circumstances. What in the first instance appears as a purely mechanical effect may nevertheless be shortly followed by chemical changes in the tissues, and *vice versa*, a chemical change in a given joint may be followed by an increase or a decrease of the mechanics of that particular tissue.

The first thing to consider in all therapeutics is the pathology of the tissue involved. Such a pathology must be viewed as a departure from normal physiology.

The prime question that presents itself for our solution is, what physiologic function has been interfered with in this particular case? Having now obtained a proper appreciation of the departure from the normal, what response or reaction is required to halt the pathology and to again put the normal physiology into action?

The first law in all therapeutic procedures is to remove the cause if still operative. It frequently happens that the original cause has long ceased to be a factor, but the individual may still be suffering from the effects. If, as the result of a trauma a fracture has occurred, the cause of the injury ceased with the trauma, but the effects upon the patient are still present. The fracture may even have united, but there is left an impairment of physiologic function. The system, for some reason, failed to remove all of the exudate; adhesions formed, leaving the patient with limited joint function.

Our prime object is to restore, as nearly as possible, the normal physiology of the parts. Let us assume that we are dealing with a fibrous anchylosis of some joint. To the physical therapist anchylosis is, and remains anchylosis no matter where situated. The pathology and the physiology do not differ whether such an anchylosis happens to be in the knee joint or in the ossicles of the ear. The indicated treatment, that is the underlying principle for the same, does not differ, it is the same in each instance.

In a case of fibrous adhesion of a joint tissue, we are dealing primarily with a failure on the part of the system to having removed the excess material intended for the repair of the injury.

Inflammation caused the deposit of the repair material, a continuance of that same inflammation would have removed all the excess, but it failed. It is clear then, that, since some phase of an inflammatory process can remove that which is the immediate cause of the adhesion, it will be necessary to initiate that phase of the inflammatory process and nothing else.

The original inflammation was produced by a reaction of the uninjured cells to some trauma. Evidently from the case before us, the reaction was greater than really necessary, a very common fault with our

reparative processes. In this instance Nature failed and we cannot trust to her further effort unless aided. We must initiate by artificial means such processes as will tend to absorb the unnecessary material left there to the detriment of the patient. Such left over material is by this time organized and cannot be absorbed as such. It must first be decomposed, dialysed. What means or agents have we that will lend themselves for such a purpose? A well equipped physical therapist has several such agents at his command.

Some sort of thermo-therapy would be the first consideration. The affected joint could be placed in a receptacle containing superheated dry air, hot fomentations might be applied, hot sand or salt bags placed over the part; the rays from a high candle power incandescent lamp, friction or massage might be employed. All of these enumerated physical agents involve the use of externally applied heat. Since such externally applied heat can only penetrate living tissue one quarter of an inch, it follows that, if the exudate or the adhesions lie deeper than the penetrative power of the agent, we can only expect a limited result. It is usually the lack of appreciation of this and similar instances that causes failure or success in a given case. It allows one physician to laud a certain agent, while another condemns the same. Diathermia applied to such a joint would penetrate the entire thickness of the part, it would heat the joint thru and thru. If such a heating causes sufficient active hyperemia, vessel dilatation, diapedesis of leucocytes, and absorption ought to take place promptly. Even here the agent might be inadequate, not that it would be a failure as in the case of the externally applied heat, but too much might be consumed if the exudate should be too firm or too well organized.

We know that the galvanic current will decompose anything thru which it is passed. If therefore the negative pole of a direct current is applied with a suitable electrode so that the current passes thru the involved tissue, decomposition or negative electrolysis is bound to take place. The negative pole possesses the power of attracting to itself all the alkalies, it dilates the blood vessels, softens the tissue and prepares it for absorption in a state which makes it easy for the system. If such a decomposing, dialysing process is followed by the internal heat producing diathermia, this again supplemented by massage and passive motion, we have made not only proper selection, but also proper therapeutic application of physical therapy.

Any one or all of the above mentioned agents, with suitable modifications, are as applicable to the small ossicles of the ear as they are to the largest joint in the body.

The Therapeutic Indications of the Galvanic Current—The therapeutic action of the galvanic current depends upon three principal physical effects upon living tissue.

First, the polar action; secondly, the interpolar action; thirdly, the electrolytic action of either pole when inserted into moist tissue or brought into contact with mucous membrane.

When the polar effect is desired, it is necessary to distinguish between the active and the passive electrode. The active electrode is usually the smaller and consists of a small sponge covered electrode about the size of a pea for the purpose of testing the individual nerves and muscles, or it may be the size of a silver dollar to cover larger areas or groups of muscles. Again the active electrode may be made entirely of metal, such as needles for the electrolytic destruction of warts, nevi, birthmarks, and superfluous hair, or the electrode make take the form of a urethral, rectal or uterine sound and is then inserted into any of the hollow cavities for the particular polar effect desired.

The passive electrode on the other hand must always be some large dispersing pad, usually made of sponge or felt upon one side, covered with flexible rubber upon the other side; between these two layers is placed some metallic substance like wire gauze or thin copper sheets for the purpose of flexibility. In the substance of any special electrode, a towel, folded to the required size, resting on or in contact with a piece of flexible tin or lead foil may be substituted. When convenient the indifferent electrode may be a suitable vessel containing a salt or bicarbonate of soda solution.

When the interpolar action is desired, the electrodes should be, as nearly as pos-

sible of equal size, equally moistened and firmly fitted to the parts to be treated. Two vessels of water may be used; water having the especial advantage of cleanliness and adaptability. In the interpolar action it is our purpose to avoid as much as possible all local or polar effect; while in the polar effects we want to take advantage of the drying, tissue contracting, hardening, acid reacting, metal decomposing power and the general sedative effect of the positive pole, while the negative pole possesses the moisture increasing, tissue softening, alkaline reacting, non-corrosive metalic action and the stimulating effect.

The galvanic current must never be used for therapeutic purposes unless one or more of the above mentioned qualities are desirable in any particular case. No one would think of prescribing opium to overcome constipation, neither must the galvanic current be used unless clearly indicated.

The Galvanic Current in Therapeutics.—The galvanic or the direct current is furnished to the physician either thru the agency of cells stored in proper cabinets or as is more common today, thru wall plates utilizing the current of commerce.

Essentially and especially for medical purposes, the galvanic current is produced as the result of some chemical decomposition. Two different kinds of metals, usually zinc for the positive plate, (negative pole) and carbon for the negative plate (positive pole) are immersed in an electrolyte. An electrolyte is any substance, fluid or semi-fluid, which has the power of decomposing metals.

When the direct current is furnished by a dynamo, while not the result of chemical decomposition, it may be viewed as a "synthetic" galvanic current.

Some physicians claim to have discerned a difference in the effect of currents generated by chemical action and those produced by the dynamo. In the main, both currents cause chemical changes in any medium thru which they are passed. The amount or the degree of these changes depends, of course, upon the strength of the current used, the time consumed and the specific condition of the tissue thru which the current is passed.

The main feature to be borne in mind is that since this current is the result of chemical decomposition, all of the principal therapeutic effects are directly traceable to the chemical changes caused by the passage of the current.

Living means nutrition, nutrition means chemical changes, chemical changes mean an electric current.

Hot Air Therapy in War Wounds.—Dr. Charles Greene Cumston, writing from Geneva, Switzerland, gives in *The New York Medical Journal* (Jan. 10, 1918) the following brief account of the uses of heated air in war medical and surgical practice. There is no question but that heated air is of considerable value in the treatment of injuries in war. Heated air at the temperature of carbonization is a perfect sterilizer and when blown over a large open gangrenous surface it carbonizes the slough and penetrates all the irregularities, while its action as a thermocautery is also elective. Its destructive action on gangrenous tissues is enhanced by the secondary hyperemic and leucocytic reaction, which is both uniform and intense. By many army surgeons it is regarded as almost a specific in these cases. Heated air at therapeutic temperature from 50° to 100° C., is an excellent analgesic, its effect usually appearing within a few minutes. As a bactericidal agent it must be employed at a high temperature. It does not act deeply in the tissues, but the good results obtained are explained by the resulting hyperemia, hyperleucocytosis, and the formation of immunizing bodies in large quantities in the morbid focus. Altho heated air at the usual therapeutic temperatures is not absolutely bactericidal, it certainly prevents the development and increase of bacterial growth. Unquestionably, the most evident and constant effect of heated air is its cicatrizing action. Sloughing sores and torpid ulcers having no tendency to cicatrize return to life, changing in aspect and color by its use.

Heated air douching also acts by vibratory massage of the wound by the column of air in motion, the secretions which maintain an intense exudation in the wound evaporating, and therefore, mechanically cleanses it. By varying the pressure and

temperature, the effects and wound reactions are also varied. At a temperature of 50° C., a simple hyperemia of the diseased part is obtained by constant contact of a jet of heated air. With a temperature of from 120° to 150° C. a more active hyperemia and revulsion is obtained. Massage by heated air is obtained by forcing it on the wound under a pressure of from three to five kilograms. Active and reactive hyperemia is produced by alternating with a hot and cold air douche. At the temperature of carbonization, 400° to 800° C., air is unquestionably the ideal agent of sterilization.

Heated air can be used to advantage in the prophylactic treatment of wound infection from bursting shell, hand grenades, torpedoes, combined with a free incision and mechanical cleansing; in gangrenous and gas bacilli infected wounds after freely exposing the traumatic focus by incision; and in old foci or osteomyelitis following fracture, after free exposure and cleansing of the focus. At the temperatures producing hyperemia, 50° to 150° C.; in the form of a douche, heated air gives excellent results in wounds with abundant suppuration; in acute outbursts of erysipelas or phlegmonous lymphangitis; in bed sores from decubitus or secondary upon nervous or medullary lesions; in atonic wounds without any tendency to cicatrization, particularly ulcerations in amputation stumps; in certain stubborn fistulae on the condition that they are not kept up by the presence of a foreign body or sequestra.

Treatment of Cardiac Decompensation.—Dr. Frank B. Cross points out that the aim of treatment is to reestablish compensation which has been lost thru failure of the heart's reserve to meet added strain. The causes of the added strain, the author continues in his article in *The Long Island Med. Jour.* (Oct., 1917), must be sought out and removed so far as possible. These include physical exertion, worry, insomnia, acute debilitating disease, etc. During the acute stage of decompensation the patient should be allowed to assume whatever position is the most comfortable to him, preference being given to bed. Morphine is of great value in relieving distress and giving sleep and rest. Oxygen inhalation may help by relieving dyspnea. Venesection may be practised where there is extreme venous engorgement or in less urgent cases an ounce of magnesium sulphate may be given every morning in a small cup of black coffee. Effusions may be removed by tapping. Diuresis may be promoted by the use of theocine or theobromine sodiosalicylate. The diet should consist of milk and restricted amounts of fluid, or the Karrel diet may be prescribed in suitable cases. The most valuable drug for the heart is digitalis, preferably given subcutaneously. For this purpose one of the specialties may be used, or strophanthin may be given instead. For aural administration a standardized galenical preparation of digitalis answers every purpose, but it should be remembered that the infusion is not uniform in activity. Strychnine, caffeine, camphor, and atropine may be useful for some cases, but are not to be given in place of digitalis. In convalescence iron, arsenic, and calcium are of value; the diet should be regulated carefully and both occupation and exercise should be guided by the physician. It may be stated that the immediate prognosis depends on the activities of the physician while the ultimate prognosis depends on those of the patient.

Local Treatment of Carcinoma of the Cervix.—The effects from radium or any other locally applied therapy in the management of cancer of the cervix depend on one of three things, either the therapeutic measure sets up an inflammatory condition, and the inflammation so produced exerts a beneficial influence in either retarding or even removing the malignant growth, or the agent employed may be a destructive agent, such as the caustics, cancer paste, etc. They are intended to remove the growth *in toto*, similar to surgery. In uterine cancers they are of questionable value. With such agents as diathermia, they act by changing the physiology of the growth; they turn a malignant tumor into a benign one. Since the tumor *per se* never kills the patient, and since the chemistry of tumors is subject to change by diathermia, it follows that diathermia is the only real agent to be recommended. Post operative X-ray should never have been invented, because the X-raying was a suc-

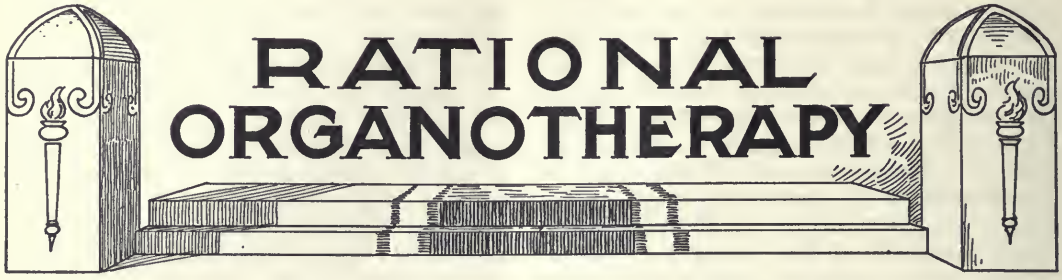
cess, but the patients all died. There is neither logic nor reason in post operative raying. If the disease was local at the time of removal, post operative raying is unnecessary. It can serve no useful purpose. If the general system was affected, localized raying can do no good. Diathermia 2,000 to 2,500 milliamperes passed thru the mass changes the entire physiology of the mass, whether local or constitutional. The toxic material of the malignant growth ceases to be produced, hence the tumor mass becomes a negligible factor.

Diathermy in Local Skin Diseases.—Bathurst in his valuable article in the *London Lancet* (October 20, 1917) says that diathermy is capable of promptly curing moles, warts, corns, stellate veins, telangiectases, capillary nevi, port wine marks, xanthelasma, acne, keloid, adenomas, freckles, etc. It has the advantage of being very rapid, of causing no inflammatory reaction, on being accurately limited, of being under control as to the depth of its effects of producing a minimum amount of scarring, and of being comparatively painless. The patient is placed on the diathermy couch with his hands on the handles and the electrodes of the apparatus attached to the handles and the back plate. The patient is then charged with 0.25 to 0.5 amperes. The local treatment is then carried out by permitting sparks to pass from the patient, at the site of the lesions, to a pointed silver probe held by the operator. A single treatment is usually sufficient and requires but a few seconds for each blemish which is to be removed.

In making use of this method of treating skin lesions one important point has been omitted from consideration. It is not every high frequency apparatus that is suited for this work. In fact nearly all the older types of apparatus possess a current entirely too high in voltage. The first and most important consideration in undertaking this line of treatment is to select a high frequency machine of large amperage but low voltage. It is well to bear in mind that it is the amperage that does the work, the voltage is merely a means to the end. It may be compared to a hypodermic syringe holding a solution of cocaine or morphine, it is the drug delivered into the patient's tissues that produces the therapeutic effect, the pressure exerted by the physician upon the piston is merely a means to the end. It is easy to imagine the effect of a sudden powerful pressure upon the piston end; there would be a rupture of the tissues causing a painful injection. On the other hand if the dose is delivered gently, that is, slowly, with just sufficient pressure to overcome the resistance of the tissues, then you have the ideal method. You have all the possible effect of the drug (amperage) yet a minimum amount of pain from the pressure (voltage). All the earlier high frequency machines upon the market were built with the idea of a wide range of application in therapeutics. It was soon discovered that a truck horse is as useful in its place as the race horse upon the track, but the moment that these two attempted to do the work of each other, then both became a failure.

Nearly all of the earlier types of high frequency, especially those of foreign manufacture were constructed on the high tension principle. Gradually the professional demand forced the manufacturers to produce types of low voltage and high amperage. Dr. Clark of Philadelphia, as much as any one introduced the system of tissue coagulation. For this work he confined himself to the sparks from a resonator attached to a static machine. All the various skin lesions including those of malignancy were removed. The spark was almost cold, it did not carbonize, it simply dehydrated and coagulated.

Iodine Fumes in the Treatment of Burns.—Gilbride in the *N. Y. Med. Jour.* (Aug. 3, 1918) writes of satisfactory results in treatment of ulcers with iodine fumes, and that he had employed this method in a severe burn of the leg, from a hot water bottle, in a patient who had had his appendix removed. The burn had resisted the ordinary treatment given for a month or two. At the time of the first application of the iodine fumes the ulcer was about three quarters its original size. One subsequent treatment was given and in a week following the ulcer had completely healed. Doctor Gilbride said that he had since used the fumes in four other cases of burn with most excellent results.



Goiter in Children.— In the *Archives of Pediatrics* (July 1917), Peterson says that in cases in which tetany is produced by excision of the thyroid it is due to the fact that the parathyroids have been impaired in their activity. If the thyroids alone are exercised this effect is not produced. Cases treated by the X-ray in which the thyroid disappeared sometimes showed tetany and spasmophilia because of this interference with the parathyroids which had decreased their activity. These cases showing tetany should be treated with calcium salts and parathyroid secretion. Dr. Peterson had spoken of the importance of iodine in the management of these cases. If the iodine content was increased it increased the capacity of the thyroid as a reservoir and hence caused a diminution of thyroid in the body.

In myxedema patients the skin was dry and when thyroid was administered the skin lost this dryness and became moist. This nitrogen that did not come out in the urine or feces must be accounted for as it was not necessarily used by the cretin in growth. The relationship between the thyroid, thymus, piuitary, and adrenals was such that no statement could be made regarding the increased blood pressure as due to one or another of these glands. Thyroid disturbance could never be integrated in terms of thyroid alone, but one must take into consideration the effect of every other gland of internal secretion.

Importance of all Internal Secretions as a Composite Whole.—Enough has been said, concludes Dr. W. H. B. Arkins in *The Canadian Practitioner and Review* (Aug. 1819), to indicate most unmistakably the relationship between all organs of intestinal secretion, and that they one and all play an important and essential part in the process of development and reproduction. This is shown above all by the alterations in the thyroid and other ductless glands which follow oophorectomy, and on the other hand by those in the genital organs, especially the atrophy of the uterus, which result from complete removal of the thyroid. Total ablation of either the ovaries or the thyroid results in profound changes in general metabolism. Biedl points out that, on the one hand, hyperthyroidism leads, as in Graves' disease, to functional changes in the ovaries, and that, on the other hand, primary changes in ovarian activity may secondarily affect the thyroid and thus influence the development of the symptoms of Graves' disease.

Blair Bell emphasizes the importance of all the endocrinous glands in the development of the genital functions, and points out that altho the genital organs may be perfectly normal, morphologically they fail to become functionally active at puberty unless the whole of the endocrinous system is in perfect correlation and functioning harmoniously as a whole. Development of the genital organs appears to be dependent upon general metabolic conditions regulated by the influence of all the endocrinous glands. Blair Bell also points out that what he describes as "femininity" is itself dependent upon the correlation of all the endocrinous organs and not upon ovarian secretion only. He regards the ovaries as part of a system, "to which glands belong," and that these latter organs are of as great significance in relation to the reproductive functions as the ovaries themselves. The exact role played by the individual members of this system still remains more or less obscure, and we do not yet know to what extent excessive calcium retention, due to ovarian insufficiency, may

be compensated for by thyroid secretion. On removal of the ovaries or their atrophy at the menopause the reproductive functions of the remainder of the endocrinous system cease, and the harmony of the system is naturally disturbed. In this event it is obvious that the individual must suffer if compensation or readjustment is not speedily and satisfactorily re-established.

If the connection between the ovaries and the other ductless glands is so intimate as is assumed by Blair Bell and others, it would indeed appear advisable to take this correlation into consideration before deciding to perform double oophorectomy, as we should have to consider the effect of the operation, not in the genital system alone, but also on the other ductless glands. Blair Bell says that in future "those who are interested in gynecology may come to look upon all the ductless glands, in that each one of them is absolutely indispensable to the harmony of the genital functions."

The Thyroid in Pregnancy.—According to Watson (*Jour. A. M. A.*, Sept. 14, 1918) the subjective thyroid disturbances are usually most pronounced during the first two or four months of pregnancy. After the fifth month, subjective improvement usually occurs or the symptoms increase and hyperplasia develops with or without exophthalmos. The patient with increasing symptoms of hyperthyroidism is liable to have hemorrhages and abort.

If we bear in mind the pathologic changes that accompany hyperplastic or exophthalmic goiter, continues the author, it is obvious that treatment which stops short of destroying a portion of the enlarged and hyperactive gland, will at times fail to afford relief from the acute symptoms, and will also fail to prevent recurrence when the hyperplastic altho quiescent goiter is subjected to any unusual strain such as pregnancy, parturition, grief, worry, infection, etc. This is well shown in the accompanying case reports.

It is generally agreed that any operation on the thyroid during pregnancy is attended by more danger than when performed on the nonpregnant patient, and for this reason a majority of surgeons are opposed to thyroid operations during pregnancy unless the goiter causes serious difficulty in breathing.

I have secured good results with quinine and urea injections made directly into the gland, to produce localized aseptic necrosis of a portion of the hyperplastic thyroid. The procedure is without the danger to mother and child that attends partial thyroidectomy. Obstetricians, surgeons and internists agree that any procedure for the treatment of goiter must be based on a period of rest, with medical, dietetic and hygienic measures suited to the needs of the individual patient.

Organotherapy has an established place in the treatment of goiter in pregnancy associated with neurasthenia or deficient thyroid function. When a woman shows thyroid insufficiency or kidney disturbance or has a history of having had these conditions, with the beginning of a pregnancy she should receive thyroid continuously thruout gestation in doses suited to her requirements. It should not be stopped before parturition even tho symptomatic improvement occurs. Culbertson believes that the relationship between the ovary and thyroid is complementary. If there is evidence of ovarian deficiency, corpora lutea or the whole gland extract should be given.

In the presence of hyperthyroidism, if the symptoms steadily become worse in spite of conservative measures, it may be necessary to empty the uterus to afford relief to the mother. The danger of eclampsia occurring is increased at this time, and it may appear without the presence of albuminuria or casts. The ammonia nitrogen is the best index of impending eclampsia, and while a normal amount is about 5 per cent., when it reaches 15 per cent. or more, the uterus should be emptied without delay unless the ammonia nitrogen can be reduced. If the ammonia nitrogen test is not available, the blood pressure should be watched closely thruout pregnancy.

Cesarean section is the treatment of choice. The high abdominal incision of Markoe and Davis is very satisfactory. Gellhorn advocates vaginal section under spinal anesthesia. Webster uses local anesthesia for abdominal section.

Obstetricians generally agree that the induction of labor in these cases is seldom indicated because it is too slow and un-

certain and more dangerous than Cesarean section.

Watson summarizes his valuable and comprehensive paper as follows:

1. Preexisting goiter, either simple or toxic in type, is usually aggravated by pregnancy.

2. It is believed that the symptoms and growth of hyperplastic goiter in pregnancy can usually be controlled by quinine and urea injections into a portion of the thyroid gland.

3. Should symptoms progress in spite of conservative measures, a rapid delivery is indicated. If the child is viable, Cesarean section should be done.

4. Operation on the thyroid is indicated to relieve pressure symptoms of solid goiters. Cystic goiter may be promptly relieved by quinine and urea injections.

5. Pregnant women with subthyroid conditions should receive iodides or thyroid thruout gestation.

MEDICAL LEGISLATION.

To the Editor,
AMERICAN MEDICINE, New York City.

During the past four years the medical profession in this State has been struggling against medical legislation of the most vicious character aimed at the very vitals.

Those of us who have opposed this legislation have been greatly aided by the lay press in giving space to our protests in their columns.

The medical press, be it said with regret, has with a few exceptions assumed the attitude of the great mass of the profession, a dignified silence on a subject which despite its overwhelming importance to us might be construed to have a political significance. In justice to the profession at large this attitude can be said to be due to want of knowledge and indifference to the principles underlying the right to practice medicine under the control of the State today. This was shown at the late meeting of the medical society of this State by the action of its members in sustaining its president in the convention that the right to practice medicine was a mere privilege that could be revoked by the Legislature and the Governor at will, thus defeating a resolution framed as a protest against the right of these powers to control our liberty of action in prescribing, a proceeding which these lay powers have neither the knowledge nor the right to do.

As legislatures are constituted today there is but little to be hoped for from these bodies when our rights and interests are threatened by powerful majorities like the labor interests, whose representative told us before the Senate this year that they would yet compel us to accept compulsory health insurance.

The only hope for the preservation of our rights today lies with the Chief Executive of the State, the tradition of whose office demands that the constitutional rights of all shall be protected no matter how insignificant they may be politically.

Respectfully,
JOHN P. DAVIN, M. D.

The Murder of Dr. Pozzi.—Rancor of the bitterest kind is not an unknown emotion in the breasts of patients against a doctor whom they consider to have misjudged their case, and threats even of assassination have been received beforenow by many prominent practitioners in all countries. These threats are especially directed by the ill-balanced patients against doctors who in the course of their professional duty have had to do one of two things, namely, to sterilize the patient or to seclude him or her in a lunatic asylum; and it is interesting to observe that in each case the doctor has practically done the same thing, namely, he has deprived the patient of the benefits of citizenship. For it is little exaggeration to say that the man or woman who is placed physically in the position of not being able to participate in the production of a child has thereby lost most of the interest which centres in all legislation; for nobody except a pure jurist thinks about the law and its action in connection with themselves alone but all enlightened people base their views upon the conduct of life mainly upon how far changes and reformations of a social character are likely to influence the generations to come. But the sterile

person has no personal interests in these generations compared to that of the potential father or mother. Altho more indirectly, the artificially sterilized person, being still of an age when procreation should be the rule, is nearly as much outside the scheme of progressive legislation as the lunatic, whose rights as a citizen are taken away from him, when, thru mental disability, he becomes unable to enter upon any business contract or to affix a valid signature to any legal instrument. In one case in this country a patient who had been sterilized by an awkward surgeon in the course of double operation for varicocele, shot his doctor on the ground that, as the doctor had killed him, at any rate for racial purposes he had a right to kill the doctor. In another case the life of a well-known London obstetrician was made a burden to him by the continued abuse and claims for compensation of a woman whom he had sterilized in the ordinary course of operative procedure, but apparently without warning her what he might be compelled to do. It was only after the patient's abdomen had been opened for a purpose of a less serious sort that it was found necessary to remove both ovaries. The patient believed that the removal of one only was contemplated and did not take the view that the surgeon was justified, on finding the double operation necessary, in proceeding to it before warning her of the possible consequences; and while all medical men sympathized with the obstetrician in the troubles which he brought upon himself, he was not generally considered to have been right. It is unnecessary to quote any particular instance where the medical men who have signed certificates of lunacy have found themselves regarded by those whose legal detention had thus been secured, as bitter personal enemies. It is an extremely common thing for certified lunatics, on ascertaining upon whose signature their imprisonment followed, to threaten the offending doctor with immediate death, and in a certain percentage of cases attempts are made upon the life of the doctor by released lunatics tho there is no long list of fatalities. An interesting case occurred in Paris last week, when the famous surgeon and gynecologist, Samuel Jean Pozzi, was murdered in his consulting room by a lunatic client. The assassin immediately committed suicide, and the reasons which impelled him to his crime appear to have died with him, but having regard to Pozzi's established lines of work, it is not difficult to guess at the origin of the patient's insensate fury. The death of Pozzi is a real loss to medicine, to France, and indeed to the world, for he was a great surgeon, a successful medical journalist and a progressive thinker in politics and along many lines of culture. Born about seventy years ago in the south of France he was educated at Bordeaux and came to Paris at the age of 20 as a pupil of the illustrious Paul Broca. At the beginning of his career he devoted most of his time to the study of gynecology and was rewarded by election in 1901 to the chair in the subject founded by the municipality of Paris. Later he was president of the Surgical Society of Paris, of the Congress of Gynecology in 1918, and a vice-president of the Paris International Congress of Gynecology in 1900. He was a prolific and stimulating author as well as a learned antiquarian, and altho he had reached and passed the age of seventy, he might yet have enriched the world with the output of his varied wisdom.

Tempora Mutautur, Et Nos Mutamur in Illis.—There are some men whose words—spoken or written—always have a particular interest or value. Dr. Beverley Robinson, known and loved by thousands of his brother practitioners, is one of these men, who from the rich storehouse of their experience often give the world facts of great and far reaching moment. The following personal reminiscence appearing in a recent issue of the *Boston Med. and Surg. Jour.*, well shows the changes that time is making in the everyday details of medical practice:

"Things come and things go. In surgery this is eminently true.

When I was a medical student in Paris, 'way back in the 1860's, Maisonneuve, a great surgeon of the Hotel Dieu Hospital, after an amputation, put a rubber cap around the fresh stump, made a vacuum with a pump and then covered the raw surface with a very thick layer of cotton. In this way, he claimed to get the best obtainable results.

Later, we had advanced Listerism and the abundant use of carbolic acid. I remember operations at the New York Hospital,

where, during them, the atmosphere was strongly impregnated with carbolic spray and solutions of the acid were always used in wound dressings.

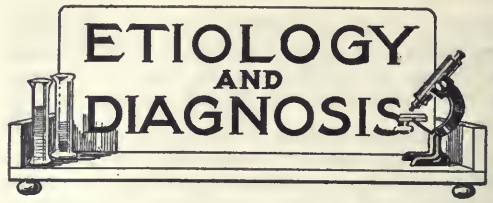
Then came the days of bichloride of mercury. For several years this powerful antiseptic and poison was the indispensable agent in all wound treatment. With the passing of bichloride, we had insistence upon free drainage and liberal use of sterilized salt solution. Still later, painting the skin of the patient with tincture of iodine, without preliminary washing, was recognized as a valuable surgical advance. Even abdominal sections were thus made with relative impunity, and great faith existed as to the worth of this method of local disinfection. Only a short time since, Carrel showed that frequent, or constant irrigation with a mild detergent solution, is far preferable to the use of powerful antiseptics.

Finally, we have greater insistence than ever before, and especially at the front after a battle, upon free excision of all mutilated parts from shell or shrapnel, followed by sewing up of wounds immediately afterwards so as to ward off infection and get union by first intention. In what is truth?

Times and customs change. So do treatments surgical. I believe we shall ere long go back to some applications and doings of the old times because they are more nearly correct. A few among us have found out again that a poultice is at times preferable to the ice-bag, and leeches and venesection may save lives now often sacrificed.

Alcohol, pure or diluted, was the favorite wound dressing of the famous French surgean Nélaton in 1865. It was again vaunted by Senn in 1898 during the Spanish-American war as being the best up to date. To me this affirmation still remains true. Not only is it the best wound dressing, it is also the simplest."

Should the Sphincter Muscles be Divided?—Barnes (*Interstate Med. Jour.*, Jan., 1918) asserts that anatomical study of the ischiorectal space has convinced him that it is not only unnecessary but even inadvisable to divide the sphincters in the surgical treatment of infection in that space. He maintains that an infection in any part of the ischiorectal space can be satisfactorily drained by direct skin incision.



Diagnosis of Urinary Lithiasis.—A diagnosis of renal or ureteral calculus, based on the history, physical examination and urinalysis, will in many cases prove to be incorrect according to Hyman in the Mar., 1918 issue of *The Urologic and Cutaneous Review.*

A diagnosis based on X-ray alone will often lead us into error, because in a certain number of cases, just how large a percentage I cannot say, extra-urinary shadows will be mistaken for intra-urinary shadows.

Negative radiograms are not to be accepted as proof of absence of stone, because, in renal lithiasis, approximately 6 per cent. of the calculi fail to cast shadows, and in ureteral calculus about 20 per cent. are missed, whereas in vesical stone, as high as 60 per cent. fail to cast shadows.

To reduce to a minimum the possibility of error, cystoscopy and ureteral catheterization should be employed in every case, supplemented frequently by functional tests, the opaque catheter, stereoscopic plates, pyelography and the passage of the wax-tipped catheter.

Visceroptosis: Its Diagnostic Importance.—Kuhn and Glass (*N. Y. Med. Jour.*, Sept. 7, 1918) state that one of the most prevalent of gastrointestinal diseases is visceroptosis. Tho it is essentially a disorder of the alimentary tract, the effect on the nervous system is most marked; in fact, often the extreme nervousness of the patient far overshadows the visceral symptoms. The causes are many, the most common being loss of weight and pregnancy.

The symptoms are very varied. There is no condition of the gastrointestinal diseases which visceroptosis cannot simulate. The most frequent source of error is the diagnosis of gastric ulcer or gall-stones. Frequent complaints are made of pains in the abdomen which may occur at any particular time. Nausea is a common symptom, tho vomiting is unusual. Headache, loss of appetite, and loss of weight are very frequent symptoms. Eructations, which may or may not be sour, and constipation also occur. Of great importance is the nervous instability of these patients. They are extremely irritable, sleep poorly, complain frequently of extreme dizziness and palpitation of the heart.

This affection is most common among women. Physical examination reveals a fairly obese person. The abdominal wall is flabby, and there is tenderness all over the abdomen, usually on deep palpation. The cecum is frequently palpable, as are the kidneys. Gurgling sounds are heard as a rule. Scars, the result of ap-

pendectomies or cholecystectomies, or what not, are of very frequent occurrence.

Visceroptosis is a very common disease. Many of the vague alimentary disorders are due directly to this condition. Unrecognized it often brings untold suffering to the patient. As a last resort, operations are undergone with very little relief.

Following are the conclusions reached by the authors:

1. Visceroptosis is a very prevalent gastro-intestinal disease which is frequently overlooked.
2. It is most commonly confused with gastric ulcer, cholelithiasis, or chronic appendicitis.
3. As a result of mistaken diagnosis, useless operations are performed with frequently an exaggeration rather than an amelioration of symptoms.
4. The successful treatment of visceroptosis requires the greatest cooperation of physician, nurse and patient. This is best obtained in an institutional environment.

Brain Abscess of Otitic Origin.—One point in the etiology of brain abscess as a determining factor, has not, it seems to Johnson (*W. Virginia Med. Jour.*, Sept.) been accorded the importance it deserves, and that is the sclerosing process that takes place in the mastoid cortex and cells, as the result of long standing, chronic aural suppuration, while the inner wall and togmen of the antrum are found soft and necrotic. The infection here follows from mechanical reasons the lines of least resistance. The abscess may occur in any part of the brain, but the usual location is either in the temperosphenoidal lobe of the cerebrum or the cerebellum and generally found in close proximity to be necrotic bone.

Cerebral abscess is found in connection with necrosis, either of the tegmen of the antrum or tympanum, while cerebellar abscess follows labyrinth suppuration, and sometimes sigmoid sinus thrombosis. There may be a thin layer of normal brain tissue between the diseased bone and the abscess, but in many cases the infection can be traced directly from the primary focus to the brain.

Diagnosis of Pyelitis and Pyelonephritis in the Female.—The symptoms are not numerous, and apart from the characters of the urine are not very distinctive. Eason (*Med. Council*, Mar., 1918) states that pain and tenderness are most constant, but great inroads may be made upon the kidney structures before we have pain and tenderness to any marked degree. Usually the severest pain is in the renal region, and radiates toward the front of the abdomen and groin. Fever of a remittent type is a constant symptom, and of rather a septic type, with sweats, rigors and high temperature, loss of appetite, intermittent headache, nausea and vomiting at times. Urine is highly colored, contains pus, and often traces of blood, is scant and voided often, with some burning and pain. Pus from the pelvis of the kidney is rarely fetid, as compared with pus from the bladder; it is always albuminous, but the amount of albumin is never large.

In diagnosis the most important point is the examination of the urine for pus, and the blood for a leucocytosis, which occurs as soon as pus absorption begins; this, with other symptoms, such as rigors, fevers, sweats, general aching, especially of the back, and extending forward as described above, with history of frequent and more or less painful urination, patient seemingly improving for day or two, then another rigor and rise of temperature, and feeling of general weakness.

The Etiology of Alopecia Areata.—After keeping records of the dental findings in all cases of alopecia areata, Grindon (*J. Mo. S. Med. Assn.*, May, 1918) has come to the conclusion that the presence of gold and amalgam in the mouth are responsible for most of the cases. The metals act as a galvanic battery which serves as a stimulus to nerve endings. He cites 12 cases of alopecia areata and all of them had amalgam or amalgam and gold fillings. In one case the baldness appeared two months after the insertion of an amalgam filling. While the author does not consider all cases of alopecia areata neuropathic, nor all neuropathic cases due to dental irritation, he does believe the majority of these cases can thus be accounted for.

Significance of Cecal Stasis in the Diagnosis of Appendicitis.—Schlesinger (*Deutsche medizinische Wochenschrift*, May 9, 1918) admits that there can be a cecal stasis quite independent from appendicitis, ileostasis or constipation of cecal origin. This is proved by radiographic plates which show a permanent shadow over the cecal area which may be present for weeks, altho the progression of the fecal mass onwards remains perfectly normal. This stasis is never due to a functional cause, but is generally attributable to peritoneal adhesions.

Laxatives have little, if any, effect on it. Surgical interference, which is necessary when fecal retention is prolonged, should consist in mobilization of the colon by breaking up the existing adhesions and doing away with any recesses. Fecal stagnation of shorter duration (two to three days after the bismuth meal) can be treated by medical means. The writer offers several X-ray pictures of local diverticular stasis to back up his statements.

The Diagnosis of Gonorrheal Vaginitis.—To establish the diagnosis of gonorrheal vaginitis in children and infants, Rubin in the *Boston Med. & Surg. Jour.* (Jan. 31, 1918) is led to believe from his experience in these cases that it is necessary to have: 1, A purulent discharge from the vagina. 2, The intracellular Gram-negative diplococcus of Neisser must be discovered in the pus cells (smears and cultures are facilitated by the endoscope). 3, This organism must further be grown on suitable culture media and properly identified as the gonococcus. 4, In case of doubt, complement-fixation tests and agglutination tests should also be resorted to. In the absence of these tests we are not justified in considering any vaginal dis-

charge in children as gonorrheal, nor are we justified in treating it as such. The smear examination, even by the Gram stain of secretion or discharge from the vagina, is unreliable and misleading, and hence valueless as a method of diagnosis.

Senile Chorea.—Thewlis in his interesting article in the *Med. Review of Reviews* (July) gives the following conclusions:

1. Chorea in the aged usually has a sudden onset; leaves intellectual faculties intact; often recovers completely.
2. Huntington's chorea usually has a progressive dementia associated with it, and there is a history of the existence of the disease in the preceding generation. Speech is almost always present in Huntington's chorea, as contrasted to Sydenham's chorea.
3. Post-hemorrhagic chorea is due to a subcortical lesion.
4. True Sydenham's chorea may occur in advanced life, and may run a short course to recovery.
5. Many cases run a chronic and progressive course.
6. Chorea gravis is associated with marked mental symptoms, and is invariably fatal.
7. At the commencement of the disease we cannot give a prognosis.
8. Movements are more marked in the arm. In twenty per cent. of cases the movements are limited to one arm.
9. The mind is normal in three-fifths of the cases where no hereditary element exists.
10. Heredity plays an important part in the disease.
11. Endocarditis and rheumatism are rare complications in the aged.
12. Arsenic is the best treatment.
13. Senile nephritis often is cause of senile chorea.

Treatment of Keratitis.—Hygienic conditions should be of the very best. Plenty of outdoor air. Aconite internally during the progressive stage. When burning and motion cause discomfort, give rhus tox. Give jaborandi when the clearing stage begins. Calcium is always indicated (*Ellingwood's Therapeutist*, Sept., 1918). Iodide of arsenic, one two-hundredth grain dose if anemia is present. Phytolacca if the glands are enlarged, or iris for the same cause. Anything that is good for the patient's general health will improve the eyes.

If pain is caused by motion, Bryonia is of value. The yellow oxide of mercury ointment was used by Holmes of Chicago in 1885. Lloyd's hydrastis with sulphate of morphine for ulceration. If there is a tenacious secretion give the one one-hundredth doses of bicarbonate of potassium.

Treatment of Hemorrhoids by a New Method.—Terrill, in a recent issue of the *Critic and Guide*, presents a simple, safe and efficient method of curing selected cases of hemorrhoids by the injection of quinine and urea solution. Injection of quinine and urea in solutions of from 5 per cent. to 20 per cent. strength produces starvation and atrophy of the hemorrhoids. The series reported includes only uncomplicated internal hemorrhoids. The results of the treatment justify the conclusion that the method is simple, safe and effective in properly selected cases.

Hay Fever.—The treatment of hay fever is discussed in *Jour. A. M. A.* (Mar. 9, 1918) as follows:

1. All predisposing causes should be ascertained, and if possible, removed.

(*a*) Hypertrophic and sensitive mucous membrane of the turbinates should be removed. An obstructive and deflected septum should be corrected. An infected sinus should be cleaned.

(*b*) All infected areas in the mouth and throat should be removed.

(*c*) Meat and purin bases should be removed from the diet. Altho the diet should be nutritious, it should contain no irritating substances, such as mustard or other condiments. Tea, coffee and, of course, alcohol are contraindicated. Fish, strawberries, and any other food that is likely to cause anaphylactic irritability should not be allowed.

(*d*) The bowels should be carefully regulated so that toxic intestinal substances are prevented from entering the circulation and adding to the disturbing elements already present in the blood.

(*e*) Alkalies should be administered to decrease any possible hyperacidity of the system. There is no better alkali than sodium bicarbonate, which should be administered for a few days at least in a dose of 1 gram (15 grains) every three hours. It is pleasantly given as an effervescing salt, or it may be given in combination with a small amount of bismuth subcarbonate, as:

Bismuth subcarbonate ..... 5 gm.
Sodium bicarbonate .....20 gm.
Mix, and make 20 powders.
Take a powder, with water, every three hours.

This small amount of bismuth may prevent the slight irritation of the mucous membrane of the stomach that may occur from the sodium bicarbonate.

If preferred, potassium citrate may be the salt administered. The dose should be 2 gm., given in wintergreen water, and administered four times a day. There is no question that

alkalies many times diminish the irritability caused by anaphylaxis, and it has long been recognized that alkaline sprays in the nostrils are of benefit, and alkaline gargles are soothing, in hay fever.

(*f*) Calcium is often of value in hay fever, as it is in hives, in angioneurotic edema, and in some forms of asthma. Calcium may be administered as calcium lactate, or as the more irritant calcium chlorid. If the lactate is used, and especially if the chlorid is used, it should be administered after food has been taken, and then largely diluted.

(*g*) An associated bronchitis should be treated as tho the hay fever were not a factor.

(*h*) A weakened heart should be strengthened. The persistent sneezing and the frequent coughing in hay fever always more or less weaken and temporarily, at least, dilate a heart, and a hay fever patient generally is improved by digitalis. Of course, if the heart is sturdy, if there is arteriosclerosis and hypertension, digitalis may not be indicated, and nitroglycerine may be of value. Strychnin is generally inadvisable, on account of its increasing the general nervous irritability.

Before it is decided to use a pollen extract, it is advisable to ascertain the particular pollen to which the patient is susceptible.

Antitoxin Dose in Diphtheria.—In the treatment of diphtheria, writes Treacy, (*New York Medical Journal*, June 8, 1918) two facts are to be considered. First, it is a local infection attacking the nose or throat, and second, which is more important, that this infection beginning as a local one, becomes generalized and spreads thru the entire body by the blood and lymphatics, resulting in generalized toxemia. Therefore the treatment is aimed chiefly to overcome this toxicity, and it is now a recognized fact that antitoxin must be used. The likelihood of some slight harm from the antitoxin must be remembered, yet the evidence of harmful results from its use is so scarce as to be almost negligible, while the positively curative results from the use of antitoxin are universal. The quicker and more prompt the injection, the

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FIG. 1—Shrapnel wounds of shoulder and chest.

greater the chances for recovery. A large initial dose should be given as quickly as possible. If this rule is followed it will be found that later smaller doses are rarely required, because the large initial dose promptly given accomplishes all that is desired namely, the disappearance of absorption of the membrane and disappearance of the toxic condition.

No definite dose can be stated and no positive hard and fast rule can be given to cover all cases.

Some of the factors influencing the amount of antitoxin to be given are the following:

The age of the patient: the older the patient, the larger will be the dose given. Duration of the illness: if sick only one or two days, the amount would be less than if sick six or seven; based of course on the greater time for spread thru the entire system of the toxin products. The length of time elapsing before the exudate appears, as evidencing the virulence of the organism. The degree of extension of the membrane or exudate; the less extensive requiring less amounts than where the exudate extends over the tonsils, pillars, fauces and uvula. The density and thickness of the exudate: thin filmy kinds needing smaller amounts of antitoxin. Depending on the type of cases: the laryngeal types require larger doses than either the tonsillar, faucial, or nasal ones. Nasal types require next to the laryngeal types, and tonsillar need the smallest ones of all types. Toxicity of the patient: very toxic cases often require mammoth doses. The general condition of the patient also influences the dose, as where there exists a weak pulse or cardiac arrhythmia or markedly enlarged cervical glands, giving the characteristic "bull neck," or labored breathing or a general weakened condition.

Treatment of Colds.—A cold is an abscess with many openings and diverticula. The treatment is sterilization and drainage. It is the most important disease of this climate. It causes the greatest economic loss.

Dennett in his interesting article on "Colds" in *Boston Med. & Surg. Jour.* (July, 1918) gives an earnest plea for an early, careful treatment of "colds."

A cold is a localized disease at first and may be treated as successfully in the first twenty-four hours as a specific urethritis in the same stage.

In military camps orders should require colds to be reported when the first symptoms appear.

Proper local treatment is very important.

The most important area to treat is "the triangle of fire."

A cold may remain localized for weeks with no subjective symptoms. This is the case with the cold-carrier.

Treat the eye first with a strong solution.

Keep a tube of White's ointment handy for use in the eye if it smarts after treatment with 50% argyrol solution.

Give the patient 25% solution for use in the eyes and nose.

Do not poke a cold with medicated cotton on a stick.

Do not spray a cold.

Do not give aspirin except for pain, and do not give quinine and whiskey.

Treat a cold seriously because it is a serious disease.

A cold, acute or chronic, is the first stage of pneumonia, pulmonary tuberculosis, many cases of so-called rheumatic fever, and other serious diseases; that is to say, the germs of these diseases first existed on the upper mucous membranes, and the best prophylactic for these diseases is sterilization of those membranes to the greatest extent possible, plus rest and hygienic environment.

It is against the law of good form to cut out your muffler when you sneeze or cough.

Give the patient 25% solution for use in the first stage of "head colds," steam and oil inhalations and warm air for "loss of voice colds," Dover's powder early for "cold on the chest."

Foot Strapping.—Morton in *Military Surgeon*, April, 1918, advocates the use of the following method of strapping with adhesive plaster for foot strains and for pronated and flattened feet:—

Material.—One inch of adhesive plaster (about 3 yards used).

Position.—Knee flexed, foot at right angle to the leg, with some supination and adduction of the forepart. It should be entirely passive, the tendon of the tibialis anticus not standing out, by the effort of the patient to hold the position.

Application—First Strip.—Starting 2 inches above the internal malleolus, the strip is carried down and across the sole of the foot to the fifth metatarsal which it crosses, with the posterior edge of the strip going over the center of the tuberosity of this bone. It is then brought up over the dorsum, crossing the instep over the scaphoid, then back toward the upper border of the os calcis, passing a little below the internal malleolus.

As the adhesive is taken around the heel, the os calcis is adducted by the operator and the plaster carried outward just above the upper edge of the posterior process, down and obliquely forward, then inward on the sole just anterior to the inferior tuberosities and up over the arch, ending a little anterior to, but overlapping its other end.

Second Strip.—Begins about half its width posterior to the first strip, and overlaps it until carried over the dorsum, where it converges and overlies the latter across the inner side and around the heel. It is then taken a little more obliquely forward to pass exteriorly to the ankle joint, and finished with one and a quarter circular turns on a level just above the internal malleolus.

Third Strip.—This is applied to the second, which it overlaps by half its width posteriorly as far as the dorsum, then overlies it until approaching the circular turns, which are a half width above the previous one.

Gall-Stones.—Writing in *New York Medical Journal*, June 1, 1918 issue, Weiss states that the treatment of biliary colic consists in treatment for relief of the painful paroxysms and treatment of the patient between the attacks. In acute biliary colic the pain is often so agonizing that it will yield to nothing except hypodermic injection of morphine or inhalations of chloroform. I personally have discarded morphine as a dangerous and habit-forming drug, and in its stead have employed a tablet of .00065 grain of atropine sulphate dissolved under the tongue, followed by fifteen drops of adrenalin chloride solution 1:1,000 in a tablespoonful of water. The latter may be repeated once or twice within a short time if necessary; also the local application of menthol, camphor, and methyl salicylate in petrolatum, massaged gently over the seat of pain, covered with gutta percha to favor absorption, has been invariably followed by relief within twenty to thirty minutes. According to Kraus, antipyrin, if given at the beginning of the attack, has given considerable relief. Naunyn has had favorable results with a single dose of salicylate of soda given at the beginning of the attack. Others, including myself, have found that copious draughts of warm water gave relief, even tho promptly vomitted.

The vomiting accompanying the biliary colic hardly requires any special treatment, apart from that of the pain. Bismuth, soda, or dilute hydrocyanic acid may be given. I employ water containing bicarbonate of soda which relieves purposeless retching by giving the stomach something to bring up. If retching persists, and the patient is in a state of collapse, iced champagne may be given. In less severe cases, the patient may be put in a hot bath of 104 degrees F. and given tincture of belladonna, twenty minims in spirits of chloroform to relieve the spasm. Hot fomentations or poultices, unless contraindicated by cholecystitis, may be tried over the liver and antipyrin given by mouth. If cholecystitis is present, the hot bath is contraindicated and icebags are to be applied over the gall-bladder region.

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FIG. 2—A bad face wound from shrapnel.

A Plan for the Prevention and Treatment of Adenoids.—This new treatment consists in the production of a sneeze by lightly touching the nasal septum near the tip of the nose with a

slightly irritant adhesive powder, made from powdered iris root and soap. The powder is not sniffed up into the nose.

The effect of the sneeze is to expel the catarrh or muco-pus from the nose and the adjacent sinuses. This stimulation should be repeated till a "dry" sneeze results. The free flow of lymph which accompanies the sneeze acts as a most efficient washout, and no doubt acts, too, as a natural protective fluid against the bacterial invasion present in adenoids.

The children who are old enough to blow their noses are then taught a handkerchief drill. They stand in line, and at the word of command they grasp the bridge of the nose and raise the elbow to the height of shoulder, and then blow forcibly. The position of the elbow automatically expands the lungs and ensures a strong current of air being forced thru the nose, which is held at the bridge to prevent pinching of the nostrils.

Isabel Ormiston, M. B. (*The Lancet*, Aug 24, 1918) has been observing this simple method of treatment for the past four years and has found the results most gratifying. The first marked improvement is curiously enough in the digestive system. The dyspepsia and constipation, which are so common an accompaniment of adenoids, are the first symptoms to disappear. Perhaps some student of reflex action could explain this. We know that the nose is an early indicator of indigestion, alcoholism, and gout; so perhaps it is not surprising if the digestive system can be reflexly affected by a nasal stimulus.

Deafness due to the blocking of the Eustachian tube also disappears quickly.

The time taken for the shrinkage of the growth varies. Generally speaking, the younger the child the quicker the results. A great deal depends on the intelligence of the mother, as the treatment must be carried out every day. In older children and adults with nasal obstruction a certain amount of manipulation of the head and neck is necessary to stimulate the lymphatic circulation.

One of the chief advantages of this form of treatment is that large numbers of school children should be treated simultaneously at little cost. School nurses could be quickly trained to carry out the treatment under the supervision of the medical inspectors of schools. At the present, when, owing to the shortage of staff, the out-patients' departments of the various hospitals find it impossible to cope with the number of cases from the board schools, it seems the ideal moment to introduce the system into our schools.

Treatment of Obstinate Borborygmi.—A patient who was troubled with borborygmi which resisted all treatment—not only resisted treatment but seemed to be getting worse under treatment. The noise in his bowels was so loud that you could hear it at a distance and he was passing large amounts of wind *per anum* very frequently. His condition made him feel mortified and humiliated. He was the butt of his fellow workingmen and he lost and changed many positions.

Practically all of the doctors had ordered purgatives and intestinal antiseptics and they laid special stress upon keeping the bowels open. Robinson (*Critic and Guide*, Sept.) recognized that his bowels had been greatly weakened by the purgatives, had lost their tone, and told him not to take any laxatives whatever even if his bowels did not move for a week. His sphincter ani was also relaxed from the numerous purgatives. Robinson strapped his abdomen with strips of adhesive plaster and prescribed ichthyol in 15 minim doses five times a day. As far as food was concerned he was told to eat anything he wanted and eat plenty. There was immediate improvement but no complete cure. The following prescription was given:

℞ Ol. terebinthinae 3iv
Bismuthi subnitratis 3vi
Ol. cajuputi 3ij
Ol. erigerontis 3ij
Spir. chloroformi .....℥j
Syr. zingiberis .....℥j
S. 3j 4 times a day.

After three weeks of this treatment the man's borborygmi were completely gone. Later on there would be twice or three times a year a tendency to return, but two or three doses of the above combination would cut the trouble short.

Treatment of Rheumatoid Arthritis.—Dent, M. B., C. M., in a recent issue of *The British Med. Jour.*, says the joints should be put at rest and soothed by applications of lead and opium in the acute stage; but passive movement should follow. To relieve pain, paint with this: 1 part of guaiacol, 6 parts tr. iodine; or methyl salicylate in 3 parts of olive oil. In chronic cases light blistering is effective if not used over a large area. Adhesive strapping gives support. Sometimes extension with weights will help in the relief of deformity.

Radium Treatment of Scars.—In radium, Stevenson (*Lancet*, Mar. 23, 1918) has found a distinct sphere of usefulness in the treatment of scar tissue and fibrous adhesions.

It is a valuable adjunct to other methods of orthopedic treatment, especially by shortening their duration.

Its effect is rapid, sometimes immediate.

It softens and mobilizes scar tissue.

It apears to facilitate subsequent removal of the scar by the knife.

It enables structures, like tendons adherent to the scar, to free themselves.

By loosening tendons and stiff joints it improves the functional power of the part.

It possesses the advantage of acting, to some extent, as an innocuous local anesthetic for about a week.

It is particularly useful in treating scars and

adhesions in the hands and fingers.

It is easily applied to the surface of the skin, and by this method causes no inconvenience to the patient.

To obtain the best results a single large dose is necessary.

The dose should not be so great as to produce inflammation of the skin.

With suitable dosage it appears to produce no ill effects.

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FIG. 3—A bad case of trench foot.

In small doses it appears to hasten the healing of wounds, and to allay the painful inhibitory effects of the products of inflammation.

Treatment of Ruptured Gastric and Intestinal Ulcers.—Relative to the treatment of gastric and intestinal ulcers, Kostmayer (*New Orleans Med. & Surg. Jour.*, Sept.) states emphatically that there can be no doubt that one indication is clear—that is, immediate laparotomy! The next unmistakable step is closure of the ulcer. Whether or not it should be cauterized with a hot iron is open to question, because most ruptured ulcers had cured themselves, so to speak, by rupturing. However, it takes but a moment to apply the cautery to the punched-out area, and it perhaps has its value. As to whether or not gastroenterostomy should be done undoubtedly depends on the condition of the patient. If the general condition is good, if there are no special technical difficulties, and if the soiling of the peritoneum has not been of long duration, certainly drainage of the stomach by gastroenterostomy, with its constant relief of irritation of the ulcerated area, will be of great value and benefit to the patient. If, on the other hand, the rupture has occurred sometime before the patient presents himself, and if his general condition will not stand the necessary prolongation of the operation, it is far wiser merely to close the ulcer and drain the abdomen. It is highly important to drain the lower

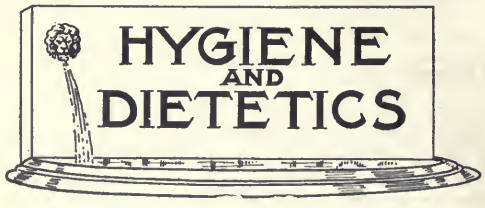
abdomen, because the contents of the stomach and duodenum gravitate rapidly to the pelvis.

The two most important post-operative adjuncts are the sitting posture and rectal flushes. To these may be added the stomach tube when used as a syphon, it being rather dangerous to wash out the stomach. The patient may be sustained during the post-operative storm by hypodermoclysis and proctoclysis, especially glucose in the latter. Morphia may also be given, and generously.

Local Treatment of Acute Coryza.—The purpose of local treatment is to remove secretion, to reduce the edematous tumefaction, and by so doing establish good drainage from the accessory sinuses. Danziger (*N. Y. Med. Jour.*, Aug. 10, 1918) says the patient should irrigate the nose with warm saline solution (say one teaspoonful to a pint) a few times a day with the following precautions:

1. The point of the nose piece of the syringe must not occlude the nostril.
2. The stream must be horizontal.
3. If irrigated from a douche bag, same should not be elevated higher than the ear. In case of difficulty in starting the flow, remove nozzle from nose, elevate the bag until fluid starts, lower the bag to the desired height, and insert nozzle into the nose.
4. Patient should bend the head forward during the irrigation.
5. Under no condition should the patient blow the nose directly after irrigation. When he blows his nose he must not touch or compress either one or the other nostril.

It is not the irrigation itself, but the improper blowing of the nose afterward, which causes ear complications. After removal of the secretion, the patient uses an adrenalin ointment which by reducing the swelling of the mucosa promotes drainage from the sinus and enables the patient to breathe more freely. During the second week, Danziger adds to this treatment a spray with an oil containing one of the volatile antiseptics.



Peanuts as Food.—"Nuts in general," says Sherman, "being rich in both protein and fat, are comparable with meats as food and may be used interchangeably with meat in the diet; in fact, they are being so used to an increasing extent. With the constant tendency toward higher cost of meat, and with growing knowledge of nut culture, we may look for a much larger use of nuts as 'meat substitutes.' Even at the present prices the economy of nuts both as sources of energy and of protein will doubtless be surprising to many who have not previously compared the composition and cost of typical articles of these groups."

This has recently been done in a most satisfactory way for the peanut, a food which according to an editorial writer in the *J. A. M. A.* (Mar. 23, 1918) has steadily grown in popularity so that it seems about to be transferred from the category of a delicacy to that of a more staple item in the diet. The peanut enters into the preparation of most of the vegetable "meat substitutes" long warmly advocated by the vegetarians and now made more conspicuous by the governmental admonition to "eat less meat"; and peanut "butters" or "pastes" are widely used. Today the value of the peanut crop, which is divided between the production of the promising peanut oil, peanut cake for animal fodder, and roasted peanuts for human food, has begun to total many millions of dollars. The food as used in the human dietary does not, however, yield the growth-promoting fat-soluble vitamin, which has come to be recognized as a remarkable constituent of butter fat and egg fat; nor are the inorganic constituents adequate in quality to supply sufficient calcium and certain elements. Of course, the peanut is not used as a sole source of nutrients for man; nevertheless, the delineation of its physiologic value enables one to define more intelligently the place which it can take in the ration. Daniels and Loughlin foresee an increasing usefulness for the peanut, now that its real value has been scientifically established. When we consider the broad areas, they say, which may be adapted for growing the crop, and the fact that our food supply tends toward a wider use of the seeds of plants, it seems appropriate to expect that the peanut, when rightly supplemented, will form a staple article of the human dietary. Like the soy bean, which has lately come into new prominence in American homes, the peanut needs only to have added suitable inorganic salts and the fat-soluble accessory to make it a complete food.

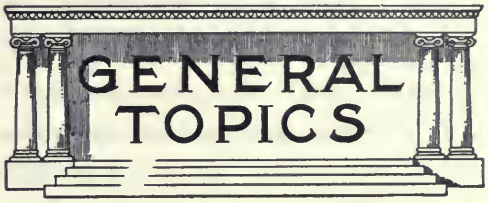
Dietary in Peptic Ulcer.—Kast, in the Dec., 1917 issue of the *New York State Jour. of Med.*, admonishes that the dietetic regime must be plain, systematic and thoro in all details. The greatest mistakes in general practice are probably due to an incomplete consideration of the diet. There is no cut-and-dry plan of diet for peptic ulcer. The diet has to fit the individual problem and not the patient to fit our pet scheme of diet. A discussion of whether the plan of Leube or the plan of Lenhartz is the right plan seems fruitless. There are, to my knowledge, at least one dozen different diets proposed in the literature and each of these has some advantages in some cases, but, without individualizing, they are equally dangerous in the long run. Regarding details of these plans I must refer to our textbooks.

As mentioned before, it is often necessary to starve the patient for a few days after a hemorrhage or if the stomach is much dilated. But otherwise, patients should be fed well and often. We begin with milk, plain or peptonized, albumin water, thin gruels, feeding four to six ounces every hour or two; neither too cold nor too hot. After a week or so, we add milk-toast, cream, rice, well cooked cereals, eggs, and thick soups; later, potato, custards, ice cream, puddings, and minced chicken; and again later, some vegetables finely pureed; crisp toast, well masticated; and minced lamb, or minced beef. Even if the patient has no ulcer symptoms any more, it is necessary to keep the diet strict until the fourth or fifth week before allowing additional food articles. Of course, during this time the meals have been gradually changed to three main meals and light feedings between meals, and at bedtime.

A few dietetic points need special emphasis as they are not sufficiently appreciated in general practice:

1. Alcohol, and meat extractives like broth, bouillon, beef juice and gravies are strictly forbidden. We must bear in mind that several popular so-called blood tonics contain alcohol.
2. The less salt there is in the food, particularly in the beginning, the better; this makes milk especially useful.
3. Some patients cannot take milk; it causes heartburn and flatulency and coats the tongue. It is useless to persist in such instances with the milk. The same pertains to eggs.
4. All additions should be made gradually and never more than one addition at one time. This gives an opportunity to recognize food articles which might upset the course of improvement and to discontinue them at once.
5. In case of persistent ulcer symptoms, the diet should not be enlarged.

Vegetable Foods for the Diabetic.—Wardall (*Journal A. M. A.*, December 1, 1917) calls attention to the fact that the necessary elimination of most fruits and many vegetables from the diet of the diabetic on account of their carbohydrate content renders his diet monotonous and undesirably diminished in bulk. The usual analyses of foods state the percentage composition in terms of the several types of constituents and vegetables are commonly divided into the five, ten, fifteen and twenty per cent. carbohydrate groups. The products of chemical analysis are not of necessity the same as those of digestion, thus chemically both cellulose and the hemicelluloses are carbohydrates, but these are not generally utilizable by man. The use of thrice cooked vegetables has been advocated, since they are commonly believed thus to have their carbohydrate content much reduced. An examination of this matter shows that the effectiveness of this water extraction varies with different vegetables and with differing conditions. Spinach and celery contain comparatively little carbohydrate to begin with and they give up a considerable part of it on a few boilings with water. On the other hand, cauliflower is relatively rich in carbohydrate and many extractions with boiling water fail to reduce the carbohydrate materially. Carrot also yields much of its carbohydrate easily, but if it be extracted with water at 60° C. instead of boiling, the removal of carbohydrate is more complete and more rapid. The same influence of temperature on extraction is found in the cases of eggplant, parsnip and beet, while this process has little effect on cabbage. The common field mushroom is unique in being suitable for use without any extraction for it has no extractable carbohydrate and its nitrogen is not present in the form of protein. Further studies along these lines are needed.



Mobilization of Women Physicians for Anesthetic Service.—Every effort is being made to keep war surgery at top-notch efficiency and to provide every wounded American doughboy with safe, rapid and comfortable anesthesia, both at the Front and in the Hospitals in Blighty.

In this connection the following telegram from the Council of Medical Defense is self-explanatory:

WASHINGTON, D. C., Sept. 18.

DR. F. H. MCMECHAN,
Avon Lake, Ohio.

Proceed at once to secure qualified women physician anesthetists under 45 years of age of mental poise, as well as young women graduates, who are competent for such service.

(Signed)
DR. FRANKLIN MARTIN,
(Per) DR. EMMA WHEAT GILLMORE,
Chairman Women Physicians' Committee
Council National Defense—Medical Section.

Those women physicians who are qualified for anesthetic service or who are competent to be intensively trained are requested, at once, to get in touch with

DR. F. H. MCMECHAN, Sec'y,
Interstate Anesthetists,
American Anesthetists,
Avon Lake, Ohio.

The Volunteer Medical Service Corps.—The Central Governing Board of the Volunteer Medical Service Corps of the Council of National Defense announces that the New York State Executive Committee of the Volunteer Medical Service Corps is comprised of the following doctors:

George D. Stewart, M. D., 417 Park Ave., New York City.
Gilbert D. Gregor, M. D., Watertown.
W. Stanton Gleason, M. D., 143 Grand St., Newburg.
John Van Duyan, M. D., 820 University Blk., Syracuse.
J. I. Dowling, M. D., 116 Washington Ave., Albany.
James B. Clemens, M. D., 20 East 69th St., New York City.
Charles G. Stockton, M. D., 436 Franklin St., Buffalo.
John E. Virden, M. D., 529 Cortland Avenue, Bronx.
J. E. Wilson, M. D., 616 Madison Ave., New York City.
Walter B. James, M. D., 7 East 70th St., New York City.
Walter F. Chappell, M. D., 7 East 55th St., New York City.
Joseph W. McGill, M. D., 284 Alexander St., Rochester.
Nathan E. Brill, M. D., 48 West 76th St., New York City.
James S. Waterman, M. D., 676 St. Marks Ave., Brooklyn.
DeWitt H. Sherman, M. D., 680 W. Ferry St., Buffalo.
William M. Brown, M. D., 1776 East Ave., Rochester.

The purpose of this committee is to cooperate with the Central Governing Board in prosecuting all activities pertaining to the mobilization and enrollment of members of the Volunteer Medical Service Corps thruout the state.

The Central Governing Board of the Volunteer Medical Service Corps also authorizes the appointment of one county representative in each county in every State of the Union. The county representatives for New York are as follows:

(Select name of your county representative from county list enclosed.)

NEW YORK.

County and Name.	*Street and City.*
Albany—Dr. Eddy S. Haswell,	496 Madison Ave., Albany.
Allegany—Dr. M. E. House,	Cuba.
Bronx—Dr. J. Lewis Amster,	2055 Bathgate Ave., New York.
Broome—Dr. Stuart B. Blakeley,	91 Main St., Binghamton.
Cattarahus—Dr. W. G. Johnston,	Ellicottville.
Cayuga—Dr. Geo. H. Beers,	13 William St., Auburn.
Chatauqua—Dr. J. W. Morris,	142 Forest Ave., Jamestown.
Chemung—Dr. Clyde L. Carey,	154 Main St., Elmira.
Chenango—Dr. Carl D. Meacham,	10 Genesse St., Greene.
Clinton—Dr. J. G. McKinney,	Plattsburg.
Columbia—Dr. Sherwood V. Whitbeck,	Hudson.
Cortland—Dr. S. J. Sornberger,	16 Church St., Cortland.
Delaware—Dr. W. Ormiston,	Delhi.
Dutchess-Putnam—Dr. John A. Card,	214 Mill St., Poughkeepsie.
Erie—Dr. Franklin C. Gram,	849 Humboldt Parkway, Buffalo.
Essex—Dr. T. H. Canning,	Port Henry.
Franklin—Dr. A. L. Rust,	Malone.
Fulton—Dr. E. F. Hagadorn,	13 Elm St., Gloversville.
Genesee—Dr. Chas. D. Graney,	LeRoy.
Greene—Dr. L. B. Honeyford,	284 Main St., Catskill.
Hamilton—Dr. Wm. G. LeBoutillier,	Long Lake.
Herkimer—Dr. A. W. Suiter,	Herkimer.
Jefferson—Dr. N. L. Hawkins,	Otis Building, Watertown.
Kungs—Dr. Jas. C. Hancock,	135 Cambridge Pl., Brooklyn.
Lewis—Dr. E. F. Jones,	Beaver Falls.
Livingston—Dr. G. Kirby Collier,	Sonyea.
Madison—Dr. M. Cavana,	Sylvan Beach.
Monroe—Dr. J. Roby,	234 Culver Road, Rochester.
Montgomery—Dr. Jas. B. Cocant,	13 Grove St., Amsterdam.
New York—Dr. F. E. Sondern,	20 W. 55th St., New York.
Niagara—Dr. H. N. Cramer,	Lockport, Lockport.
Oneida—Dr. W. O. Weinskotten,	1703 Whitesboro St., Utica.
Onandaga—Dr. Geo. S. Reed,	537 E. Genesee St., Syracuse.
Ontario—Dr. D. A. Eisline,	Clifton Springs.
Orange—Dr. William H. Snyder,	202 Grand St., Newburgh.
Orleans—Dr. F. W. Scott,	Medina, Medina.
Oswego—Dr. P. M. Dowd,	Oswego
Otsego—Dr. David H. Mills,	Oneonta.
Queens—Dr. J. J. Kindred,	Rivercrest, Astoria.
Rensselaer—Dr. O. F. Kinloch,	16 4th St., Troy.
Richmond—Dr. Wm. Bryon,	91 Bard Ave., W. New Brighton.
Rockland—Dr. Dean Miltmore,	Nyack.
St. Lawrence—Dr. Paul G. Taddiken,	Ogdensburg.
Saratoga—Dr. H. J. Howk,	Mt. McGregor.
Schenectady—Dr. Frank Vander Bogert,	111 Union St., Schenectady.
Schoharie—Dr. Herbert L. Odell,	Sharon Springs.
Schuyler—Dr. John M. Quirk,	Watkins.
Seneca—Dr. E. P. McWayne,	Fayette
Steuben—Dr. H. B. Smith,	Corning.
Suffolk—Dr. F. E. Benjamin,	Shelter Island.
Sullivan—Dr. James S. Ford,	Liberty.
Tioge—Dr. R. D. Eastman,	Berkshire.
Tompkins—Dr. M. A. Drummond,	124 Farm St., Ithaca.
Ulster—Dr. E. E. Norwood,	21 Franklin St., Kingston.
Warren—Dr. B. J. Singleton,	48 Warren St., Glens Falls.
Washington—Dr. S. J. Banker,	Fort Edward.
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Wyoming—Dr. Z. G. Truesdell,	Warsaw.
Yates—Dr. Geo. E. Welker,	Dresden.

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Nationalizing Public Health.—The meeting of the American Public Health Association, which had been scheduled to be held in Chicago during the month of October, has been postponed until December 3, 1918. The most excellent program which had been arranged will undoubtedly be greatly disarranged, and in consequence, the fullness of the verbal discussions will be somewhat limited. If, however, the entire program as previously planned were to be given up and the full attention of the Association were to be given to the war program of the Public Health Service as suggested by the Surgeon-General of the United States Public Health Service, (*Public Health Reports,* September 27, 1918) the December meeting certainly would merit a large attendance and undoubtedly prove of the utmost significance.

The war program of the Public Health Service which was to have been presented at the October meeting of the American Public Health Association by the Surgeon-General of the Public Health Service was intended especially for extra-cantonment areas and war industrial centers. It aimed to outline sundry and various activities practicable and within the realm of accomplishment, with the purpose of securing the maximum results in protecting the general health and manpower of the United States. The outline, as published, contains much that is old but makes many departures along lines that may appear radical and novel, tho upon careful consideration these commend themselves as eminently practical and desirable.

A war program for health, after all, is simply one that emphasizes certain phases which would be found in any well systematized and organized plan for health conservation under conditions of peace and plenty. The fundamental fact in the program, as published, consists of broad visioned concept of the public health goal. There is a distinct recognition of the necessity and importance of nation-wide campaigns built up thru the cooperation of municipal, state and county organizations. This probably holds true equally well for the general development of improved health conditions and is not to be regarded as merely valuable for extra-cantonment areas and war industrial centers.

The plan embraces certain general topics such as protection of milk supplies, water supplies, and proper sewerage disposal. Certain special disease problems are considered which require varying degrees of attention in different sections of the country. These diseases embrace typhoid fever, malaria, hookworm, and pellagra. Tuberculosis, patently, has been attacked more or less on a national basis and extension of the elaborate programs thus far devised to new areas merely calls for greater effort at cooperation, hospitalization, whenever

practicable, more adequate consideration of families and patients and a better machinery for tuberculosis registration.

The venereal diseases, as part of the war program, have been attacked with unusual force and directness. The impetus to venereal disease control must carry on beyond the limits of warfare, and likewise must be applicable to every part of the United States if anticipated results are to be secured. The medical and educational measures proposed are by no means revolutionary and the effective campaigning of the past year should make it possible to carry out most of the proposed provisions, particularly, as the most opposed requirement, namely, the reporting of venereal diseases as communicable diseases, has already been recognized as a sound public health measure and has been enacted into law in 32 states.

The suggested scheme for securing the advances in industrial medicine involves the medical and surgical supervision of employees, the establishment of minimum standards of industrial hygiene, and the improvement of the sanitation of industrial communities. Railway sanitation, it was proposed to effect thru the consolidation of all phases of this work under the public health service. It should be by no means difficult to inaugurate this policy at the present time while the railways are under governmental control. In event of the return of the railways to their former control, the machinery of supervision will have been established and could properly be continued without great difficulty.

Stress is placed upon the prevention of diseases of infancy and childhood, but practically no new suggestion appears that has not already been proven essential for this type of hygienic progress.

Rural sanitation represents one of the most difficult forms of public health work. The Surgeon-General suggests a scheme of subsidizing county and state organizations so as to facilitate the establishment and maintenance of adequate county health organizations. The most significant new suggestion is that the county health officer is to be given a status in the national health organization by appointment as a field agent of the Public Health Service at a nominal salary while the sanitary inspectors and health nurses are also to be given official status of the same character. This would represent a real plan for nationalizing the sanitary work of the rural sections of the country and for coordinating activities in a way that has not been possible owing to politics, petty jealousy, lack of machinery, indifference and the countless other elements that have handicapped the rural sections of the country.

Under the head of Municipal Sanitation one finds the wise demand for the employment of full-time health officers, adequate systems of medical supervision of schools, and the general provision for control of water, food, milk, malaria, etc. A new note is sounded in the suggested establishment of Community Health Centers, a step very much in advance of the ordinarily established clinic as conducted at the present time. The collection of morbidity reports and the establishment of health standards are obviously necessary precursors to any systematized endeavor to regulate national health on a broad basis. Similarly, public health education is a most important instrument with which to secure the adoption of the numerous items contemplated or described in the program referred to.

It is of the utmost significance that the Surgeon-General of the Public Health Serv-

ice is proposing to the American Public Health Association a program which practically contemplates the nationalization of public health affairs under the direction, supervision and control—thru cooperation—of the United States Public Health Service. As a scheme for coordination, unification and harmonization the program represents the most practical one that has been presented. To enter into a full discussion of its possibility before it receives actual consideration by the representatives of the American Public Health Association would be taking advantage of the situation. There is no question that the public health movement in the United States has been tremendously advanced because of conditions growing out of the war. The advances thus far made on a war basis must be capitalized in the interests of the great civil and industrial forces which will continue long after the battle cries have ceased.

While no suggestion is made of a national health department with a cabinet official, the main aim is to insure efficient and adequate national health activities thruout every corner of the United States. This represents the aim of the United States Public Health Service and the nationalization of public health campaigns thru this organization will redound immeasurably to the advantage of the country. It is this concept of the Surgeon-General supplemented by his wide social outlook that makes his war program appear to be a most desirable one to be continued after the war has given way to reconstruction, reorganization and national rehabilitation.

Tuberculosis and War.—Investigations as to the extent of tuberculosis in the American Army indicate that the percentages are exceedingly small, whether the groups examined belong to the National Army, the Regular Army, or the National Guard. According to Bushnell, (*American Review of Tuberculosis,* September, 1918), the total percentage of tuberculous subjects among 1,406,498 men was 0.783 per cent. In the Regular Army the rate was 0.758 per cent.; and in the National Guard, 1.099 per cent. It is patent that individual commands are not subject to great dangers of infection. At the same time, the general examinations for tuberculosis which have been made resulted in a rejection of about 11,000 men, a number, which, from the standpoint of military economics, is sufficient reason for the extensive machinery necessary to discover and secure the elimination of the tuberculous.

To many, tuberculosis is regarded as a natural or not unusual sequence of military life with all the handicaps of unhygienic living. The terrors of the tubercle bacilli in civil life are well known, and their inroads into the military population have been greatly feared. Judging by the experience of French and English forces this fear is scarcely justified. The conclusions of Biggs in France appear to have been a little overestimated, tho probably the basis for his judgments was reasonably sound.

James Alexander Miller, the Associate Director of the Campaign for the Prevention of Tuberculosis in France, points out certain errors, (*The American Review of Tuberculosis,* September, 1918) which are reassuring regarding the tuberculosis problem in the country in which he is laboring. According to his figures, which are more or less substantiated by the figures of Armand-de-Lille in the same issue, war has not been responsible for a large increase of

tuberculosis, which remains "as it was before the war, a disease especially of the civilian poor in large cities." "Altho the death rate from tuberculosis in France is high, as far as can be judged from available statistics, it has been no higher during the war than previously, and secondly, the increase in the death rate above the average in France is due almost exclusively to the very high figures which obtain in large cities, particularly in Paris, the conditions among the rural population being not very materially different from those in other countries."

Undoubtedly, war conditions may increase to some extent the amount of tuberculosis during the war, but the factors involved include urban overcrowding, industrial and economic pressure, and scarcity of foods, altho the latter has not approached the point of actual want, except in the exceptional cases of refugees.

It is unfortunate that the impression should have been spread that tuberculosis is ravaging France as a result of war. According to Miller, only 89,400 have been discharged for tuberculosis from the French Army with a rate of only 0.3 per cent. of those discharged from January 1, 1917, to November 1, 1917. The opinion of the French physicians in the military service is that military life in general predisposes to tuberculosis far less than ordinary civilian life, particularly in cities.

While Dr. Biggs estimated that there would be 20,000 tuberculous prisoners of war in Germany, Miller states that no estimate can be based upon the insufficient data available. Among the refugees and repatriates the number of tuberculous is astonishingly small, thus far estimated at 0.4 per cent., a figure far removed from the 85,000 estimated by Biggs.

According to Armand-de-Lille, the outside figure for tuberculosis among the inhabitants of France is 0.68 per cent. This corresponds approximately with the figures discovered for tuberculosis in the National Army of the United States.

It is of the utmost importance for the morale of families that misstatements be kept out of the public press. It is difficult to secure accurate data at the present time and to publish figures which are not capable of full substantiation is thoroly unjust and inhumane. War is surrounded with sufficient hazards and unpleasantnesses without erecting ghastly spectres of diseases stalking thru camps, barracks, hospitals, trenches and battlefields.

Tuberculosis is not essentially a disease of war. It remains as it ever has been, a civilian disease, fostered during war times by the identical conditions which exist during times of peace. The hygiene which will control and decrease the occurrence of tuberculosis during the days of peaceful industry will suffice to control the white plague during the martial period. The mortality rate from tuberculosis, in all probability, will be decreased as a result of war rather than increased in this country because of the early detection of several thousands of tuberculous young men whose condition was discovered at the time of their examination for the army, or shortly subsequent to their induction into it. The early recognition of their affliction assures their recovery, whereas previously, the disease might have progressed considerably before being recognized.

War times must not be made more horrible by guesses, theoretical estimations, and pessimistic judgments. Tuberculosis is not to be classed as a disease of the fighting

forces. It remains a penalty for unhygienic living by the civil and industrial armies.

Mortality Rates.—The tendencies in mortality rates during the recent years are emphasized in the recent report of the Mortality Statistics of 1916. There has been a marked decline since 1900 of most of the communicable diseases. The acute contagions have manifested decreases that may be considered satisfactory in the light of the educational efforts that have been made to secure their control. Typhoid fever, measles, scarlet fever, whooping cough, diphtheria, present a far lower death rate now than ever before. Striking improvement is manifested in the reduced mortality rate from all forms of tuberculosis, which in 1916 was 143.5 as compared with 195.2 in 1900.

While the reduction of mortality rates is pronounced in those conditions largely dependent upon a lack of general public hygiene, there appears to be a continued rise in mortality from conditions less related to the general hygienic conditions of communities. Cerebral hemorrhage and apoplexy, acute endocarditis and organic diseases of the heart, acute nephritis and Bright's disease continue to advance in the statistical tables. Cancer, similarly, has progressed from a rate of 63.5 in 1900 to 93.7 in 1916. The reasons for these progressive mortality rates are by no means clear, but the fact of their increase demonstrates the necessity for giving a larger measure of attention to possible etiologic factors.

The greatest improvement in health conditions is evidenced in the declining mortality during infancy. It is significant that infant deaths are yearly forming a smaller part of the total deaths. The greatest success has attended efforts to secure the reduction of infant mortality, but the beneficial results are most evident after the second week of life. Diarrhea or enteritis is becoming a less important factor, and systematized campaigns of education and supervision have been attended with very improved results. The items which require more careful study at the present time are the reasons for the increase in the mortality from premature births and injuries at birth. The mortality rate from premature birth has increased from 17.5 in 1910 to 21.2 in 1916, while the increase in the rate of mortality from injuries at birth has risen from 3.2 in 1910 to 4.4 in 1916. It is patent that the increasing interest in prenatal care and the development of maternity centers with greater supervision and control of midwifery in all its forms have a legitimate statistical reason.

Improved methods of registration and the greater interest in infant welfare may be partially responsible for a more accurate classification of causes of death, but it is doubtful whether this in itself is sufficient reason to explain the higher mortality rates from premature births and injuries at birth. The mortality statistics of 1916 demonstrate again the importance of continued attacks upon the multitudinous problems connected with the contagious diseases, but point out most conclusively the greatest necessity of focusing attention upon the diseases spending themselves upon the cardio-vascular-renal systems.

The raising of the average length of life has been due for the most part to the control and reduction of mortality under the age of five years. While efforts in this direction must be continued with increased

activity, equally great efforts must be made to attack the problems concerning the general health and welfare of that portion of the population entering into the fifth decade of life.

The great educational campaign of the next few years must be directed towards the conservation of the men and women at forty and over. The probable losses of many active young men in the military world will present ample reason for conserving the lives and limbs of those who return and of improving their health opportunities. Similarly, those who are now past the draft age merit every thought of the community that their activities may be preserved for many years and the growing population may permit a continued equilibrium of the sexes in the community. There must be preserved for the nation every ounce of the vitality that will be so much required during the years of reconstruction, readjustment, and reorganization that are bound to follow the cessation of warfare.

Dispensary Systems.—The expansion of the hospital system of the United States is fraught with considerable interest. According to the *Journal of the American Medical Association,* May, 1918, "The daily population of the hospitals and allied institutions of the United States and territorial possessions may be estimated conservatively at well over one million people." The total patient bed capacity was estimated at 857,133. These figures have been greatly enlarged thru the development of a magnificent scale of the hospital program that has been made necessary thru the development of military organizations.

The remarkable growth of hospital organization must necessarily be accompanied by a more complete reorganization of the dispensary system. Many dispensaries, like Topsy, "just growed up." The incidental development of the dispensary system has largely functioned to retard an understanding of their place among medical institutions.

The development of dispensaries from institutions for the dispensing of medicines to thoroly and completely organized agencies for the dissemination of medical advise has been greatly accelerated in theory, but considerably retarded in practice. The rise of specialism, the demand for new standards, the foundation of laboratory medicine, and the advances of modern preventive medicine are responsible for numerous changes in the dispensary method of meeting its problems.

One of the difficulties in establishing dispensaries along modern lines has been the lack of an authoritative literature upon the subject. There have been numerous articles widely distributed thru the literature of medicine, but many more have appeared in the proceedings of social, economic and philanthropic organizations more directly interested in the social, economic and public health values of dispensaries than in the strictly personal and curative phases of dispensary work.

In their recent volume, "Dispensaries," Davis and Warner have presented the management and development of dispensaries in a practical and useful way. There are numerous suggestions and prophetic implications which merit consideration. The aim of the authors has been to present the dispensary as a form of organization for giving efficient medical service to the people, not as a form of charity, but as the normal expression of the social need for an organ-

ized and socialized system of practice rather than the individualistic plan which has prevailed in the past. To quote, "As an institution for rendering efficient medical service to ambulatory patients, the future dispensary must be so organized as to help the patient without regard to social class, and benefit the medical profession by rendering the economic position of the average physician more stable and his opportunities for professional advancement larger and more accessible."

It is patent that dispensary organization, in order to be most effective, will require the remuneration of the physicians serving at the dispensaries, just as much as the provision of adequate facilities to enable the medical attendants to give satisfactory and efficient service.

While specialism is rife in our dispensaries, there has been an inadequate correlation of the special departments with a resultant lack of team-work which has inured to the disadvantage of the dispensary clientele. The team idea, which is virtually the organization of experts so as to function as a unit, has gained new laurels for our modern hospitals, and the future will undoubtedly demonstrate the necessity of carrying a similar procedure into the daily life of dispensaries.

The public health idea necessarily involves the concept of efficient service, which similarly presents the point of view of the people as a whole as well as individuals. It recognizes the importance of the cure of individuals in the interests of the welfare of all. It accentuates, therefore, the necessity for preventing disease states from unnecessarily attacking individuals or the general community, by urging education, supervision and control of the entire population, as well as of individuals.

Davis and Warner call attention to the fact that war will have a marked effect upon the present-day management of outpatient departments in dispensaries, but they also emphasize the influence that war must manifest in awakening the general public to the importance of the development of modern medical service on the dispensary plan. There is no doubt that the next few years will find a remarkable reorganization of medical institutions. Economy and efficiency are terms of which many people have grown weary, but they will nevertheless be frequently heard in connection with the development of hospital and dispensary organizations that are to be established upon a non-charitable foundation. The internal forces now regulating medical institutions will experience much stress and strain, but the more interest the general public takes in its health problems, the greater will be the stimuli to improve, support, and advance the interests of a rational dispensary system whose main idea will be the conservation of the public welfare thru the promotion of health and the control of illness. The dispensary will then take its place as a socialized agency in the promotion of our greatest national asset—the health of all the people.

The Influenza Epidemic.—Epidemic influenza, concerning which much has been written, is by no means a new or novel affliction. Its pandemic character is practically its most characteristic feature. Inasmuch as epidemics of this disease have been known since the eleventh and twelfth centuries, it is obvious that many of the modern factors to which much influence is now attributed

probably play little part in its dissemination. Subways and methods of transportation, house congestion, etc., are of less consequence in all probability than a decrease of personal immunity and the violation or neglect of the general hygienic rules essential to the maintenance of individual health.

The present fixed belief that the spread of influenza is due to personal contact with the distribution of droplets bearing infection indicates one reason for the insurmountable obstacles in the practical control of the disease.

It is unfortunate that the word "Spanish" should have been so firmly attached to the name of the disease thus causing unnecessarily widespread anxiety. For some reason or other the term "Spanish" has been so manipulated and exploited in the press that the ordinary characteristics of influenza have been subordinated to the problematic severity of the malady bearing a "made in Spain" label. It must not be forgotten that syphilis was once termed "Spanish pocks," tho there has been much testimony to indicate that its origin was not on Spanish soil. Influenza no more merits the "Spanish" title than syphilis or typhoid fever.

"Three-day fever," "the flu," "la grippe," are other names generally employed, and are in many ways more characteristic of the symptomology than such expensive phrases as were used by Creighton in 1562 when influenza was referred to as "the new acquaintance," and "the new delight."

While the bacillus of influenza was described by Pfeiffer in 1892, the term "influenza" was first applied, according to Garrison, by Sir John Pringle in the middle of the 18th century. Considerable doubt exists as to whether the epidemics which have attacked the United States since 1647, particularly those of 1830, 1847, and 1889, and the present visitation of the disease have been strictly influenzal in nature, that is, due to Pfeiffer's bacillus. The difficulties in the cultivation and identification of the bacillus apparently have stood in the way of the complete demonstration as to its place in the etiology of epidemic influenza. The continued presence of a large assortment of streptococci, diplococci, and pneumococci, resulting at times in a large variety of complications from which these organisms may be recovered demonstrates the difficulty of making a bacteriologic diagnosis. Until some new technic is available, diagnosis must be based upon the general clinical symptoms, while the laboratory forces continue to unravel the mystery of the interrelations of the various micro-organisms and their specific relations to the various complications that are known to ensue.

As far as prophylaxis is concerned, prompt isolation of the sick, the control of coughers and sneezers, represent the most practical factors in a prophylactic campaign against an epidemic which numbers its victims by the thousands, and whose incubation period apparently is of exceedingly short duration.

One or two items stand out most noteworthily. Influenza is constantly present in the United States, there having been 18,886 deaths from this cause in the registration area during the year 1916, while the annual average from 1906 to 1910 was 7,760. Urban congestion, contrary to general impressions, does not appear to be a dominating item in casualty. In 1900, for example, the mortality rate per 100,000 population was 24.2 for the cities in the registration states, and 29.6 in their rural sections, while in 1906, the figures were respectively 19.1

and 34.6. It may be said that mortality figures do not reflect the degree of infection of the community but rather indicate the greater opportunities for medical attendance in urban centers as opposed to rural. This, however, is partially offset by the fact that the mortality from the disease is exceedingly low, regardless of hospital facilities, under ordinary conditions. It is only in the presence of a severe pandemic that the complicating bronchial pneumonia adds greatly to the toll, and these deaths are very largely concealed in the statistical reports under the head of "deaths from pneumonia."

The experience with colored soldiers in the cantonments has demonstrated their vulnerability to respiratory attacks. This fact is further corroborated by evidence that influenza is far more serious in its effects upon the colored population than upon their white brothers, and this is evident in both urban and rural areas. In 1916, in the total registration area the death rate from influenza for the white population was 25.8, while for colored it was 33.9. In the cities in the registration states the rate for the white was 18.5, colored 32.5 In the rural parts of registration states for the whites 34.5, for the colored 35.6.

When the American Public Health Association received the report of the Committee on Standardized Regulations for the Control of Communicable Diseases, it is interesting that no suggestions or advice were offered regarding influenza. This total absence of a constructive program is illustrative of the fact that thus far there has not been developed a satisfactory line of action for the control of influenza. The accentuation of all normal methods for building up the health of the body thru hygienic living, together with the adoption of programs decreasing crowd contacts, and the reduction of coughers and sneezers thru campaigns of education, typify the means of warding off diseases of all kinds, and are not to be regarded as of value specifically against influenza.

Influenza is not a reportable disease in most of the states, and as the *Public Health Reports* of September 27, 1918 point out, "It is impossible to secure complete reports of its prevalence among civilians." It is fair to assume that before this epidemic will have passed off the Western coast practically every state in the Union will have suffered its share from this enervating and disorganizing malady. The effects of the present pandemic cannot be estimated in terms of economic, social, or military losses. The spread of the disease from Europe has occasioned outbreaks of varying size and intensity, with a mortality rate differing in different countries and communities. No matter what the disease is called, it must not be forgotten that its symptomatology and treatment still remain those to which the medical profession has long been accustomed in its dealings with similar epidemics and pandemics known as grippe, three-day fever, the flu, or epidemic influenza, instead of Spanish influenza.

Insanity and War.—In the careful development of medical plans for the Army, provision was made for the study, care, and disposition of insane individuals. Fortunately, thru elimination at the source, disqualifications based on the existence of nervous and mental disease were made in one-half to five per cent., varying with the

organization examined, according to Pearce Bailey, *Mental Hygiene,* July, 1918. "Nearly three-fourths of the recommendations for discharge made by the neuropsychiatric experts were for conditions primarily mental, as opposed to organic disease or defective nervous system." Fully 83 per cent. of those recommended for discharge would be classified among those apt at some time or other to require custodial care.

It is a source of interest and congratulation that the ratio of insanity to troop strength has been much less than that anticipated. Conjecturally, it had been assumed that the figures of three insane men per thousand troops during peace would be doubled in war. The recent experience shows that these figures probably include all the mental cases such as mental defects, epileptics, psychoneuroses, alcoholism, and similar conditions which are hardly to be classified as true insanities.

Despite the excitement and unexpected circumstances incidental to the preparation of a large army, the ratio of insanity to troop strength has shown a marked decline. Only 477 cases of insanity requiring custodial care were produced in eight months during the mobilization of an army of over one million men, whereas from 2,000 to 3,000 had been expected and preparations had been made to care for them.

Great fears were entertained that army life tended to increase insanity. The experience of the American forces at home and abroad would serve to disprove any relation between the two. While it is true that a "psychopathic constitution and military service are antagonistic," camp and war conditions have very little to do with the underlying causes of insanity. The sudden adjustment, the difficult circumstances, the shocks, the surprises, the frights, the horrors, the strains and stresses of warfare may convert a potential psychosis into an active one. The conversion is not to be regarded as a result of physical causes. To quote Bailey, "It is believed rather to be a psychologic result from disharmony with new and rigid conditions which the neurotic, who is so intensely individualistic, finds it impossible to adapt himself to, and so breaks down. This explanation holds true for those who have volunteered quite as much as for those who have been drafted." Obviously, disharmonies of a psychologic character are to be found in any new venture, particularly one considerably removed from the ordinary lanes of mental travel in civil life. The transition to war is more readily made by the physical body than by the mind. Shell shock and similar neuroses result from catastrophies such as the destruction of powder plants, floods and earthquakes, just as frequently as from the disturbing conditions within view of No Man's Land.

The work of the psychiatrists has sufficed to remove from the Army a few men, and to prevent others from entering into the military service of the government, and by so doing there has been a marked protection not merely of the individuals concerned, but of the morale and power of the units to which they might have belonged. It is a happy circumstance that the theoretical percentages of insanity that had been anticipated did not materialize. There is a vast difference between the development of a psychosis under war conditions and the diagnosis of insanity developed because of, and due to war and the life that it entails.

Popularizing New Foods.—The nutritional needs of the body call for a con-

siderable amount of protein, the quality and quantity of which is essential for the maintenance of metabolic equilibrium. The largest proportion of proteins sought by the public and recognized as a source of strength and power is derived from the animal kingdom. The meat fetish has claimed countless devotees who fail to recognize the usefulness of cereals and legumes as valuable sources of protein for human use.

The various dietetic conservation plans which have been required during the past year or two have been marked especially by relative shortages in eggs, milk, and meat with consequent high prices that have required the people to readjust in some measure their palatal pleasures to their pocketbooks. Perforce, there has been a clash between incomes, even tho they have risen considerably on a war basis, and the requisite proteins which have been regarded as the main source of life, power and energy.

The reduced protein ration has not inured to the disadvantage of the people, nor indeed, has there been any evidence presented to indicate marked inroads of malnutrition even on the part of children. The protein balance has been maintained by the use of cereals, which, while they contain relatively small amounts of protein, because of their large consumption, have been responsible for nearly one-half of the total protein of the average American family.

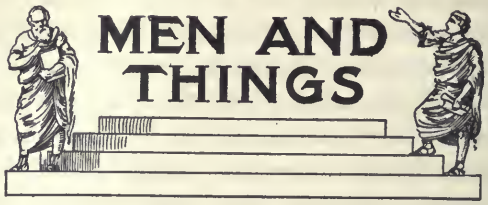
The various publications of the United States Department of Agriculture, the Federal and State Food Commissions have sought to introduce the uncommonly used foodstuffs into homes that view with suspicion every effort to alter their method of living. Unfortunately, many forms of meat substitutes have been proposed and their virtues chanted, which could not be purchased freely in the open market. It is interesting, academically, to know that the nutritive value of soy beans is high and that they contain 36.5 per cent. protein, 17.5 per cent. fat, 30.8 per cent. carbohydrates, ash per cent. 5.3 and possess a fuel value approximating 1,950 calories per pound. With sufficient intelligence, one might desire to add the dried soy bean to the family dietary along with the red bean, lima bean, and the other less well known members of the vigorous bean family. When, however, one goes into the market to secure soy bean flour or the dried soy beans, one is immediately met with the difficulty of purchasing them, and the difficulty does not lie merely in the relatively high price which soy bean flour commands. Popularization of a foodstuff, in most instances, increases the demand, for which an adequate supply may be made available, but apparently there are numerous difficulties in making rapid adjustments for foodstuffs for which hitherto there had been no demand and practically no supply.

Soy bean flour, according to *Bulletin 717,* United States Department of Agriculture, is especially valuable "since it supplies the water soluble, and, to a limited extent, the fat soluble accessories essential in a complete dietary." According to Osborn and Mendel, the soy bean is the only seed thus containing both of the essential vitamines. This fact, together with the high proportion of proteins, and the low percentage of carbohydrates gives the soy bean a "unique significance" as a food. It may readily be understood that, biologically, proteins derived from soy beans, when employed as the sole source of protein, may serve to support in a normal manner the normal processes

of growth and maintenance, or at least, this has been found to be true in experiments with laboratory animals. The digestibility of soy protein is 85 per cent., a figure corresponding very favorably with the digestibility of ordinary cereal proteins and somewhat higher than those obtained from some other legume proteins.

While soy bean flour may be used merely to supplement wheat or other cereal flours, it is obvious that in moderate amounts it would also offer a nutritive value nearly equivalent, in terms of protein, to meat, milk and eggs. The soy bean may be classed as a rich protein and fat containing food. Its particular virtues, at the present time, are attributed to its ability to serve in place of meat and wheat, both of which are commodities to be conserved in the interests of international dietetics. The general advantages and disadvantages, as well as therapeutic indications for soy beans, merit careful study by physicians, who, after all, should be prepared to serve as disseminators of dietetic knowledge and as counsellors in the nutritive welfare of the families they serve. The greatest problem involved in the use of the soy bean in any form is to secure the commodity in the open market.

It would appear a desirable part of the educational propaganda for new foods to have stores selling such articles make due and proper announcement thru various methods of advertising to awaken the interest of the consumer and to indicate their availability. The mere semi-technical advertisement and publication of recipes is inadequate to put over a food campaign for a comparatively unknown article of dietary. The soy bean is merely an illustration, tho in fact, it represents one of the best known foodstuffs of the Orient, which thus far has been more used for cattle food than for the sustenance of man.



The Waning Epidemic.—The epidemic is "burning itself out." With extraordinary unanimity this phrase is being used to indicate the waning of the influenza epidemic, and the phrase is indeed a significant one. If the fire department were to report that a big blaze had "burned itself out," we would very justly conclude that the blaze had subsided merely because it could find no more damage to do and not because of any merit in the means employed by the department. It would mean that the authorities were disclaiming all credit for special achievement. And so it is pleasing to note that the Health Department of New York City, in summing up the situation, has preferred to say that the epidemic has "burned itself out." The phrase is a modest, just, and fitting one. Despite its very commendable activity, once the epidemic was upon us, it would be futile to pretend that the disease has been appreciably deflected from its normal course by anything the department has done. It is "burning itself out" merely because those who were predisposed to the attacks of the causative bacilli have already suffered from them, and among those whose resistance is vigorous it will do, from now on, diminishing damage. It is notable that no claims are being put forward of having "checked" the disease or "stamped it out." Either of these phrases would be misleading, and would be claiming credit where it is not due, where it is not even expected. The Health Department is to be commended for its exemplary modesty.

Looking back, if one may be permitted to look back thus early, one cannot avoid recalling (and criticizing) the poorly justified optimism with which the whole profession faced the menace of a disease which has been raging for so long in Europe, and which was inevitably bound to visit these shores in the course of time. We had full and ample warning, notice of at least a year's time being given us, and that year could

have been very wisely employed in study and preparation, yet practically nothing was done. No commission was sent to Europe to study conditions there, to prepare against the invasion of the disease here, tho experience and precedent should have spoken loudly in favor of such a course. Long in advance of the time when we must face the problem of rehabilitating the returned soldiers, we sent commissions abroad to learn what the other nations were planning to do in this direction. We were not going to be surprised or caught unprepared. But the invasion of the influenza epidemic, which anyone could have forseen, found us both surprised and unprepared. It was generally contended that Europeans had prove highly susceptible merely because their vitality had been sapped by inadequate food supplies, and it was claimed that we were in no danger because we were as yet undisturbed by these conditions. Our optimism has been exposed as in a large measure without foundation, and when the epidemic came we were found not only morally disarmed but actually lacking in the materials necessary for fighting the disease. There was a lamentable shortage of drugs, a total lack of vaccines, or knowledge of their action and use, inadequate hospital and nursing facilities, etc., and our medical forces were very poorly organized to deal with the situation. For one thing we may be especially grateful to the Health Department: it rallied the public confidence when confidence was getting rather low, and has prevented panic whenever panic has threatened. The family morale was maintained, thus proving of substantial aid in keeping the epidemic within bounds.

However, we may be sure that the lesson of our misdirected optimism has been learned, and it is a lesson well worth bearing in mind. The epidemic is waning, it may shortly decrease greatly, and give way to normal conditions again, but there is no promise that it will not return sooner or later. The experience of European countries necessitates extreme vigilance. At this moment, after the epidemic had subsided for several months, it has appeared again in Europe with what is reported as renewed virulence. The real test for our health authorities will come if the epidemic breaks out again in the near future. The mistake of unpreparedness in the past will serve as a caution, and there is reason to believe that the constituted authorities are leaving nothing undone to meet such a contingency.

There is one heartening aspect of the situation: the Health Department of New York, despite the example of other municipalities, did not order the closing of schools and theatres. In this it showed a degree of cool-headedness and sound judgment which should not go without its due reward of commendation. The closing of the schools would have brought no benefits and might have brought harm. It is clear that the children have been quite immune to the disease. However, tho not susceptible to the malady themselves, they might have been active carriers of the infecting organisms, and, kept out of school and circulating from apartment to apartment, they would have been far more of a menace than in the classroom where they are subject to daily surveillance. Likewise, the theatre is hardly as great a danger as some of the places to which men and women seeking diversion might resort. There can be more crowding and danger in a stuffy card-room than in a well-aired theatre. Furthermore, it does not necessarily follow that going to a theatre these days means finding one's self in a crowd. From what we have seen of the current plays, this danger is non-existent. As one sharp critic pointed out, a producer might improve the prospects of many of the plays now being presented in New York by advertising thus: "Avoid the Crowd—Come to Our Show!"

In leaving the subject, we do not hesitate to say that the people of New York City are to be congratulated on having a Health Commissioner who is earnest, capable and blessed with a wealth of good common sense. We do not agree with Dr. Copeland in every particular—especially his indifference towards vaccines—but his integrity and good faith are unimpeachable and he cannot be stampeded by his critics. The health affairs of the Greater City of New York are evidently in safe hands.

Insanity and Bad Teeth.—Are we on the threshold of a new and revolutionary conception of the causation of insanity? Such a prospect is presented by a notable contribution offered recently by Dr. Henry

A. Cotton, Medical Director of the New Jersey State Hospital for the Insane at Trenton. After eleven years of exhaustive experiment and study, Dr. Cotton is prepared to maintain that insanity and the condition of the teeth have a closer connection than has ever been suspected, and that effective and permanent cures of mental derangement can be brought about not only by the extraction of infected teeth, but, in cases where the infection has extended to other structures, by removal or clearing out of areas or foci of septic material. The facts which Dr. Cotton presents in favor of his theory are of no slight weight, but among those qualified to judge there is a disposition to believe that his conclusions represent but a small arc in the wide circumference of the causes of insanity. There can be no question of the value of Dr. Cotton's interesting theory; what doubt there may be concerns only its compass and inclusiveness. It is too early to measure the significance of this contribution to our knowledge of insanity, but until further experiment and a more minute scrutiny of the facts have been made, we may accept Dr. Cotton's statement as that of a careful and capable student.

"We have found," he says, "that infection of the chronic type and the resulting toxemia are the basis of many mental disturbances. These chronic infections, known as focal infections, may be present for years without their existence becoming known to the patient, and until quite recently the physicians and the dentists have been ignorant of their existence. * * * * We are able to cure early cases in a short time, prevent the disease from becoming chronic in a large number of cases, and restore a certain number who have been in the hospital for as long as nine years. This we are doing daily." The record of eleven years of successful experiment must command respect for this theory. Dr. Cotton cites numerous cases in support of it. A close examination of some of these case records does not eliminate the reflection that the condition of the teeth may not have been the sole cause, or at least that the removal of the infection may have been only a contributory factor in the cure. But some of the cases point unmistakably toward the correctness of Dr. Cotton's assertions; for example, that of a man aged forty, harassed by the illusion that he had committed a murder and was being pursued by the police. A badly infected capped molar was removed. Two days later his mental condition was restored to normal. Cause and effect are too closely and perfectly united in this case not to appear convincing.

Morale.—The complete breakdown of the morale of the German masses is the most dramatic episode in the history of modern times. It borders on the sensational, and those of us who can recall vividly that only four months ago the Allied cause was in the gravest danger find it hard even now to compass the magnitude of the events of the past few weeks. But confusion (however joyful that confusion may be) reigns among the ranks of our parlor strategists. Things have not gone according to their predictions. Soon after July 18th they realized that the Allies would not lose, that the German hordes had been stopped, and they freely predicted that by midsummer of 1919, with the coming of 4,000,000 Americans, the tide would be turned, and the war might be won at the end of 1919, or in the summer of 1920. Counting in bayonets, and guns, and available reserves, their mathematical exactitude was amazing and impressive; and to those sentimental ones, who ventured to calculate on the psychic elements in the conflict as perhaps decisive factors, they responded with the assertion that psychic elements couldn't stand up against a machine gun. Yet it is the psychic elements which have counted most in the winning of the war at such an early date. It is the complete breakdown of the German home front, long before the military front was decisively crushed, which makes it possible for us to predict an end of the war before the closing of the year; and this home front broke down because psychic it was inferior to the allied home front. Foch's masterly strategy is winning the war, but it is the moral superiority of the Allied cause which is giving us victory now instead of in 1920. And when we speak of "psychic elements" we mean morale.

The word morale has been on everyone's lips the past few months, but few who uttered it understood its significance. Like electricity, it is spoken of but not compre-

hended. Allied morale and German morale are spoken of in the same breath, and yet there are no two things more different in all the world. It is this difference that has won the war, that has won it so quickly and decisively, and unless one understands wherein this difference lies one will forever be mystified by the quickness of Allied victory. Critics may compute till the end of time the material forces that were in conflict, but until they take into account the more important factor of the psychic elements they will never explain anything.

Why We Won Quickly.—There are two elements that constitute morale: the *belief* that one's cause is just and that right cannot be defeated; and the *knowledge* that one has superiority of arms and cannot be defeated. The dominant factor in Allied morale was the faith in the righteousness of their cause, the belief in their military superiority being secondary. The dominant factor in German morale was the belief in their military superiority, the faith in the justice of their cause being secondary. In either case, the crushing of the dominant element in the national morale would bring about a speedy crumbling of resistance, the secondary element dragging along like a withered limb in defeat. All the mistakes that the critics have made in their predictions have been due to a misunderstanding of this fact. If the Allies were brought to believe that they were wrong morally, they could not go on fighting, no matter how much they believed in their military superiority. If the Germans were convinced that they could not win, they could not go on, no matter how much they believed in the justice of their cause. The whole story of the war bears this out. In defeat, the Allied morale was stubborn and inflexible, because no amount of force can destroy faith in the justness of one's cause. In defeat, German morale crumbled, because it requires only a little preponderance of force to destroy faith in one's military superiority. That is precisely what happened to German morale in July of this year. For four years the Germans had successfully withstood the whole civilized world arrayed against them. In spite of inferiority in numbers and resources, they were able to add victory after victory to their astonishing record, and they were able to do this because of their superiority in leadership. In this superiority (and justly so) they believed implicitly. They made a God of Hindenburg and Ludendorff was his prophet. They were invincible, and this belief in the invincibility of their leadership was the sustaining factor in their morale.

In July Foch demonstrated to the German masses that superiority of leadership had passed definitely and permanently to Allied arms. The advantage the Germans had enjoyed for four years was snatched from them. The ground was knocked completely from under their feet. They knew now that their cause was hopeless, for the Allies had added superiority of leadership to their superiority in resources. German leaders were outclassed, their armies whipped. That was the beginning of the end, and the decline was swift. Nothing could restore their faith in ultimate victory. And in defeat they had nothing to fall back on. They could not take courage, as the Allies did, from the justness of their cause. That had always been the unimportant element in their morale. It is one of the noteworthy phenomena of conditions in Germany today that, of all the strident voices that have been raised in recrimination, there are few which can even hope to rally the masses by reminding them that right is on their side. The word "right" has for too long a time dropped out of their vocabulary. For forty years it has been spelt with an M. Allied moral superiority was a constant source of hope and faith in the dark hours. In the dark hours, Germany gropes for a Cross, and finds only a sword, broken and useless. What else can she do but surrender?

One thing more: Hindenburg once said that victory would go to the side with the strongest nerves. His prediction has been fulfilled, but not as he had expected and hoped. German nerves have been torn to pieces. Foch's whole campaign was directed as much against German nerves as against her armies, President Wilson's diplomatic strategy has always had German nerves as his immediate object. How well he planned, we may judge now from the hysteria that is sweeping Germany today. But the critics of the President and of his methods, crying aloud for unconditional surrender and the humiliation of the German people, have been pursuing the mistaken

belief that the best way to shatter an opponent's nerves is to administer a nerve tonic. Their threat to crush Germany mercilessly can have no other effect than to drive the German people to the utmost resistance, to bolster their nerves just when they are at the point of failing. A more short-sighted and short-witted course is hard to conceive. The chief difference between the President and his opponents is this: the former are making unconditional surrender; the President is getting it.

Doctors and Patients.—The telephone bell tinkles. "Is the doctor in?" "Yes." "Will you please send him immediately to 25 Blank Street?" "I'm sorry, but the doctor——" The voice grows panicky. "What's that! What's that! I must have the doctor. It's urgent. You said he was in." "Yes, but——" "Well, let me speak to him. I'm a patient of his. Please hurry." "But you can't speak to the doctor?" Great consternation. "I can't speak to the doctor? Why not?" "Because he's sick in bed." The voice emits a gasp of unutterable astonishment and is not heard again. It is easy to see the picture at the other end of the wire, the complete collapse of the speaker, his dumb amazement at the incredible announcement of the doctor's illness.

A doctor sick! Impossible. Such a thing is unheard of. It has never happened before. It can't be. That magic man, with his magic black bag, who brings relief to all the ills of mankind, cannot himself be the victim of these ills. No. It is possible to imagine that a doctor may be the victim of an accident, that he may get run over, or slip on an icy pavement, or cut his chin while shaving—but sick! Incredible! It is easier to imagine a fish drowning.

Multiply this patient's experience a thousand fold, and you will understand the magnitude of the revelation that has come to countless homes in this country recently regarding the myth of the doctor. The influenza epidemic has exploded this myth completely. The doctor stands revealed in utter nakedness before his no longer awed patients. They have penetrated the armor of his professional dignity, and underneath they have found just a common, mortal man, even like unto themselves. They have discovered that he is only a poor human being after all, that he gets sick much as they do, that he is subject to the same ills and complaints as they, that he sometimes has to send for a doctor, that he gets tired occasionally, that he can even be overworked, that he is inclined to be cross when he has to miss two or three meals in succession, that he sometimes has so little presence of mind (or was it lack of sleep) as to leave his only thermometer at the last patient's house, and even that he is a little afraid of his wife, who has been keeping his dinner warm for three hours, and telephones to find out if he can't have as much consideration for her as for his patients. And it is the influenza epidemic which has revealed the doctor in all his mortal frailty. When a man has to work eighteen and twenty hours a day, has to rush about with a two days' growth of beard, is caught now and then dozing off while waiting for the thermometer to register a patient's temperature, and has to beg a worried patient for a sandwich because he hasn't had a meal in twenty-four hours—well, it's rather difficult to maintain a pose of professional dignity and superiority. The epidemic has taken a mean advantage of the doctor. A tyrant and a dictator before, he now has had to abdicate and throw himself upon the mercy of his patients. Fortunately, the average patient has not taken advantage of his opportunity, and the result is an improved and more fraternal relationship between doctor and patient. Already there is a marked change in the attitude of some families. They send for the doctor at three, and, tho he does not appear until seven, it is they who apologize and not the doctor. Having discovered that he is only a regular, human being like themselves and not a god, they realize that he cannot accomplish the impossible. What was intolerable, in a god, is tolerable in a human being. And one may venture to assert that nine doctors in every ten are considerably relieved at the removal of the heavy halo of godship which was the heritage of the profession.

Apology.—If you find an unexpected number of errors in this issue, or it is late reaching you, please attribute the cause to the conditions under which our whole staff are working.

THE FUTURE OF THE BRITISH RACE.

BY

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We have now got an army of reconstructionists, most of them sixth rate politicians, or individuals in search of a soft job, and not one of them above very mediocre intellect. They all tell us that after the war we are going to have a new heaven and a new earth, certainly a new Britain. We might now inquire who are to be the inhabitants thereof. The reconstructionists have all been safely ensconced in this country while the real manhood of the nation has been fighting our battles and preserving the country for future generations, I hope, of real Britons, and that the country may henceforth cease to be the dumping ground for the rubbish of Europe. The comrades of the Great War when they return from the hell-fire thru which they have passed will require to closely scrutinize any heaven provided for them by those who have been robbing the country in their absence. Those brave fellows have been sacrificing life and limb for their country, living and dying on a bare subsistence wage, their wives and families existing on a miserable separation allowance, while shirkers, slackers and strikers have been growing fat on their country's misfortunes.

While the virile of the nation have been carrying on the war, the derelicts have been carrying on the race. Our sentimentalists, and would-be philanthropists—at other people's expense—are crying upon those derelicts to produce more babies to replace the real nobility of manhood who have perished in the war. This is the kind of material with which it is proposed to recruit the next generation. No wonder that Baden Powell said we should have to wait till 1940 to see which nation had won the war.

"In Dublin, 1911, in a Presidential address on Eugenics I stated, *inter alia*:—If you treat the subject from the broad standpoint of National Eugenics, then every nation has largely the control of its own destiny, except for interference from its neighbors, and it is the duty of every nation to maintain its virility, so that it may be able to meet its opponents and competitors on equal terms. At present we are continually having the question thrust on our attention. Are we or are we not capable of competing with Germany in peace or war? This is a question which is looming and will loom large in the near future. At present it is an undoubted fact that it is only the British Navy which is maintaining the peace of Europe. How long it will be capable of doing so is a serious question for the British people.

There never was a time when the struggle for existence, not only among individuals,

but between nations, was keener than at present. This struggle will continue, and the nation which produces the best race will win, and rightly win, in the long run. Hitherto national ascendency has generally been attained by the arbitration of war, but as civilization advances, the ascendency will be attained by intellectual and physical evolution, and in this racial evolution great Britain and Ireland should try to be first in the field, and to attain this end great efforts must be made to get rid of national decadence which is patent on every hand."

At present our derelicts are propagating and flourishing, and it may be difficult for our virile manhood when they return to get rid of this moral and physical decadence. I have often said that it would be well if the increase to the population, to a large extent, ceased until our fighting men returned from the front. Bacon said, "The principal point of greatness in any state is to have a race of military men." Our derelicts are not fighting men.

At present the lowest fourth of our population, the dregs of society, including the submerged tenth are producing more than half of the next generation, and this is the generation which, according to Baden Powell, is to prove whether or not we have won the war.

I am authoritatively told that in the next generation there will be a fair sprinkling of virile British blood in France. In this case British includes Scottish as I believe the kilties are in special favor, and no doubt deservedly so. I am rather inclined to think that this country is not deriving a similar benefit from the virile sons of America and our Colonies.

The comrades of the Great War must put things right, they must raise up a healthy, vigorous, and intellectual race, they must, as the late Felix Pecan said, teach their offspring "Courage, and the contempt of mere ease and well-being; give them a wholesome, ample way of looking at things; instill the taste for an active life, the relight of physical energy." We must not have a race of degenerate hot-house plants. We must have men and women who can adapt themselves to their environment, and not merely have an environment adapted for the maintenance of the unfit.

You owe your intelligence (or lack of it), your physique, health, and longevity to your progenitors—near and remote. There are many educational authorities stupid enough to think that intelligence is a product of education, and there are many medical men ignorant enough to suppose that your health is due to their exertions. Health is a factor independent of disease; many an unhealthy man lives a long life because he has been in an environment which did not require any adaptation, while on the other hand many a healthy man kills himself—not a very difficult thing to do, or is killed. The American said that God made men very unequal, but Colt put them on the same level. It is well for even a healthy man to keep out of Colt's level, but if this be impossible he should try and have the first innings.

Colt is well suited to the ideas of the barbarous Huns, but our aim should be in the first place to breed for moral and intellectual evolution. The individualism, high intellectual development and inventive genius of the British race are gradually overcoming the brute force and collectivism of the Huns. This war has brought out the best and some of the worst qualities of the English speaking race. In 1911 I said:

"There is a great deal of virility in this country; so if we could only be induced to throw the broken reed of sentimentality to one side there may be yet time to save the nation. The virility of the English speaking races abroad is even greater, so whether this old country goes the way of all decadent races or not I have no fear for the Eng-

lish language. If the English-speaking nations would only cultivate eugenic ideals they may yet rule the globe."

Those who have seen the Anzacs, Canadians, and Americans will agree that my prophetic vision was not far off the mark.

I have long been inclined to despair of my ideals ever being attained in this country, but now I am inclined to put my money on the comrades of the Great War in the hope that they will quickly put maudlin sentimentality to one side, and raise up a healthy, vigorous and intellectual race. I have no fault to find with Mr. John Hodge who is one of the burly and vigorous sons of toil whom I much admire. He wishes with Emerson to raise the maimed, the lame, the halt and the blind to a higher platform where the whole aspect of things changes. He wishes to make them happy, prosperous and contented citizens. I sincerely trust that great numbers will follow his advice and acquire a skilled handicraft.

There is another reason why we should breed for intelligence, the brain-worker, if above the general average intellect can always earn a living wage. He or she does not require to stultify his individualism by joining a trades-union; he is under no obligation to sink to the level of the meanest capacity; he is at perfect liberty to cultivate his intellect and make the greatest possible out-put. He can breathe the breath of freedom, follow virtue for its own sake, study utility, be a useful citizen and leave the world somewhat better than he found it.

If our aims are to be achieved we must begin with the unborn, the race must be renewed from the mentally and physically fit; the moral and physical degenerates should not be allowed to take any part in adding to the population. Above all we should breed for intelligence, the laws of heredity should be widely taught, so that those with hereditary blemishes may avoid parenthood. It is a question of quality rather than quantity. If every one would consider his moral responsibility to the race rather than his own selfish gratification, in a very few generations we might produce a pure, moral, highly intellectual, healthy and vigorous race. Of course we could not make all equal—there is no such thing in nature, and never can and never will be, and it is not desirable that such should be—but we could raise the average plane and get rid of the present decadence.

How is it to be done? Here again we must trust our fighting men who must replace the derelicts who are now carrying on the race. The matter is simple enough if the two parties to the marriage contract would only exercise a little discrimination. As a rule women set a higher moral standard for themselves than they do for men, but if they were a little more particular in the selection of the fathers of their families all might be well.

It is often very difficult to determine how far success in life is due to innate and inheritable qualities, or to a fortuitous concatenation of circumstances and indomitable perseverance. The latter must have been the determining cause in many Lancashire families when the descendants returned to the clogs in the third generation. The female line is just as important as the male, often more so. I suppose the celebrated Jane Jennings was a more important factor than the Great Duke of Marlborough in establishing the present line of Churchills.

There are many men who could tell you all the good or bad points of a horse or a dog or a prize bull, but are often hopelessly at sea when estimating the points of a

woman. The women are often worse than the men in their selections, some of them will take anything in trousers provided he has got a little money; any half witted idiot can get a wife of greater intelligence than himself. I do not object to mating but the mental and physical degenerates should not be allowed to reproduce their kind. Often in the present day marriages are settled by propinquity, a so-called falling in love like catching the measles, without any intellectual operation of the mind, consequently some of the most intelligent women are left out in the cold, and never have any opportunity of exercising the highest and noblest function of reproduction. I am afraid the race is thus considerably impoverished. Karl Pearson says, we seem to have ceased as a nation to breed intelligence as we did 100 years ago.

We must have an enlightened propaganda, teach the public that it is just as simple and easy to breed a pure human race as it is to raise a pure breed of cattle. I saw a notice in the papers the other day of the sale of an imported Friesian cow for 4,500 guineas. I wonder how many of the inhabitants of Friesland could be had for that sum. Personally I would not buy them at any price.

What we want in this country is not a high birth-rate but a selective birth-rate, we want quality not quantity. If there were an invasion of this country it would quickly become a serious problem what to do with our ineffectives who would be eating up the provisions which should go to the fighting forces, and we would be starved into submission. We should pray for the preservation of the British Navy. It is not the size of the families but their virility which should count. Compare the French with their small families and the miserable French-Canadians with their large families of one or two dozen. When I was first in Canada about 20 years ago it was reckoned that in a century the prolific French-Canadians would not only thickly populate Canada, but would overrun the whole of North America. The yellow peril was not in it with them. Nature has her compensations, with a high birth-rate there has been a high death-rate; the unfit have gone to heaven, those whom the Lord loves die young, and we have a fairly virile but not very enterprising race left, a race which required a good deal of stimulation before they could send a handful of men to assist their brethren in France. The British-Canadians have played a noble part in this war. The Anzacs have a low birth-rate and a still lower death-rate; they do not breed a race of wastrels, paupers, and criminals. Witness their fine fighting stock that have always been in the front battle line.

Parents have no moral right to bring more children into the world than they can properly support, we do not want rabbit-warrens, a high birth-rate invariably means a high death-rate.

Why should the poor always be kept in poverty by their huge families who only seem to come into the world to provide work for the undertakers, who grow fat on the misery of others? There are many virile members of the working classes who could easily rear a small and healthy family, but are unable to feed a large one.

The mothers especially break down under such maternal strain and are only able to produce puny offsprings who succumb readily under the weeding process of nature.

Miss Eleanor Rathbone proposes to maintain the same level of wages for men and women, and would make the child bearing

woman and her family a charge on the State. Equal wages for equal work seems a very fair proposition, but the first question, is the work of men and women equal? There is much work which women can do better than men, but hard continuous work requiring sound judgment and initiative should be reserved for men; women frequently attempt men's work but under any excessive strain they become irritable and break down. They have quickly learned the art of striking, and are no more reliable in a national emergency than men. The endowment of motherhood would increase the evil which Miss Rathbone proposes to remedy; under such a system we would have any number of rabbit-warrens among the submerged tenth, while any segregation allowances granted by the State would not be sufficient to induce thrifty parents to produce large families. If the State undertook to run a human stud-farm it should go in for quality rather than quantity. It would be a very foolish policy to raise a race of criminals, paupers, and wastrels who would always be a charge on the State. The City Council of Charlottenburg had a system for the endowment of parenthood, but it was carried out in a thoro German fashion, and the endowment was only granted to healthy parents and healthy offsprings. The father got promotion in the civic employment, and his wages were raised according to the number of his family. The breeding was chiefly for health and physique, and no doubt intelligence was to a certain extent a necessary accompaniment on the principle *mens sana in corpore sano.*

Germany is the only country with large families which has done well in this war—witness the collapse of Russia, but then Germany has no sentimentality, she only encourages the fit, and the wastrel had a bad time of it. Anyone who had no visible means of subsistence was quickly locked up and made to work. He got one or two chances to redeem his character, but if he was considered incorrigible his incarceration was permanent. On the other hand see what the countries with small families have done. It is only necessary to mention France, Australia, New Zealand, Canada, and now America with her Army of 23,000,000. We see hundreds of thousands of American soldiers passing thru Liverpool, and the universal exclamation is, what fine fellows!

Alderman Broadbent is said to have lessened the infantile death-rate in Huddersfield by giving a sovereign to each mother who produced a healthy child one year old. Many years ago I advocated the endowment of parenthood, but I would go much further than Alderman Broadbent. As the infantile death occurs chiefly under five years of age, I would not start the endowment till the sixth birthday. At that age the State might settle say £100 on each child, the parents to draw £5 a year until the age of 20, and then the capital to become the property of the child. Many women, like C 3 men, are unfit to carry on the race, and so some other less responsible employment should be found for them.

The Neo-Malthusians are the only body in this country who are making a constant war against poverty and low wages; they contest the pernicious doctrine of Prince Kuropatkin and his school that England requires cheap labor and consequently large families from the lower strata of society. Every family should be able to live in comfort, and why the knowledge of family limitation should be withheld from the working classes I cannot say. Every pro-

gressive country requires efficient labor and good wages; there must be no limitation to the output except to the human output. There can be no advantage in allowing the submerged tenth to replenish the population with a race of cowardly hooligans and untutored savages who toil not, neither do they spin, and are certainly devoid of glory. The recent experience in Russia should be an object lesson to every enlightened nation.

To elevate and ennoble the race you must encourage individualism, you must encourage the inventive genius to devise labor saving devices; the mechanical operations either of human beings or machinery must be controlled and guided by intellect. The hod-carrier is a very poor machine compared with the hydraulic or steam cranes. Socialism may be of an advantage to the lower types of humanity, so long as its unbridled vagaries are allowed to exist, but there is no dead-level in Nature. Everyone should try to raise himself in the social and intellectual scale, the power and capacity of acquiring knowledge is at the best limited, but every one should replenish his storehouse to the best of his ability.

Professor Arthur Thomson says: "What the children die of is, to a large extent, their parents, and the only thing a nation dies of is lack of men." There is no fear of this country dying from lack of men of a sort who will be fruitful and multiply and replenish the earth, if allowed to do so. This must not happen, we must not allow the country to be again overrun by Germans, we must rouse up an enlightened public opinion and educate the masses in hereditary laws, then it is to be hoped that those with gross family blemishes on their escutcheon will abstain from parenthood, and that those who do become parents will fully recognize their responsibility, and bring forth children under favorable auspices. Let them have children of whom they can feel justly proud, like the Roman matron who wished to be known in history as the mother of the Gracchi. The nation which first subjects itself to national eugenic discipline is bound to inherit the earth.

Mr. Lloyd George says, "You cannot maintain an A 1 Empire with a C 3 population," but this is just what his satellites are proposing to do. He is evidently not versed in biologic laws or he would not ascribe our defects to the neglect of public health, but, holding the views which he does, he should overhaul the Local Government Board, and the large army of his own creation, the administrators of the National Insurance Act. I deliberately leave out the word Health, with which the Act has nothing to do. It only deals with cheap physic, paltry sickness allowances, and huge administrative expenses. The poor tuberculosis patients were promised sanatorium treatment. Now the Insurance Commissioners may feel somewhat relieved of their responsibility as Dr. Brownlee in his report to the Medical Research Committee on the Epidemiology of Phthisis concludes, *inter alia,* "that an epidemic of phthisis in London is coming to an end, the course of which apparently has been something like two hundred years ..... the next point of importance is that there seems no statistical evidence that the young adult type of phthisis is affected to any extent by environment. There is no doubt that a considerable part of the decline of phthisis in recent years is on a line with the biologic properties of diseases in general and has little to do with hygienic conditions."

Unfortunately the decline in phthisis has ceased, and ever since the passing of the

Insurance Act the death-rate has been on the up-grade. Recently at the Liverpool City Council there were strong expressions of opinion about the lack of sanatoria for the enormous number of patients waiting for treatment. There are always plenty of tubercle bacilli about, and so long as we breed a susceptible race we are sure to get plenty of phthisis; the loudly vaunted conquest of consumption is passing into the background.

Many farmers are taking a much more sensible method of dealing with the disease, they do not hope to conquer it by treatment in the medical style, but they are trying to breed an immune stock. Dr. Lionel Picton has recently told us that the Kerry cows are good milchers, and fairly immune to tuberculosis, but they are too small for beef. Now some of the farmers in this district are crossing them with a short horned bull in the hope of getting big immune cattle; this eugenic experience should be watched with interest.

I may now tell Mr. Lloyd George that if he wants an A 1 race for the Empire he must breed them; there is no other way of doing it. A good environment is necessary for the development of a healthy intellectual being but it can never create a genius, or even an A 1 man. Clever parents may not always produce clever children, but feeble minded parents never will. There always have been, and it is to be hoped that there always will be men and women who tower intellectually above their fellows. We want to raise as many of these intellectual giants as possible, and this can only be done by proper mating; the environment may improve the individual but it cannot improve the race. I admire the man who can make his own environments. There is a slow but sure evolution going on in theologic thought as well as in the more materialistic aspect of the universe, and with the higher cultivation of the moral and intellectual characteristics of the human race it will be found that the perfect man is not a mere personification of brute force.

It will not do for Mr. Lloyd George to attribute our "appalling decadence" to defects in the public health service, as many of his henchmen claim that it is the best in the world. Lately Sir George Newman attributed the rise in the expectancy of life to 50 years as due to sanitary science, omitting to mention that the chief cause is the fall in the birth-rate which is necessarily accompanied by a fall in the death-rate. Our appalling physical decadence, which Mr. Lloyd George rightly deplores, is due to a too perfect public health service, and to our benevolent sentimentality which provide for the preservation of the unfit at the expense of the fit. The mental and physical weakling has often, in the present day, a better chance of survival than the strong and healthy. The degenerate not only survive, but they are more prolific than the intellectual; they are not hampered by any economic laws, and they rapidly produce another generation more degenerate then themselves. Nature's method of adapting the individual to the environment, which is the surest method of progress, has been reversed and we now adapt the environment to the individual—temper the wind to the short lamb. We have to a large extent abolished a selective death-rate, but we seem further off than ever from establishing a selective birth-rate.

Mr. Lloyd George is extremely plausible, and as Mr. Foster said of the Grand Old Man, he can persuade most people of most things, and himself of anything. With his ideas of the effects of public health he may

think that if our degenerates were in the Colonies, the change of environment, the breath of the air of freedom might regenerate them. He should try and persuade the Colonies where the population is not too thick to exchange one of their Al men for every three of our C 3 men. In the case of politicians he might deal more liberally, and he could offer a job lot of the House of Commons for Mr. Hughes. The pacifists he should send to Germany as this peaceable country does not require their services. I am afraid it will take something more than eloquence to get rid of our degenerates. The Jukes and Kallikak families cost the United States over one million pounds, and our degenerates must have cost this country many hundred millions. Unfortunately war is dysgenic and the degenerates are flourishing while the flower of the nation are perishing on the battlefield.

Mr. Lloyd George says this must be the last war. He is very sanguine, much more so than I am. When preaching peace, eternal peace, he might remember that there has been a constant and incessant struggle going on on the earth since the first appearance of life thereon. The surest way of any nation preserving the peace is always to be ready for a fight. If he wants to give the public health a chance of regenerating his C 3 men he must see that they are protected for some hundreds of years from the savage Hun. There is no use in giving Alsace and Lorraine to the French, Belgium to the Belgians, Serbia to the Serbians, etc., so long as you allow Germany to add a million savages to her population every year. Deprive Germany of her iron and copper mines, drive her beyond the Rhine, destroy Essen and all her other towns within fifty miles of the Rhine, exterminate all the murderers including the Hohenzollern and Hapsburg families, convert Germany into an agricultural country and then you may establish the peace of Europe. It would seem that the partition and civilization of barbarous Russia would be necessary for the peace of the world.

No doubt Germany has produced a fine fighting race because she has bred for physique and efficiency. Her methods were much on the same lines as those of Chaka, the great Zulu chief, who turned out one of the finest fighting races in the world, but the Zulus are a noble race compared with the savage Huns. The Zulus are a race which should be perpetuated, while the Germans have shown themselves unfit for a civilized world.

There might be some hope for the public health service in this country if there were a few sanitarians like William Farr who in 1875 said:

"The hygienic problem is how to free the English people from hereditary disease, hereditary consumption, cancer, syphilis, gout; hereditary insanity, hereditary vagrancy, hereditary criminality; and to develop in the masses the athletic intellectual, esthetic, moral, and religious qualities which have already distinguished some of the breed. There is a divine image in the future to which the nation must aspire. The first step towards it is to improve the health of the present generation; and improvement, if as persistently pursued as it is in the cultivation of inferior species, will be felt by their children. A slight development for the better in each generation implies progress in a geometrical progression, which yields results in an indefinite time, that if suddenly manifested would appear miraculous."

I may tell Mr. Lloyd George that there is no short cut either by the National Health Insurance Act, or a so-called Ministry of Health or anything else which will subvert nature's laws. If he wants an A 1 popula-

tion to run an A 1 Empire he must breed them, there is no other course open. Many of my own profession don't agree with me, at least they often act as if they did not; my views do not give them sufficient credit to be palatable. They cure and try to prevent disease, and think that is the *summum bonum,* the surest way to acquire health, but I warn the public against such placebos. A degenerate plant may flourish in a hothouse, but when brought out to the open it withers and dies; the busy sons of toil cannot effectively work in a hothouse.

This Kingdom is at present governed by Welshmen and Scottishmen, and the Harmsworths who are supposed to rule the lot are Irish. As one who after 44 years residence, has become more English than the English themselves I would like to know where England comes in. When is she going to assert her birthright, get rid of the rubbish of Europe, let her manhood arise in their might, and with her descendants rule the world? I have often tried to point out to Englishmen that there is something better in life than making money. In 1912 I wrote the following description of the Englishman which an interprising American paper published in 1913.

"The Englishman is the state donkey who bears his own and other peoples burden without a grumble. He used to be described as a pirate and a land-grabber but those halcyon days have gone for ever. Now he is quite prepared to give a free slice of his territory to any one who will acknowledge him as the ground landlord. He proposes to give to the Irishman Erin's Isle with several millions a year to keep it afloat. I like to prod the animal in the hope that some day he may kick out; perhaps he will when, like Balaam's ass, he sees the sword which is hanging in front of him, and ready to dismember him,"

At that time the politicians in this country were really afraid of Germany, and were prepared to do almost anything to please her, give her a free hand in any territory which did not belong to us; the present Lord Colmer suggested that they might have Brazil which of course was not his to give. In this war the Englishman has effectively kicked out, but it is very fortunate that the war commenced when it did as in twenty years or so the peaceful German invasion would have controlled the country. In many respects we are still a queer sleepy illogic lot; we hang a poor harmless monomaniac, like Roger Casement, and allow traitors like Morrell and Ramsey Macdonald to go scot free.

I would strongly advise the country to carefully scrutinize any scheme which is brought forward under the catchy title of Ministry of Health. The proposals so far merely point to a glorified extension of that gigantic fraud, the National Insurance Act. Recently in discussing the Future of the Medical Profession, in the *British Medical Journal,* I said *inter alia:* "Reforms are crowding thick and fast upon us. The Board of Education has issued a very instructive pamphlet on Medical Education by Sir George Newman, I have read it with much interest and appreciation from beginning to end. He deals with the past, the present, and the future. He has evolved an excellent scheme—no better has ever been propounded—for the preservation of the unfit, and if carried out will provide work—I will not say adequate emoluments—for generations yet unborn of medical men, who will require to multiply in geometrical progression. This is to be the millenium, and yet I cannot recommend medical men to tumble into such a heaven. What will happen to the country when a moiety of the adult population will be government officials supported with their wives and families by

the other half, who will also have to bear the expenses of the war."

This is what you are in for, not a Ministry of Health but a Ministry of Disease from which the only ones to derive any benefit will be a lot of lazy, unproductive government officials. At present one-half of the medical men of the country are abroad and the other half are attending to the civilian population and the soldiers at home. Yet I have not heard of any deaths from over-work, and there are some who say that the health of the country was never better; whether this be so or not I am not in a position to say, but at any rate such a beneficient state will not be allowed to continue under the so-called "Ministry of Health." There will not be a blind alley in the country where you will not find a more or less incompetent medical man. I deliberately say incompetent because no intellectual men would accept posts which lower their ambition and contract their outlook on life.

Recently there has been published under the aegis of the British Medical Association, a pamphlet, entitled "A Ministry of Health." The character of the production is such that it might have emanated from the National Health Insurance Office, and the fact that the compiler is deeply imbued with the views of the Deputy Chairman of the Insurance Commissioners lends weight to my impression. In order that every one may have an object lesson of this proposed Ministry of Health I quote a whole page from the pamphlet:

"To take the somewhat extreme but quite possible case of a large poor family with one mentally defective child in a non-county borough, we may find the following medical officers of various authorities actively interested in the family even at the same time—the County Medical Officer of Health with his Tuberculosis Officer and his Mental Deficiency Officer (County Council), the Borough Medical Officer of Health, the Maternity and Child Welfare Officer, the Medical Officer who may be appointed to attend cases of measles and German measles (Town Council), the School Medical Officer or Officers, Education Committee, or possibly two Education Committees (County and Borough); the Insurance Practitioner or Practitioners (Insurance Committee); the Poor Law Medical Officer or Officers (Board of Guardians).

"Such a family would, for medical advice and treatment, be in the following position. The father in most illnesses would have the attention of his insurance practitioner, but when he required treatment as an in-patient he would go either to a voluntary hospital or to a Poor Law Infirmary. If he required special treatment he would probably seek it at a voluntary hospital. If suffering from tuberculosis he would see the tuberculosis officer and would be entitled to treatment at home (by his Insurance practitioner) or at a tuberculosis clinic (by the tuberculosis officer) or both, and might be admitted for a period to a sanatorium. The mother, if employed, would be in the same position as the father, but if not an insured person would get her ordinary attendance from a private practitioner, who would probably be, but might not be, the same person as the insurance practitioner who attends the father. She might have occasional recourse to a hospital or dispensary or, if impoverished, to the poor law doctor of the district. In matters concerned with pregnancy and child birth she would be advised by the officer of the maternity center. The children under school age would be attended by a private practitioner, or, for conditions which did not entail home visits, at the Child Welfare Center, or at the out-patient department of a general or children's hospital, but they would probably be vaccinated by the public vaccinator. Those under fourteen years of age going to school would be examined by the School Medical Officer and treated by him or by another for a few conditions at the School Clinic, and for other disorders at the local hospital, or at home by a private practitioner. The children over fourteen years of age and going to a Secondary or Continuation School might be examined and attended by the medical officer of a second education authority; those going to work in a factory or workshop would be examined by the certifying factory surgeon, and if over sixteen years of age, would have the services of the insurance practitioner of their choice, or (if the education bill becomes law) have a double provision by means of both the insurance practitioner and the school medical officers of the higher education authority. Any member of the family might contract a notifiable infectious disease; if this be purulent inflammation of the eyes occurring shortly after birth, it may be the business of one practitioner; if it be measles or German measles, of another; if it be one of a number of other such diseases the patient probably goes into the local fever or isolation hospital, where he is treated by yet another.

"The mother of such a family will usually be attended at child-birth by a midwife, who in an emergency must call upon the services of a

doctor (either private or the Poor Law Medical Officer). Notification that this has been done must be made to the medical officer of the county; the birth must be notified to the Medical Officer of Health of the Borough, and registered with the Registrar of Births, Marriages and Deaths, who is appointed by the Board of Guardians, and is responsible to the Registrar-General. The house will be visited by the Inspector of Midwives, by the Sanitary Inspector, by Health Visitor, by the Vaccination Officer, by the Infant Life Protection Visitor, by the School Nurse, by a Visitor under the Mental Deficiency Act, possibly also by the Relieving Officer and by semi-official or unofficial but kindly persons (as, for example, District Nurses), interested in the health and well-being of its inmates."

To do the writer full justice I may say that he proposes to roll two or three of these specialists into one general practitioner, but that will in no way lessen the work. This is how this so-called Ministry of Health proposes to raise an A 1 population. I would ask in all seriousness why there should be such a family in existence. If this tuberculous man had been properly advised by any healthy minded medical man he would never have tied such a millstone round his neck; he would not have incurred such grave responsibility, nor brought such a curse on himself, his family, and the nation. No doubt it will be told by these blatant propagandists that this poor man could not help himself, that he was a strong healthy man when he got married, and that the disease was purely acquired. In that case his innate powers of recovery should have enabled him to get over the disease, but their specious reasoning won't do; these propagandists must be hoist with their own petard, as they previously acknowledged that this man and his wife were continuing to breed not only a tuberculous but a mentally defective family.

The reformers let us know that Mr. Lloyd George is not satisfied with the Local Government Board which, after 60 years work, has only given him a C 3 population, and now he wants a Ministry of Health on the lines of his pet National Health Insurance Act. We are also told that Mr. Lloyd George's wishes must be attended to. There is a danger that his very mediocre followers will rush the matter much further than he intends, and so the nation will be landed in another hotch potch. There are many points in which Mr. Lloyd George and I are never likely to agree, but I can claim to be one of his warm admirers for his conduct of the war. His name will go down in history, but I should not like it to go down as that of the man who saved the country, but ruined the race.

According to Dr. Brownlee phthisis is still rampant in Wales, so if the Welsh are to continue to govern the country, the Welsh doctors have their work cut out. From 1851 to 1871 the death-rate in the young adult population from 20 to 25 years was extremely high, six to seven thousand per million population, about double that of England at the same ages. Those deaths weeded out the susceptible individuals before they reproduced their kind, and a vigorous population was left behind. Now there is a high level at all ages, with a maximum in South Wales between 50 and 60 years. I am afraid Wales is in a very bad way, and requires the very serious attention of Mr. Lloyd George. There are only two courses open to him, either to have a selective birth-rate, or natural selection. There is no doubt that artificial selection is the more humane, but in dealing with a highly religious community—real or fictitious—I am rather inclined to think that Nature, if left untrammelled, would, in the long run, produce the better race.

We are told that the battle of Armageddon is now being fought, and the millenium is fast approaching. I was under the impression—but it seems that I have been

mistaken—that the millenium would be a kind of preparatory heaven, where the clergy would be preaching to the converted, and lawyers and doctors would be at a serious discount. I could quite imagine that when their work on this earth ceased, there might be in the other regions some disputes which would tax a Philadelphia lawyer to settle, and our cleverest surgeons might not be able to cope with the effects of fire and brimstone. It would seem now that there is no cause for alarm at my gloomy prognostications, the Ministry of Health will provide plenty of work for doctors and lawyers so long as the country lasts, and the clergy will still have the devil on their hands. What a bright outlook for future generations!

There is scarcely a disease which is not more or less preventable, but prevention does not seem to be any one's particular job. King Edward, who coined the phrase, "if preventable why not prevented," himself died of preventable disease. The public are not yet sufficiently educated in biologic laws to take an intelligent interest in their own health. In Montreal in 1911 I stated that if the public were only alive to their own interests they would pay medical men liberally for directing them in the paths of truth and in the ways of health rather than for treating their diseases. If the money which is spent in the treatment of disease were devoted to the preservation of health, our huge hospitals would not be half filled, purveyors of synthetic remedies and artificial foods might find a suitable place in a home for the destitute, the necessity for surgeons and specialists would largely disappear, and physicians would be fully occupied in advising their clientele on the preservation of health, and in looking after the aged. I am afraid we are still a long way from those halcyon days when our hospital buildings will be pointed out as relics of a decadent age; but still we should at least aim at transmitting high ideals to our successors. We can best attain those ideals by improving the stock.

Even accidents are more or less preventably; many a young man has saved himself from shell-shock by sticking to his insular position, so C 3 men have their advantages which Mr. Lloyd George does not seem to appreciate. It is not always easy or even possible for healthy individuals to prevent diseases, but their innate powers may give them a better chance of recovery. Many of us must run risks, but it is better to risk disease and even death than live a life of ennui and carry on a useless existence.

The cry now-a-days is for more hospitals, more sanatoria, but my advice to every true man and woman is to convert their homes into miniature heavens. This no doubt would give rise to innumerable ideas, and a great variety of heavens, but still it might be a preparation for the mansions above, and at any rate on this earth would lead to comfort, health, and happiness. After all real happiness is the fundamental basis of morality.

In the present day we are having a very vigorous antivenereal campaign by a lot of very worthy old women of both sexes, who hope to get rid of the disease by preaching, prayer, and treatment. The diseases can be eradicated, perhaps not so easily as hydrophobia, by energetic sane methods, and a clear recognition that you are dealing with human nature, and not with sanctimonious hypocrites. I cannot express my views on the subject in better language than that which I recently employed in the *British Medical Journal*:—My patience is sorely tried when I see a lot of married men,

who have never practiced self-abnegation, stumping the country and preaching a man-made standard of sexual morality to virile soldiers. The unctuous guid compound the sins they are inclined to by damning those they have no mind to. The soldiers are told not to have sexual connection and they will not get veneral disease, but if, notwithstanding, they fall, then they are directed to come round the corner, where they will be treated and made whole men again. The lecturers do not even give the good advice of the sergeant-major, who told his men, "If you can't be good be careful." It is to me very deplorable that in the present day the only men who are trying to prevent venereal diseases are chemists who are selling a more or less perfect or imperfect anti-venereal outfit. My method of preventing the spread of venereal diseases—and this is more applicable to peace than war time—is to encourage early matrimony among the healthy and not necessarily large families. Give the picked services of the country—the navy, the army, and the air forces, officers and men—sufficient pay to maintain themselves, their wives and families in comfort. In this way you would encourage the evolution of a healthy, vigorous, and intellectual breed. Do not waste all your money on degenerates; they are prolific enough without any encouragement.

There was never a time when this country required better breeding, and, if we be not careful, our virile sons will go to the colonies after the war, and we shall be left with a race of derelicts, an easy prey to any enterprising nation. Then the center of the British race will have to be transferred to some other country.

"Ill fares the land, to hastening ills a prey,
Where wealth accumulates, and men decay."

"Whatsoever thine hand findeth to do, do it with thy might; for there is no work, nor device, nor knowledge, nor wisdom, in the grave, whither thou goest."

BRONCHOPNEUMONIA IN CHILDREN.[1]

BY

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No attempt will be made in this paper to evolve any new or startling ideas on the subject of bronchopneumonia, the intention of the writer being to merely present a review of certain clinical features which have been accorded more or less general acceptance.

According to latest nomenclatural suggestions bronchopneumonia may be classified as: (a) primary, *i. e.,* the acute type which occurs without antecedent illness, and (b) secondary, *i. e.,* which develops during or following related or unrelated local or constitutional disorders. It must be remembered that primary bronchopneumonia may be either lobar or lobular, but when occurring secondarily the type is almost invariably lobular. This observation is important from a bacteriologic standpoint, since in the former the predominant organism is the pneumococcus; whereas in the latter there is usually a mixed infection. Of several hundred cases reviewed by Kerley less than five per cent. were primary, and he admits that even in these the disease may have followed neglected attacks of bronchitis.

Bronchopneumonia is a most common complication or sequel of the infectious diseases of infancy and early childhood, par-

[1] Read before the Society of Physicians and Surgeons, of Louisville, Kentucky, March 21, 1918.

ticularly pertussis, measles, diphtheria, influenza, scarlatina, etc. There is always an associated bronchitis, this being the first manifestation which attracts attention. The greatest incidence of the disease is during the first two years of life, altho it may occur in children much older. It is most often observed among the poorer classes and especially attacks children whose vital resistance has been markedly reduced by infectious fevers already mentioned; those who have previously suffered from gastroenteric disturbances; those living in unhygienic and insanitary surroundings; malnutrition from any cause is a frequent predisposing factor; and children with rickets are more often attacked than normal subjects.

The severity of the disease quite naturally depends upon the age and physical status of the child; the young and devitalized suffer to a greater extent than older and more robust children. The majority of debilitated, marasmic and inadequately nourished infants under two years of age promptly succumb when attacked by bronchopneumonia despite therapeutic efforts which may be undertaken. The disease is less fatal, however, in those without nutritional disturbances or devitalizing disorders. Bottle-fed infants seem more prone to develop bronchopneumonia than those nursing at the mother's breast, probably because of the greater prevalence of gastroenteric disorders in the former than in the latter.

Contrary to prevailing opinion, the recognition of bronchopneumonia in children is not always easy and in many instances accurate differential diagnosis is impossible of accomplishment. The symptoms are most variable in their significance, character and degree. The onset of the disease may be sudden, with high fever, chest pains, rapid respirations, increased pulse rate, severe cough, dyspnea, cyanosis and vomiting; or it may be gradual, with moderate temperature elevation, little evidence of pain, slight change in pulse and respiratory rate, the cough being purely bronchial in type. However, there is almost always noted great restlessness, even altho other characteristic symptoms may be practically absent, and this must be regarded as an important clinical sign.

Where the pulmonary involvement is active, respirations are usually 40 to 60, pulse 140 to 160, temperatures range from 101° to 104° F., and the cough is more or less distressing. The physical signs obtained by the ordinary methods of chest examination may be indefinite and disappointing during the early stages of the disease. Auscultation and inspection furnish the most valuable clinical signs. Coarse, sonorous, moist rales afford evidence of the existing bronchitis; crepitant rales during inspiration indicate the location and extent of lobular implication. These physical signs are best obtained when the child is crying or coughing. Inspection reveals rapid and labored breathing, the alæ nasi are dilated and more or less cyanosis is noted especially where bilateral lobular involvement occurs.

Kerley suggests that in arriving at the diagnosis of bronchopneumonia, one always has three important points to start with, *viz.*, (a) the age of the patient, (b) the history of previous illness, and (c) the existing bronchitis. Adding thereto three other symptoms which are rarely absent, *viz.*, (a) increased pulse rate, (b) increased respiration rate, (c) fever, and a provisional diagnosis can safely be made, particularly if there be at the same time dilatation of the alæ nasi and definitely localized mucus

rales. "The physical signs rapidly develop and are many and varied, no two cases really being alike. For this reason it has been stated that the presence of physical signs should not be necessary to make a diagnosis of bronchopneumonia." (Mills.)

In his recent monograph on diseases of children, Dingwall-Fordyce suggests that in bronchopneumonia all the signs of bronchitis are increased in severity. In the acute type the onset of the disease is rapid; in the sub-acute it develops slowly, in some cases being only discovered at necropsy. Respiratory distress is marked, cyanosis and signs of cardiac failure are present. Nervous symptoms are usually inconspicuous. The lung bases are most commonly affected, and while the characteristic physical signs may be discovered over pneumonic patches, the signs of bronchitis may almost or even completely obscure these. In the secondary type the pulmonary disease follows marked impairment of health, from the beginning the patient has little reserve strength, his general weakened physical condition being a most serious element. The general symptoms and physical signs are often less marked than in the primary form, but this is not infrequently a sign of general lack of resisting power. The course of bronchopneumonia is oftentimes very protracted. The physical signs of consolidation may be observed long after the child is apparently convalescent and he may yet ultimately recover completely. Diarrhea is a common concomitant of secondary bronchopneumonia. Death occurs from general inanition or cardiac failure. "The diagnosis from bronchitis has to be made more from the severity of the symptoms than from the physical signs. It is frequently only determined in the course of time."

An analysis made by Hardy several years ago of one hundred and fifty deaths from bronchopneumonia in children showed the following interesting data: There were eighty-five males and sixty-five females; twenty patients were under three months of age, the youngest being six days old; fifty-three from three to twelve months, making seventy-three under one year; forty-six were between one and two years, making the total under two years one hundred and nineteen out of the one hundred and fifty patients studied. Study of previous modes of feeding showed the mortality nearly eight times as great in bottle-fed as in breast-fed children. Among the exciting causes the acute specific fevers held first place—measles, diphtheria and pertussis accounting for thirty-four cases. Other important exciting causes were: cerebro-spinal meningitis, suppurative otitis media, pyemia, anesthetics, typhoid fever and scalds or burns. Study of the morbid anatomy showed that both lungs were involved in one hundred and thirty-two cases, the right or the left lung alone in nine each. Massive bronchopneumonia was present in six instances, in two of which nearly the whole of both lungs was solidified. Suppurative bronchopneumonia was found fifteen times; in four cases with suppurative otitis media; in four cases with empyema (two of these also had purulent pericarditis); in two cases with peritonitis; three were part of a general pyemia and one was associated with acute suppurative periostetitis. Coexistent fibrinous pleurisy was noted in fifteen cases, serous in one and purulent in sixteen. Of the latter, empyema was on the right side in six instances, on the left in eight, both pleurae were affected in two.

Suner describes six cases with pronounced symptoms of diphtheritic laryngeal

stenosis, which the later course or necropsy proved to be bronchopneumonia. He found that symptoms of laryngeal stenosis similar to those caused by diphtheria may be induced by bronchial inflammation alone. Such inflammations may be caused by various bacteria (diphtheria bacilli, staphylococci, etc.) and may also follow measles. In cases coming to necropsy there was extensive bilateral bronchopneumonia with atelectasis and emphysematous areas between. In one there was hemorrhagic nephritis from general infection. The differential diagnosis from true croup may be made from the initial catarrh, the absence of pseudo-membrane in mouth and pharynx and from the early appearance of symptoms of bronchopneumonia; but these are sometimes lacking. Moreover, true diphtheritic membranous croup may be complicated by bronchopneumonia. The prognosis is serious. Diphtheria antitoxin may be administered when diagnostic doubt exists. The author found intubation of great value.

In Suner's first case pronounced croup and rales over both lungs developed within a few hours and croupy stridor continued unmodified until the child died next day. Antitoxin had been given but without intubation or bacteriologic examination. He was confident the trouble was not primary laryngeal diphtheria, but an extremely acute capillary bronchiolitis and his further experience with other cases confirmed the fact that bronchopneumonia may occasionally develop like membranous croup. Inflammatory processes in the lower air passages are thus able to induce signs of laryngeal diphtheria. In such cases the course is usually protracted and not modified by antitoxin as in laryngeal diphtheria. In one child croup developed after measles, but subsided within two days under local moist heat to the larynx. One child had total laryngeal obstruction following "catarrhal" trouble of the air passages. Antitoxin and intubation failed to relieve and no false membrane was discovered even at autopsy. In one case necropsy showed diphtheria bacilli in a small clot in one bronchus; but there was no membrane and the benefit from intubation testified to the laryngeal inflammation. A child of three was convalescing from measles when attacked by bronchopneumonia. Only two recovered in the six cases reported.

Nobecourt and Roger made lumbar puncture in thirty-one cases of bronchopneumonia in children. In seven there were no meningeal symptoms. In twenty-four the symptoms ranged from stiff neck to generalized convulsions. The fluid was clear and contained albumin in some cases; in others lymphocytes or polynuclear leucocytes were present. In about half the cases cellular elements were inappreciable. Pneumococci were found in only two instances; on second puncture some of the previously clear fluids showed pneumococci; the organisms in other cases disappeared as the symptoms abated. "So it may be noted that all degrees occur, from simple irritation to purulent meningitis, associated with bronchopneumonia."

In the management of lobular or bronchopneumonia, the clinical facts must be remembered that the disease rarely terminates in crisis, as does the lobar type; termination by lysis is the rule where the little patient possesses sufficient vitality to successfully withstand the prolonged infection; there is no self-limitation nor so-called cycle; therefore it is one of the most troublesome diseases of childhood which the physician is called upon to treat. When one considers the age of the patient, the dif-

ferent varieties of bacteria which may be present, and the amount of pulmonary tissue which may ultimately become implicated, the multitudinous possible clinical manifestations and the difficulties encountered in satisfactory management may be readily appreciated. In any case the disease may terminate within two weeks, or may persist for months; hence, careful observation of the patient from the beginning is required; the physical signs should be studied at frequent intervals, complications detected so soon as they supervene and treatment varied accordingly. To describe in detail the possible complicating lesions which may develop during the course of bronchopneumonia and the methods of treatment applicable to each, would unduly prolong this paper.

In the treatment of every unlimited infection the first important duty of the physician is to conserve the vitality of the patient by every possible means; and this is especially true in bronchopneumonia where irritability, restlessness, fever, cough and loss of sleep have a tendency to induce varying degrees of physical exhaustion. Obviously, therefore, the child should be made comfortable physically and mentally and proper liquid diet prescribed at sufficiently frequent intervals to afford adequate nourishment. If the child is breast-fed the nursing intervals should be carefully regulated to prevent over-feeding with consequent increased gastroenteric disturbances. The ingestion of pure water and an abundance of fresh air are primary and essential prerequisites. For the most part the child should be kept in his crib or bed, instead of being "coddled" and carried about the room or held in the lap of mother or nurse. The minimum amount of bed covering consistent with a proper degree of body warmth should be allowed and this applies with equal force to clothing worn by the the infant. More fatalities from bronchopneumonia occur in over-heated rooms with a superabundance of clothing than from low atmospheric temperatures and seemingly inadequate covering. Proper ventilation and supply of fresh air may be easily regulated by exercising judgment based upon common sense.

There continues an apparently never-ending debate concerning the merits and demerits, indications and contraindications, of external applications of so-called antiphlogistic agents in the treatment of bronchopneumonia. The writer wishes to record a vigorous protest against such ancient methods of procedure and jackets of cotton or oiled-silk, and the application of poultices. "Clay mixtures," and other similar agents are merely mentioned to afford opportunity to suggest their condemnation as useless.

In my opinion high temperature may be most effectively controlled by bathing or sponging with tepid water and alcohol about one to four. It has been my observation that cold baths and cold packs, which have been highly recommended by certain over-enthusiastic hydrotherapeutists, produce entirely too much shock and may therefore be attended by serious clinical danger. If the little patient is nervous and irritable, a warm mustard bath is effective in quieting the nervous system; it may be repeated as frequently as circumstances require to insure proper quietude. The old-fashioned "mustard plaster" has seemed beneficial in a few instances when early applied, both anteriorly and posteriorly; the application, however, should be made under direct supervision of the medical attendant or the nurse and be not left to an uninstructed

member of the family, otherwise beneficial effect will be unlikely to accrue. This is the only external application which in my judgment should ever be employed. Creosote inhalations for twenty to thirty minutes every three hours, whether the patient be asleep or awake, will sometimes be found of decided advantage in relieving the bronchial irritation.

As to the internal exhibition of drugs: In my experience all so-called "cough mixtures" containing heavy syrups, ammonia salts, etc., only serve to increase gastric disturbance; such agents have no curative effect upon the implicated pulmonary tissue. An expectorant composed of tartar emetic and ipecac has been found useful. The distressing cough may usually be effectively controlled by small and frequently repeated doses of Dover's powder.

Cardiac stimulants in bronchopneumonia of childhood should be employed with the greatest caution. They should never be used in the early stages, unless actually demanded by a marked degree of prostration with evidence of cardiac exhaustion and even then selection of the proper agent is a matter of the utmost importance. It is recognized that a weak heart beating at the rate of 140 to 160 to the minute, whether the child be asleep or awake, requires extraneous assistance; and in such cases one minim doses of tincture of strophanthus three or four times a day will be found most effective. This dosage produces no gastric disturbance and is usually sufficiently prompt in action. However, if preferred, small doses of strychnine or tincture of digitalis and nux vomica may be employed.

The excessive bronchial excretion may be markedly diminished by the administration of minute doses of belladonna or atropine; but for obvious reasons these remedies should be used with caution. Where the extremities are cold and cyanosis supervenes, nitroglycerine is indicated; but its prolonged exhibition is likely to increase headache and restlessness.

During convalescence, which is usually prolonged, the child may be kept out of doors during pleasant weather, even if a slight cough remains. At this period general tonics may be used with benefit and complete change of climate may hasten recovery.

Goltman observes: "So much has been written on this subject—the newest drugs, theories and treatment—that after one tries them all one comes to the conclusion that one, and only one, essential treatment will pull the little patient thru, and that is good nursing." In his opinion pneumonia cannot be "cut short" by drugs and too much medication is poor treatment as well as dangerous. He adds: "I have had occasion to see a tired-out heart 'whipped up' with stimulants, and one wonders, in fatal cases, whether the heart 'gave out' from the disease itself, or from the cardiac stimulants." He suggests that in a severe case of bronchopneumonia, a child's recovery or death will, in a good many cases, bear some relationship to the surrounding hygienic conditions, previous state of health and the causation—in other words, whether secondary to some of the infectious diseases or not. "Support the patient's strength with nourishing liquid diet and let the temperature and pulse be your guides as to whether you should use stimulants. The ice pack will reduce temperature in quick time. When mucus rattling is heard, when the respirations are increased and dyspnea and cyanosis are present, aim at one thing—keep the respiratory center alive. Plunging the child into a warm bath and then wrapping it up

in a cold sheet, pouring hot and cold water alternately from a height on the patient's chest, will cause the child to cough and expel the mucus." (Goltman.)

The open-air treatment of bronchopneumonia, especially when complicating pertussis, was advocated by Ker nearly fifteen years ago. His statistics showed the mortality under indoor methods in bronchopneumonia complicating pertussis was seventy-one per cent. The treatment he found most efficacious was to keep the children in the open air, having the cots uncovered but in a sheltered position for six hours daily, provided there was no rain; at night, on rainy days, and in winter, they were kept in a large airy ward with windows open. The cases selected for trial were those regarded as hopeless. It is stated that the main contraindication to the open-air treatment was laryngitis. The good effects noted were increase in appetite and general strength, less irritability and less cyanosis. The death rate of bronchpneumonia cases, instead of remaining at two out of three, was reduced to one out of three; that is, the mortality was diminished to just one-half what it had been under the indoor treatment.

The subject of hydrotherapy in acute bronchitis, bronchiolitis and bronchopneumonia in infants and young children is reviewed by Arneth, who states that for some time past he has placed these patients in hot baths. The temperature of the water is maintained at about 41° C., and when temperature is high the child is immersed every three hours, five baths being given daily. When the temperature does not exceed 39° C., the duration of the bath is ten minutes and three are given daily. The rationale of this treatment, according to the author, consists in the fact that the peripheral blood vessels are dilated by heat, thus "drawing the internal heat of the body to the surface." He found in many carefully taken records that the rectal temperature of 41° C. receded a few degrees after each bath, the greatest decrease occurring within one-half to one hour. The theory of congestion of the internal organs by hot baths is not supported by his findings. The author is not prepared to state whether the hot baths exerts an inhibitory influence upon the central heat mechanism. Bronchitis and bronchopneumonia in infants and young children are especially benefited by hot baths; in fact they are specific in such cases. They reduce fever, stimulate expectoration, thus preventing atelectasis, have a sedative and sudorific effect and directly stimulate the excretory glands of the skin. "Since hot baths have been in use, uniform recovery has been the rule and the course of the disease is also markedly shortened." (Arneth.)

The following recommendations of Kerley made several years ago seem in the main correct: The value of fresh air is emphasized, and light clothing is advised. The oiled-silk jacket is discarded as cumbersome, uncleanly and over-heating. The food, whether in breast-fed or artificially-fed infants, should be reduced one-third or one-half. The patient should be disturbed no more than absolutely necessary. Steam inhalations are commended and counter-irritation is of service. Turpentine, one part to three of oil, briskly "rubbed in" for a few minutes produces fairly satisfactory counter-irritation, but the home-made "mustard paste" is to be preferred. The internal drug treatment should be symptomatic. Heavy syrups only burden the patient. For a child of one year $\frac{1}{100}$th grain of tartar emetic and $\frac{1}{40}$th grain of

ipecac answer the purpose as an expectorant. If the cough is severe, ¼th grain Dover's powder may be added to each dose. The ammonia salts are rarely of service. If sponging or bathing cannot be used for the control of temperature, a combination of caffein, Dover's powder and phenacetin may be employed. Heart stimulants are usually necessary; tincture of strophanthus has served the author best. Strychnine may be given for a soft, easily compressible pulse with a tendency to irregularity. Alcohol is rarely of service; when given it should be withheld until the late stages; then it may be administered in large amounts. For cyanosis nitroglycerine may be used. Cold packs are the best means of controlling high temperatures. Oxygen is of immense service in severe cases with restricted breathing space.

The method of treatment adopted quite recently by Measham is as follows: The child's chest is enveloped in a light Gamgee jacket, and over this, woolen combinations are worn. The bed is placed where it will be free from draughts, and the usual amount of bedclothes used.. A fire is kept burning constantly and the window always open. The child is encouraged to take frequent sips of cold water. No medicines are administered by mouth, but subcutaneous injections of quinine hydrochloride are given morning and evening. One grain of quinine salt is dissolved in ten minims of water and the following dosage is used: For a child under six months, five minims; under one year, ten minims; under two years, fifteen minims; over two years, twenty minims. In a series of seventeen cases there were two deaths, one being attributable to Bright's disease, the other to the bronchopneumonia. The author states, however, that the fatal case was not seen until the seventh day and its chances of recovery had been lost by improper treatment.

In closing the following facetious note accredited to Northrup is interpolated without comment: "How to Kill a Baby with Pneumonia":—"Crib in far corner of room with canopy over it. Steam kettle; gas stove (leaky tubing); room at 80°. Many gas-jets burning. Friends in room, also the pug-dog. Chest tightly enveloped in waistcoat poultice. If child's temperature is 105° F., make poultice thick, hot and tight. Blanket the windows, shut the doors. If these do not do it, give coal-tar antipyretics and wait."

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DISCUSSION.

DR. L. P. SPEARS—I desire to mention one method of treating secondary bronchopneumonia which has been condemned before this society on a number of occasions. In secondary cases it is well-known that the disease may persist almost indefinitely and in practically all of them there is probably a mixed infection. In the treatment of such cases I have used catarrhal mixed vaccine and excellent results have been secured.

DR. C. G. FORSEE—I disagree with one statement made by the essayist. He said children with bronchopneumonia should be placed in a crib and kept there. I believe

frequent change in position is beneficial, the mother or nurse taking the child and holding it upright.

I have always felt that the proposition of treatment resolved itself into whether the child had bronchopneumonia or bronchitis. For routine treatment, Abbott's defervescent compound is the best combination I have used.

DR. W. H. COLEMAN—In bronchopneumonia we have to deal with a condition which puzzles the pediatrician perhaps to a greater extent than any other disease of children. It is one of the most severe, annoying and troublesome disorders we are called upon to treat, because its course is oftentimes prolonged over a period of four to six weeks; a fact which the people are unable to understand. It occurs most frequently in children who are below par in general health.

I have never had a fatality from bronchopneumonia in my practice of twenty-three years. Before clay poultices were invented I used glycerine as a local application. While it is a mistake to overheat the child in every case with jackets, in selected cases they are undoubtedly of service. Glycerine is probably the best local application. We know it is hygroscopic, and whether its action can be definitely explained or not, positive benefit is derived from its application. I use it not only in lobar but also in bronchopneumonia. It is applied over a piece of linen or muslin, with a layer of cotton no thicker than necessary to hold the glycerine. This application is renewed two to four times a day.

Iodide of potassium is a most serviceable drug in the treatment of bronchopneumonia. I administer it in the form of hydriodic acid in combination with solution of iron. We thus get the benefit of the tonic effect of the iron and the absorbing effect of the potassium iodide.

I never give stimulants in any type of pneumonia until late in the disease. While stimulants may be indicated in the bronchopneumonia of children, I believe it is also true that many infants have been killed by over-stimulation. I have known other physicians to give a child of three years 1/60th grain of strychnine. I believe we ought to administer stimulants sparingly and with caution in children; in many cases of bronchopneumonia no stimulation is required.

I have used vaccine in the treatment of bronchopneumonia in children with decidedly beneficial effects.

DR. C. B. SPALDING—I wish the essayist in closing would speak of empyema following pneumonia and especially the delay in diagnosis by the medical attendant. When the diagnosis of empyema is finally made, in the majority of instances the lung has been so long compressed that the surgeon has little chance of securing a favorable result from operation.

DR. SAM P. MYER (closing)—I have never seen empyema following bronchopneumonia in an infant. I have had no experience with the use of vaccine in the treatment of bronchopneumonia in children. I agree that change in position of the child may be desirable, but this should be made on the bed and not in the lap of the mother or nurse. Stimulation is usually required in the later stages of the disease. In the treatment of bronchopneumonia in children I do not use alcohol at any time.

Distress in the Stomach.—For distress pain in the stomach, with desire to gulp up wind, frequent sudden attacks, pains extending thru to the back; sometimes relieved by eating, (*Med. Summary,* Aug. 1918) put phosphate of lime, two grains in half a glass of water. An adult should take one teaspoonful every twenty minutes until better, then every hour or two—sure relief. If an ulcer is suspected, still this is the remedy.

Determination of Sex.—Freeborn in a recent issue of *Indiana Med. Jour.,* states that in his first series of one thousand cases he has correctly diagnosed the sex of the child in 97½ per cent., without reference to fetal heart sounds or any maternal signs. His experience covering a period of twenty-five years has taught him that practically all conceptions occurring during the first half of the intermenstrual period produce females and those taking place during the latter have produced males, irrespective of drugs, diet, age or either parent or environment influence.

PRIMORDIAL CONCEPTIONS OF BODY AND SOUL.

BY

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In accordance with certain passages of the Bible, the body is formed of dust, and is, therefore, frail and mortal; it will return to dust, whence it was taken; it lives because the spirit of life was breathed into it. In accordance with the Book of Genesis, man is considered to be created of two originally uncombined elements, soul and body; the former coming from the higher world, and the latter taken from the lower world. The destiny of the latter is to serve the former and it is organized to fulfill the commands of the law books. The dust of which the body of man was formed was composed of contributions from all regions of the earth.

A shapeless body came from the hand of the Creator (Gen. R. xiv.), and filled the entire earth, or, according to another version, reached from the earth to the sky. Bisexed, this creature had also two faces until, thru the later differentiation according to sex, man found in woman his counterpart. This ultimate body of man retains (in his nails) traces of an original coat of light, but as now constructed, it consists of a definite number of members (bones), and nerves, which numbers are assumed to correspond to the number of the mandatory and prohibitive commandments of the law. The psychology of the times connecting certain functions of the soul with certain organs of the body is recognized in the rabbinical writings; while symbolism in reference to the manifold purposes of the organs and the processes of physical life also holds a place in the anatomical science of the ancient teachers of the Talmud—the writings of Jewish tradition. As to the relation which the body holds to the soul, and the questions when the soul enters the body, whether the soul is preexistent, and whether for every newly created body there is also a newly created soul, opinions differ, tho the majority are in favor of the preexistence of the soul. The following narrative, taken from the Talmud, is self explanatory:

A king once engaged the services of two watchmen to care for his orchard and to guard well the contents thereof. One was afflicted with blindness, and the other was lame; still they answered the purpose very well, for their mere presence was quite sufficient to keep despoilers at a safe distance. One evening the lame watchman was sitting in the orchard, when his eyes noticed a luscious bunch of grapes, the first and only ripe ones in the place. "Are you very thirsty?" said he to his blind companion, who was walking up and down, feeling his way with a stick. "Would you like a bunch of fine juicy grapes?" "Yes," was the blind man's answer. "But you know that we cannot pick them. I am sightless and cannot see. You are disabled and so unable to walk." "True," said the lame man. "Still we can get at them; take me on your back; I can guide you, and you can carry me to the grapes." And so they stole the precious fruit and ate it. The following day, the king went into the orchard to gather this very cluster of grapes; for he had already observed it, as being just fit for the table. It had disappeared, and he at once taxed the watchman with the theft. "How can my lord accuse me of such a thing?" exclaimed the lame man. Here I must sit all the days of my life, without being able to move a single inch; for am I not totally disabled." "And how can the lord, the king accuse me of such an occurrence, when I am blind?" asked the other. "How can the heart long after, or the hands reach, that which the eyes cannot behold?" The king answered not a word, but he ordered the servants to place the lame man on

the back of the blind man, and he condemned them to punishment just as if they had been one man. So it is with the soul and body of man. The soul cannot transgress without the body, nor the body without the soul; the sin of both is the sin of each, and it will not avail in the great day of judgment to shirk the responsibility; but even as the lame and the blind watchmen, body and soul will be judged as one.

The body is not regarded as impure. The adjective "impure," used of the body in contrast to the pure soul, refers rather to the physical process thru which the body is produced from a "malodorous" drop. The physical person is the seat of evil inclination. This latter is natural and essential; it is not in itself a manifestation of congenital sinful depravity (Gen. R. ix.). Body and soul are alike responsible for sins committed. Maimonides mentions that to provide food and dress in proper quantity and becoming style is a religious duty. Mutilations of the body are prohibited (Leviticus and Deuteronomy). Even after death, the body was regarded as demanding respectful treatment. Once the "temple" (tabernacle) of the soul and its servant, the cerement of dust was to be guarded against sacrilegious dissection. Hence the Levitical laws rendering impure the persons touching the dead body, according to the explanation of one authority. The body decays, but it will rise again at the time of resurrection. The bodies of the risen are reproductions of those which they tenanted while living; cripples and the deformed will rise with the old deformities (Gen. R. xiv, xcv.). Early Talmudic conceits ascribe feeling to the body even after death.

Later views virtually accept the foregoing opinions, as does, for instance, one student, when he controverts the idea that the soul is abused by being compelled to reside in the body. The latter is the soul's necessary agent, and this body is the one best suited for the ends of man. The body is not impure, as mentioned before. The law declares certain secretions of the body to be unclean, but only after they have left, not while they are in the body. The human body evidences the wisdom of the Creator.

Like a red thread thru the speculations of the medieval Jewish and Arabic thinkers runs the doctrine of the four elements. Man being the microcosm, and the world the macrocosm, the effort is made to establish a correspondence between the body of the former and that of the latter. The four elements are discovered in the four humors of man's body. Israel's work on the elements influenced all subsequent thinkers in this direction. In Donolo there is the theory that the blood in man corresponds to the air; the white humor, to the water; the black humor, to the earth; and the red bile, to the fire. The five senses of man are also very prominent in the symbolic and allegorical interpretation of the Biblical texts. Ethics and poetry as well borrowed instruction and inspiration from the five senses. The body of man was thus studied from many points of view, but was always regarded as a marvelous construction witnessing to the wisdom of the Creator, whose praise was sung in benediction. One author, after dwelling upon the wonderful adaptability of the bodily organs to their functions, names God as "The Healer of all flesh and the miraculous and portentous Artificer." The more modern and reformed thinkers have relinquished the belief in the resurrection of the body. The catechisms and the prayer-books, however teach that the "body is intended by the Creator to be the servant of the immortal soul and, as such, is not congenitally depraved." "This very body—woven of dust—Thou hast dig-

nified to be a dwelling place of Thine, a minister unto Thy spirit. Even it issued pure from Thine hand, Thou hast implanted in it the capacity for sin, but not sin itself." From the dust hast Thou made man, and implanted into him life.

The word "life" denotes, first of all the animal existence which, according to Scripture, begins when "the breath or spirit of God" is first inhaled thru the nostrils, and ceases when God withdraws His breath. Life is the gracious gift of God; with God is "the fountain of life." Physical life is valued by the Hebrew as a precious good, given that he may "walk before God in the land (or in the light) of the living." A long life, in ancient times, was regarded as the reward of virtue and piety. The expressions, "fountain of life," and "tree of life" point to the paradise legend and possibly refer to a higher life. The brevity of existence is a theme frequently dwelt upon by the poets.

It is the ethical view of life which is chiefly characteristic of Judaism. Life is sacred and it should accordingly be guarded and treated with due regard and tenderness in every being, man or beast. The "righteous man regardeth the life of his beast" (Prov. xii. 10). The whole law is summed up in the words: "I have set before you life and death, blessing and cursing; therefore choose life" (Deut. xxx. 19); and the law of conduct toward others is stated in the words: "Let thy brother live with thee." The entire subject of the law is the preservation of life: "Ye shall keep my statutes and my ordinances, which if a man do, he shall live by them" (Lev. xviii. 4, Hebr.).

In rabbinical literature, the same appreciative view of physical, or earthly life prevails. A long life is regarded as Heaven's reward for certain virtues. "He who performs one meritorious act will have his life prolonged." The object of the law is the preservation of life, and not its destruction; hence, ordinarily, one should rather transgress a commandment than incur death; only in regard to the three capital sins—idolatry, murder, and incest—should man give up his life rather than desecrate God's law. "Better to extinguish the light on Sabbath than to extinguish life, which is God's light."

At a later time, owing probably to the martyrdoms under Syrian and Roman persecution, earthly life was less esteemed. Characteristic are these rabbinic sayings: "The pious live even in death; the wicked are dead even in life." "Ten are called living," that is possess eternal life: (1) God; (2) The Torah—name applied to the five books of Moses, Genesis, Exodus, Leviticus, Numbers, and Deuteronomy; (3) Israel; (4) the righteous; (5) paradise; (6) the tree of life; (7) the Holy Land; (8) benevolent works; (9) the wise; (10) the fountain of waters in Jerusalem. "Dost thou wish life? Look to the fear of God, which increases the number of man's days; look for affliction; look to the study of the Torah and observe the commandments." The Torah is called the "medicine of life."

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Vegetable Milk.—"Vegetable milk" is rich in vitamines; it is made as follows: (*Med. Council,* Sept., 1918). Grind some almonds very fine, cover with water, and allow to stand in the icebox over night. Press out the fluid thru four layers of gauze; use 1 part of nuts by weight, and 2 parts of water. After pressing out, the fluid will stand some dilution, say, to make 3 parts. It is useful in rickets, nephritis, typhoid, intestinal putrefaction, malnutrition and secondary anemia.

ORAL SEPSIS; ITS SIGNIFICANCE AND TREATMENT.

BY

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The last word at present, in the diagnosis of systemic disease, is what is the condition of the teeth and to what extent are they causative of symptoms?

Sometimes, not to say frequently, the teeth have evidently decayed and the cavities are not filled. The gums are red and swollen and the breath foul. In these instances, there can be doubt the teeth should be attended to by a dentist and if the cavities can not be filled, they should be extracted. If in addition, there have been repeated attacks of toothache, there can be little wish to retain the teeth.

Sometimes, a tooth is sensitive on pressure, or pressure on the gum around the root, causes some pain. This is often true, when no very painful attack has occurred.

Occasionally, there may be a gum boil, or some pus may be pressed from around the root of the tooth and become visible. The tooth also may be loose and altho filled with gold, or a soft filling, the tooth around the edge of the filling may be dark colored, or indeed almost black. All this means that there is disease in, or around the root of the tooth.

In many instances the teeth have been apparently well and carefully filled and yet, we are suspicious that in them will be discovered the cause of morbid symptoms if the gold cap, bridge, filling be removed. Not seldom, the tooth cavity has not been properly treated in advance and contains putrid matter. The pulp of the tooth is diseased; the nerve has not been killed. Upon inquiry, one might discover that arsenic had been improperly used or very strong antiseptic solutions. Today, asepsis, or perfect cleanliness, should be the rule of treatment, instead of doing grave harm to protective microbes in our effort to destroy those which may not be necessarily harmful if left peacefully alone.

In all doubtful cases today the last resort is the use of the X-ray and the report and interpretation of its findings. If the root is declared diseased and pus is detected around it, according to the expert, the tooth, or teeth, are doomed, no matter how little obvious trouble they have caused.

After extraction of one or more teeth, good results and even a cure of symptoms, or disease, often occurs and then everyone is relieved in mind and relatively happy. Alas, for those instances in which the tooth, or teeth, are extracted and very soon, the patient is quite as ailing as previously. The reason of this is not far to discover. The diseased tooth root and the pus formation, may be, or are, but the local expression of a systemic disturbance, which is the real cause of the local trouble. This should be treated generally and locally, also. But, teeth should not be extracted upon insufficient evidence. They are too important to bodily health and cannot be replaced. I am convinced today that too much and too refined dentistry causes great evils. I find among well-to-do people, who give close attention to their mouths, that they have numerous ailments. These different diseases—and they are numerous, are finally attributed by the very modern physician, to the teeth. It has been until lately hardened arteries and tonsils; it is now teeth. When shall exaggeration and misfits disappear in medicine? Not so long as too advanced specialism peers into every nook and corner of our physical make-up and finds something, bad or good, that must be cleaned up and at-

tended to. Prohibition has made us give up even good alcohol, wines and beer and has thrown us against our will into so-called soft drinks. But the poison of the latter will soon be discovered and the upset stomachs and livers will be innumerable.

With the upset digestive organs we shall have catarrhal throats, bad mouth and very many decayed and decaying teeth. If men and women, cannot get good alcoholic stimulant when they require it, they will get moonshine whisky, and if not that, they will ruin their nerves and their stomachs with excess of coffee and tea drinking.

To some—to many, especially among the infirm, the ill, the aged, pure water drinking makes no appeal; indeed, it is not wholesome, nor essential to good teeth.

FOOD CONDITIONS IN RELATION TO THE PRESENT EPIDEMIC OF INFLUENZA.

BY

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The statement is frequently heard that the prevailing epidemic of influenza is identical in every way with that which visited the country in 1889-90. This statement is open to challenge, for the disease that is raging at the present time has several features that cause it to differ very considerably from influenza as we have hitherto known it. In former epidemics the young and aged have suffered quite generally from the disease, and have supplied a good many of the fatalities. In the present attack it has been a notable fact that those from 18 to 45 years of age have been most frequently attacked. This has not been limited to the soldiers in the various encampments, either, but has been evident in connection with the civilian population.

The mortality in the young and robust, moreover, has been much greater during the present epidemic than has ever characterized influenza before, either epidemic or endemic. In the past, death usually has been the outcome of some complication such as pneumonia, in which event the fatal termination has seldom occurred before the 5th, 7th or even 9th day; or some secondary effect of the influenzal infection such as myocarditis or nephritis, with the fatal result often occurring suddenly three to five weeks after apparent recovery.

In the present epidemic, death frequently occurs as early as the 2nd or 3rd day, even in the most robust patients, and without any signs of pneumonic or other complications. There are in many instances certain early evidences of acidosis or acidemia, with the appearance of acetone or diacetic acid in the urine, but with the development of the infection, the toxemia usually overshadows everything else. This is often so profound that death may intervene in a few hours.

In former epidemics, influenza has assumed two principal types, the respiratory and the gastrointestinal, with pronounced symptoms referrable to these parts of the body.

Occasionally a form involving the nervous system has been observed, but this has been much less common. Each type has run a characteristic course, with fatalities rarely occurring except in the weak or aged.

In the present epidemic, the disease has varied greatly in its onset and course. The respiratory symptoms have often been absent, or slight in proportion to the apparent illness of the patient. In many cases,

the temperature has been high, while in others it has been low, with a pulse rate out of all proportion to the temperature. In still others the pulse rate has been surprisingly low, while the fever has been high. Numerous other facts might be mentioned as showing the variability of the present disease, but they are not necessary. It is very evident that the malady that is now epidemic is quite different from the influenza of the past, and this is not to be wondered at, since bacteriologic investigations have disclosed that besides the influenza bacillus a number of other pathogenic bacteria are present in practically every case and more or less active in determining its course and outcome.

The question naturally arises therefore, in view of the variety of bacteria that have been found to be exercising pathogenic activity in the current outbreak, and the apparent inability of so many individuals to offer any effective resistance to their baneful influence, is there not some special condition affecting the American people which is responsible for the severity of the present epidemic and its high mortality?

From a study of the prevalent disease, and thoughtful consideration of the conditions, economic and otherwise, that have existed for the past year, it is reasonable to believe that certain changes in the dietary which people have been forced to undergo may have produced metabolic alterations that are factors of prime importance, not only in increasing individual susceptibility to the influenzal and associated organisms, but also in profoundly influencing their behavior in the body. The opinion was general, when the present epidemic was known to be making its way toward America, that the disease would gain little headway in this country, and be very mild, because the American people had suffered none of the privations incident to the war and, on the whole, were well nourished. But it was overlooked that for some time that the people of this country had very materially reduced their consumption of sugar[1], and at the same time had substantially increased their consumption of various proteins. This change in the dietary has not been sufficient to produce noticeable changes in the bodily weight or appearance, but there can be no doubt that the metabolism of many working people has been very considerably disturbed. For a long time it has been known that the detoxicating function of the liver depends on its store of glycogen. The store of glycogen in the liver in turn depends on the intake of carbohydrates. The dietetic regimen which we have been following voluntarily, and as a matter of patriotism, has produced the very conditions that lead to acidosis, moderate in degree, to be sure, in the great majority of cases, but still typical in its fundamental factors. That acidosis lowers the natural immunity of the body and increases its susceptibility to most of the acute infections, as well as to the pus organisms, is a well established fact. We see this exemplified in certain cases of diabetes in which the metabolic balance is lost. Attacks of acidosis, tho very slight, and temporary in duration, predispose to bacterial invasion. Pyogenic processes are especially apt to develop. For a long time surgeons have recognized the menace of acidosis as a postoperative complication. The severe cases have added substantially to surgical mortality, while the milder ones have

[1] Up to a year ago the United States exported only about 167,000 tons of sugar, while during the past year over 1,308,000 tons have been sent abroad—and the sugar crop was below normal. The per capita use of sugar in this country has dropped from 85 pounds to less than 40 during the last year.

greatly increased the incidence of post-operative sepsis and the occurrence of diseases generally of bacterial origin.

It is a well established fact that acidosis is the direct and logic consequence of, *first:* suddenly decreasing the carbohydrates (sugar chiefly) in the daily dietary; *second:* at the same time increasing the bodily intake of proteids and fats. It is not necessary to discuss in detail the physiochemical reactions which take place, but every physician knows, in respect to diabetes at least, that the foregoing constitute the chief factors in precipitating an acidosis, often leading to a fatal result. The same conditions suddenly imposed in healthy persons whose metabolism is comparatively normal—in other words, fairly well balanced—will naturally produce similar chemical changes. These may not be as extreme in degree or effect as in diabetes, but they will surely be sufficient to produce a state, which being highly favorable to bacterial infection, greatly increases the susceptibility to infectious ills generally. It is only one more instance of the soil becoming suitable for the seed.

One naturally will have great hesitancy in suggesting that the food conditions under which we have been living are in any way responsible for, or contributory to, the present epidemic, not only because of the danger of arousing undue apprehension, but because of the possibility of these views being looked on as condemnatory, and one's motives questioned accordingly. I want, therefore, to make it clear that whatever blame I may attach to the food situation that has existed for the past year or so, I have no criticisms to offer or complaints to make. No one has a keener realization of the magnitude of the problems our Food Administration has had to meet than I have, and no one could have a higher appreciation of the conservative, common sense way these problems have been met.

Our country was confronted by an unprecedented situation as a consequence of the world war. Shortage of labor, lack of transportation facilities, climatic conditions and many other causes all united to produce a great decrease in the food supply of the nation's allies. Humanity and right, aside from war reasons, made it incumbent on America to respond as best it could to the imperative needs of the countries which were fighting to save democracy. Under the capable direction of Mr. Hoover, the United States Food Administration has handled a difficult situation with as little interference with our national food supply as has been possible.

The conditions which I look upon as having been chiefly productive of the metabolic disturbances I have referred to, have been unavoidable, and unquestionably would have been infinitely worse but for the wise and faithful work of those who have directed our national food affairs.

A great many people, imbued with a high spirit of patriotism, have carried out the regulations of the Food Administration so zealously that they have gone to extremes that were not demanded of them. Hence in many cases the metabolic imbalance has been mainly a matter of voluntary restriction.

The point I would like to emphasize, however, is that the disturbances of nutrition that are playing an important part in the present epidemic have not been caused by a general decrease in food consumption. For years a large proportion of the American people have eaten too much, and a general reduction of the total amount of food consumed by the average person in each 24 hours would have been salutary. The

real cause of the metabolic disturbance that has lowered bodily resistance has been too great a reduction of certain foodstuffs with too great an increase of others. This reduction of one class of foods has not been sufficient to cause any emaciation or visible changes in the body, especially since any possible tendency in this direction has been counteracted by the more liberal use of other classes of foods. Nevertheless in many individuals it has been sufficient (1) to decrease the reserve glycogen in the liver; (2) to lower the detoxicating power of this organ; (3) to produce a moderate degree of acidosis, and finally (4) to cause the formation of considerable amounts of the toxic products of proteid and fat catabolism.

If these conditions exist—and it does not seem that their presence in a great many American people generally can be doubted—is it surprising that the resistive power of a large proportion of the population of the country is lowered?

In advancing the idea that the American people are suffering from a general susceptibility to bacterial infection caused by an unbalanced dietary, some one may call attention to the fact that the per capita consumption of sugar has long been exceedingly high, that the majority of people of this country up to the past year have used more sugar—and other foods as well—than have been necessary. Granting this to be true, it still does not change the situation, for the bodily metabolism of those who have used sugar—and other foods also—in larger amounts than have been needed, has become adapted to this increase and a chemico-physiologic balance has been established. Consequently any sudden decrease of sugar consumption without corresponding decrease of the other food elements may be expected to lead to even more disastrous effects in large eaters than in individuals whose food consumption is nearer to actual bodily requirements, for the relative imbalance will be greater, with a higher degree of acidosis and greater formation of toxic catabolic products.

It is a significant fact that it is the age period from 18 to 45 years—during which individuals need larger amounts of all foods, sugar especially, and are most given to using larger amounts than are actually required—that is supplying the victims and fatalaties to a very large extent. As before mentioned, children and those past middle life have been remarkably free from the disease. If there is anything in this idea that deranged metabolism is largely responsible for the extent and severity of this so-called Spanish influenza, we would expect this very condition, for in childhood and later life the metabolism is less active, the chemico-physiologic reactions are nowhere near as extensive as in those who are working strenuously, and the processes of waste and repair do not have as extreme demands placed on them.

There are many other facts which have more or less direct bearing on this question of the etiology of influenza, but it is not my intention to go into the subject in detail at the present time. My only object is to raise the question of acquired susceptibility with the hope that the experience and observation of medical men generally will help to solve the very grave problem that confronts the American people. If food conditions are contributing to the progress and malignancy of the epidemic now afflicting our people let us attack this phase of the situation with all the knowledge and intelligence at our command.

A very difficult problem must be solved by the United States Food Administra-

tion in connection with the handling of our food resources so that our Army and Navy may be properly taken care of, our faithful allies served as liberally as possible, and our population kept from privation and want. This is a stupendous task, and under no consideration would anyone intentionally add to the burden Mr. Hoover and his associates must carry. But if it should be proven that the enforced decrease in the use of sugar is imperiling the lives of the American people, I am sure that the national food authorities would bend every effort to improve conditions and make some temporary revision of the sugar distribution that would allow any existing evils to be corrected.

On the whole, however, I am convinced that the dietetic need of the hour is not so much a question of allowing the use of more sugar, as it is a question of adjusting the other foods to the sugar available for each individual; in other words, of educating the people to arrange their diet so that it will be better balanced in its essential principles, and thus kept free from the dangers which are bound to result from improper and unwise feeding.

To meet the situation fairly and squarely, the public is "paying the price" of the comparatively slight attention that has been given by intelligent people to the scientific problems of foods and feeding. The medical profession has been very remiss in this direction, and physicians in general have devoted little or no thought to diet, or the relation of foods to the body economy.

Undoubtedly the food administration has taken counsel with the best available authorities on the metabolism of the human body and based their food regulations on their advice, but what a vast amount of good could have been accomplished if medical men generally had been sufficiently posted on the physiology of foods to have been able to guide and instruct the people in carrying out the essential regulations of the food administration?

In a way the people have asked us for bread and we have given them—none. We do not now realize the importance of this matter and the need of giving closer attention to foods in their relation to health and disease. But we will if the necessity for stringent food regulation continues much longer.

At the present moment, the most urgent problem is what are we going to do to combat the situation before us? Up to the present time practically the only line of treatment that has given any encouragement is the use of a mixed vaccine representing five or six of the most active bacteria. But such a vaccine, essential and important as it has been found, only attacks one phase of the problem.

It is hardly wise to count on the epidemic "reaching its crest," or "dying out of itself." Obviously, any disease as virulent and rapidly fatal as that now prevailing has shown itself to be, would tend to attack at once the most susceptible or most exposed in every community, and rapidly reach its zenith. After reaching this zenith, however, thru exhausting the supply of those of greatest susceptibility, it may be expected to show a gradual decline, as its field is henceforth narrowed to those who are less susceptible, or who thru the use of greater care, or the force of circumstances, have delayed their exposure to infection. But even tho the number of cases show a decided decrease, there is no reason to doubt that the disease will find victims for several months among those who, in spite of every precaution, will sooner or later be

exposed to the infection, or who may gradually become susceptible.

The rigid enforcement of sanitary and hygienic measures will help to cut down the distribution of the causative organism, but owing to the ubiquity of the infection, the disease will continue as long as there remains a considerable number of susceptible individuals who have not been infected.

All of which behooves us to give the most painstaking thought and effort to determining—and correcting as far as possible—the exact nature of the conditions in the human body that constitutes predisposition to the complex disease called Spanish influenza. Vaccines are certainly indispensable for immediately combating the invading bacteria. If these can be administered early enough they will prove effective in controlling bacterial activity in the majority of cases. But owing to the insidious onset of many cases, the physician often is not called to patient after patient until a so-called relapse has occurred, some complication due to sudden activity of a secondary organism has developed, or the lungs have become involved. It is in these stages that heroic measures are needed. A good sized dose of a mixed vaccine should be injected at once and then the patient treated as a serious case of acidosis or acute acid intoxication. Large doses of bicarbonate of soda should be given immediately by the mouth, rectum or subcutaneously. Glucose solutions, a teaspoonful to a glass of distilled water by the mouth every 4 hours, or an ounce to a quart of warm water by the rectum every 6 to 8 hours should also be used without delay. If glucose cannot be obtained forced carbohydrate feeding may be accomplished by the use of ordinary cane sugar in the same proportions and ways. The prompt effect of these measures in counteracting acidemia and restoring the detoxicating power of the liver is often gratifying in the extreme. Cases that seem hopeless will suddenly show as decided a change for the better as characterizes the crisis in acute lobar pneumonia.

It is hardly necessary to state that, in addition to the foregoing, much depends on intelligent symptomatic treatment, the use of ample quantities of nourishment in the form of broths, hot milk, hot chocolate, some of the concentrated food preparations, etc., and thoro elimination.

I rather hesitate to mention the fact for fear of bringing down upon me the wrath of those who will admit no possible good in alcohol, but at the risk of this dire result I feel it an obligation to state that the liberal use of whiskey has been a life-saving measure in a good many cases of the disease under consideration.

So much for the severe cases and those seen in the late stages. The early and comparatively simple cases, require no less close attention, and while treatment must be adjusted to the presenting conditions, I know no better rule than to treat every case as tho it was a serious one.

But if the epidemic is to be arrested and prevented from continuing indefinitely, appropriate measures must be put into effect to correct if possible the particular bodily condition that constitutes predisposition to the several organisms that have been shown to be pathogenic in every severe case.

Of course, it is too early to form any hard and fast conclusion or to make any definite statement, but I am confident that prophylactic doses of a mixed vaccine, and the systematic use of alkalines and carbohydrates, with proper attention to the elimination will give effective protection in all but the exceptional case. No person who

has received prophylactic treatment as outlined has thus far become infected.

This paper having been prepared hurriedly is essentially disconnected and abstruse. In order to emphasize certain facts that I am especially desirous of having considered, it would seem necessary, therefore, to offer the following brief summary:—

1. The prevailing disease is not influenza as we have hitherto known it. The initial infecting organism may be the influenza bacillus, altho this is not certain, but there are a number of other bacteria which are highly pathogenic, and which in the majority of cases are responsible for the course and outcome of the disease. Practically every severe or fatal case has been the result of a group infection.

2. The young and those past middle life have been notably free from the disease. The great bulk of those attacked have been between the ages of 18 to 45.

3. From the universality with which people within certain age limits have been attacked, the number of different bacteria that have been shown to be active, the rapid course of the disease, and its high mortality, it is evident that some general condition has rendered that portion of our population between the ages of 18 and 45 peculiarly susceptible to the prevalent organisms.

4. In view of the modified dietary the American people have been subject to for some time, characterized as it has been by a marked reduction of the sugar and an increase in certain proteids and fats, there is every reason to believe that a large proportion of our population—those between 18 and 45 especially—have developed a condition of moderate acidosis, which, with an incidental decrease in the detoxicating power of the liver, constitutes the susceptibility responsible for the special vulnerability of those who become infected.

5. The logical treatment of individual cases of the disease is the use of a mixed vaccine representative of the bacteria that have been found most active, with the prompt institution of measures capable of overcoming acid intoxication and restoring the detoxicating action of the liver. The results that have been obtained from this line of treatment have been highly satisfactory and afford substantial confirmation of the views presented.

6. To control the epidemic and prevent this so-called Spanish influenza from continuing indefinitely, prophylactic doses of mixed vaccine should be used, and steps taken not only to overcome the nutritional derangement from which so many are undoubtedly suffering, but also to restore the metabolic balance as permanently as possible by careful adjustment of the diet circumstances impose on the American people.

7. Particular attention should be given to cleansing the intestinal canal and flushing the kidneys.

8. Every case, no matter how mild, should be looked on as dangerous and managed accordingly, for experience has shown that the benign case of to-day may be the malign case of tomorrow.

"SPANISH INFLUENZA."

BY

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Considerable controversy has developed as to whether the present epidemic of influenza is due to the influenza bacillus or possibly to some other organism which has not as yet been isolated.

The disease spread very rapidly in Spain during the summer months and was transported from there to this country, appearing first at the seaports of the east and south during the latter part of August and first part of September. Bacterial examinations made at Alfonso XIII Institute in Spain showed the influenza bacillus as the causative organism. Bacterial examinations conducted at bacterial laboratories in this country would seem to confirm this finding. This influenza epidemic is particularly contagious. After having established itself at the ports of entry it soon took in entire communities and rapidly spread out, de-

veloping new foci thruout the country from which new communities are being invaded. Quarantine or isolation as applied to smallpox and other contagious diseases is not possible because the disease spreads too rapidly. Attempts at limiting the contagion by closing schools, churches, theatres and other places of public assemblage are being applied in the State of Pennsylvania and other sections. This practice will no doubt retard the rapid spreading of the disease, but it is questionable if it will prevent or protect many people from contracting this influenza.

This particular epidemic of influenza is so contagious that practically all susceptible individuals will become infected if exposed. A sufficient number have already contracted the infection practically all over the country to make sure that it will continue to grow until it will die out by the susceptible individuals becoming immunized while passing thru the infection. So the probabilities are that limiting contagion by closing schools, churches, theatres, etc., will have a tendency of prolonging the stay of this influenza with us instead of preventing it.

Fresh air and out-door exercise are recommended by many health officers as the best means of guarding against this disease. While fresh air and out-door life are good for the general health it does not appear to have any influence toward preventing influenza. This is well illustrated by the way the infection has spread thru our army camps. Here we have young men, the pick of the nation as regards general health and physical endurance, with plenty of fresh air out in the country, and yet the disease has attacked our military camps with greater severity than it has civil populations. From this it would appear that healthful surroundings and robust physical health are no guarantee in avoiding the disease. Susceptibility to the infection being the main determining factor, naturally prophylactic immunization with bacterial vaccines would suggest itself as the best means of raising a protective resistance to the infection. The essential danger from influenza comes from the frequency with which pneumonia sets in. This is not due to the influenza bacillus only, but to the pneumococcus and streptococcus infections as complicating factors, and necessarily any attempt at prophylactic immunization carried out should include these two organisms in the influenza vaccine.

The New York Board of Health under the direction of Dr. Park has started a campaign in this direction by employing a combined influenza-pneumococcus-streptococcus and other organism vaccine, not as having developed anything new but simply as something worth trying, as the result of other experiences in prophylactic immunization. The results from this work will be watched with great interest.

Prophylactic immunization is being carried out extensively in Philadelphia where a combined influenza-bacillus-pneumococcus-streptococcus - staphylococcus - micrococcus catarrhalis vaccine (Sherman No. 38) is being extensively employed. It is too early to know what the exact results will be but favorable indications are already apparent.

As a general proposition this prophylactic inoculation is best applied in industrial plants where it is important to keep up the efficiency of an industry, and to have as few as possible of the working force laid off on account of sickness. It, no doubt, would be a difficult matter to carry out this prophylactic immunization in civil communities. To make prophylactic inoculations ef-

fective four injections should be given at four day intervals.

While prevention should be carried out wherever possible, it is also important that those who have contracted the infection should be taken care of. The onset of the disease is sudden, presenting more severe symptoms than an ordinary cold and usually causes sufficient distress to induce the patient to consult a physician. This makes early treatment in most cases possible.

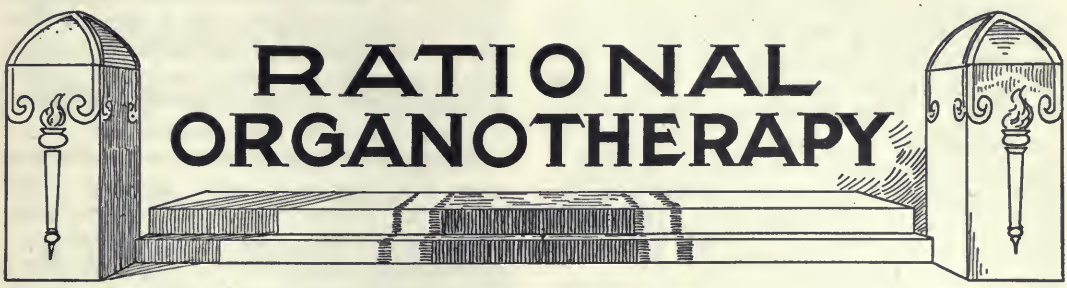
During the winter and spring of 1913 influenza bacillus was quite prevalent, in fact so prevalent that in our bacterial examinations of coryza fully one-half the cases showed the influenza bacillus during the months of January and February of that year. This gave the writer quite an extensive opportunity of employing a combined influenza-pneumococcus-streptococcus-staphylococcus-micrococcus - catarrhalis vaccine in the treatment of these cases. The results were strikingly successful when the vaccine was employed soon after the onset of symptoms. Other doctors with whom I was associated and who were supplied with vaccine had similar results. We found that a marked drop in temperature with other improved clinical conditions could be looked for within 12 to 36 hours. Similar results are being obtained from this vaccine during this epidemic.

When giving influenza vaccine, good judgment concerning dosage and intervals between inoculations is necessary. The initial dose will range anywhere from 0.2 mil. to 1 mil. according to the severity of the case. Cases presenting mild symptoms corresponding to an ordinary cold with little or no temperature should receive the small dose while those with severe symptoms, chill and fever, of three to five degrees should receive 1 mil. In the mild cases inoculations are made at two to three day intervals while in the severe cases they are made at daily intervals and in extremely bad cases twice a day for a few injections. After the fever and other symptoms subside the interval is extended to two to four days.

The great danger from the influenza is pneumonia and broncho-pneumonia due to the pneumococcus and streptococcus complicating infections. By giving this combined vaccine early, sufficient immunity is developed in time to avoid the extreme dangers from these complicating infections. In other words, we prophylactically immunize towards a possible pneumonia while we are therapeutically immunizing against an influenza infection. Early treatment with vaccine is so important to obtain the best results that the attending physician should always be prepared to give the injection at the first visit. Procrastination with this insidious acute infection is truly a thief of time and should be avoided.

575 Ashland Ave.

Large Doses of Salicin in Influenza.—The immediate administration of salicin in cases of influenza is recommended very highly by Turner (*British Med. Jour.*, Aug. 3, 1918). One and a third grams (twenty grains) should be given hourly and the first three or four doses will remove all discomfort and pain, while complete recovery will take place within twenty-four hours. This treatment also promptly renders the patient noninfective and so checks the spread of the disease. These statements are based upon an experience of over 2,000 cases of influenza, treated in this way without a complication or a single death. The treatment has been used with equally satisfactory results in the present epidemic of Spanish influenza.



Goetsch Test for Hyperthyroidism.—In response to an inquiry the *J. A. M. A.* (Aug. 10, 1918) gives the "skin reaction of Goetsch" as follows: Eight minims of a 1:1,000 solution of epinephrin are diluted with an equal quantity of sterile water and injected hypodermically into the arm. Immediately there is formed an area of blanching around the point of injection, and about the margin of this usually a red areola gradually shading off into the surrounding tissue. In about half an hour the center of the white area becomes bluish gray to lavender, and at the end of about one and a half to two hours the red areola takes on the bluish or lavender color, while that in the center disappears. This lavender areola remains for about four hours from the time of injection and is the most characteristic part of the test. Accompanying the local reaction may be increase in pulse rate with palpitation of the heart and an exaggeration of the tremor and nervous symptoms in general.

Pituitary Extract in Obstetrics.—The introduction of preparations of the pituitary body into the practice of obstetrics, says an editorial writer in the *Medical Record* (Aug. 31, 1918), has practically revolutionized this branch of the medical art. But unless the indications for its use are strictly adhered to, it can do much harm, and in consequence unjustifiably fall into disrepute. By its use, difficult labor from failure of the uterus to contract is practically overcome. It is essentially a reenforcer of contractions. In multigravidae its effect in this respect is sometimes almost miraculous; in primigravidae it is less remarkable, but the drug is still successful in over 50 per cent. of the cases where the fault is distocia uteri. But the use of pituitary extract must be confined to actual labor, for at other times it is valueless. It is a question whether it is of any service in bringing on labor at term, because it is difficult to determine this time to the day, and if given at any time before term, no matter how short, it is of no avail. Its action is that of an internal secretion. Labor at term, being a sort of magnified menstruation, is brought about thru the influence of the secretion of the posterior lobe of the hypophysis. During pregnancy there is a sort of inhibition against its action, which inhibition is probably exercised by an internal secretion given off by the placenta. It is not known what it is that removes the inhibitory action of the placenta, but in all likelihood it is a secretion from the decidua and the uterus. When the placental inhibition to the action of the hypophysis is removed labor begins; the secretion of the gland then stimulates the contractile action of the uterus, and it is the province of pituitrin to reenforce this action. But if there is some obstruction to labor it is neither desirable that the usual labor contractions go on until the obstruction is removed, nor of course that these undesirable contractions be reenforced artificially. It is, therefore, a rule that allows of no exceptions that pituitary extract must not be used unless the head is engaged in and thru the brim of the pelvis. When it is given in small doses, 2 to 5 minims every half hour, it intensifies uterine contractions and shortens labor. Chloroform, however, seems to inhibit its action, but if the patient is not completely under and is given the pituitrin the expulsion may be so precipitate as to cause severe lacerations. While it is a rule that pituitrin must not be given before labor or before the engagement of the head thru the brim, it must likewise not

be given in the third stage of labor, for while it produces marked contractions, the equally marked periods of relaxations may cause severe hemorrhages. In any event, the drug is a powerful one, and must not be administered unless the medical attendant can remain constantly in attendance, both because of the tendency to rapid delivery and the consequent possibility of laceration, and because of the danger of subsequent hemorrhage.

The Relation of the Ductless Glands to Gynecology.—Attention is called by Bigelow in *Boston Med. and Surgical Jour.*, May 23, 1918, to the fact that the ductless gland system, and its nervous influence is, in turn, mostly upon the sympathetic system. The hormones tend to accelerate the sympathetic nerves, and each shows predilections for special nerves—the most familiar affinity being that of the posterior lobe of the hypophysis for the innervation of the uterus. The increase in the general vitality of the individual at the time of ovulation, especially if the ovum become fertilized, is set down as a sympathetic stimulus by the internal ovarian secretion; and the vasomotor disturbances of the menopause are laid to the loss of the same regulating hormone. The so-called climacteric changes that sometimes occur in the male are placed in the same class. The parathyroids control nerve and muscle activity to such a degree that their inactivity is now held responsible for many forms of tetany, especially that which occurs in pregnancy. Administration of the gland, however, has not cured the condition, leaving the theory still in laboratory form. Second: that the thymus, largest at birth, atrophies at puberty. Its function seems to vary indirectly with sexual activity, because it ceases to act when this begins and, on the other hand, in eunuchs it is large and presumably active. In the condition of acromegaly, caused by hyperfunction of the pituitary, external sex markings are exaggerated. Body hair becomes heavy and profuse, virile in women, and the external genitalia are hypertrophied. Colostrum sometimes appears. Menstruation and conception may or may not take place. Conversely, with hypofunction of the pituitary, we find a loss of body hair, an increase of fat which blurs the characteristic body outlines of sex, and a retrogression of sex functions and glandular tissue. In the female dwarf, when the cause lies in the pituitary, we find, as we should expect, infantile genitalia and amenorrhea.

Reflection on these considerations seems to urge the physician who handles many women to look at the pelvis no less carefully, but to look also at the patient as a complicated whole and to avoid chemical interference with body processes of an origin deeper than we used to think.

Corpus Luteum Extract in Habitual Abortion.—John Cooke Hirst (*American Journal of Obstetrics*, April, 1918) describes a class of cases due to the "irritable uterus," in which the uterus will stand distention up to a certain point, usually three or four months of pregnancy, then expels its contents. There is no apparent cause, such as uterine displacement, lacerations or erosions of the cervix, or pelvic adhesions, and the Wassermann is negative. In the case of a patient just beginning her seventh pregnancy, previously attended several times in abortion about the third month, the thought presented itself to the author that the cause of the miscarriage might have been a premature absorption or blighting of the corpus luteum of pregnancy, the relation of which to pregnancy is well known. Upon this basis, intramuscular injection of corpus luteum extracted was instituted, one mil of the extract, representing twenty milligrams of the dried substance, being administered once daily. Thirty-six injections were given in the course of two months. The patient had never before gone beyond the fourth month and one week of pregnancy, but this pregnancy resulted in a living child delivered at term. A second patient had had five miscarriages, never going beyond three and one-half months. In the sixth pregnancy corpus luteum was begun when she was seven weeks pregnant. She was also delivered at term. A third patient had a similar history and was successfully treated. Further experience by various observers will be required to establish definitely the value of the procedure. Intramuscular rather than oral use of the extract is recommended.

Physical Therapy

Under the Editorial Direction of Albert C. Geyser, M. D., New York.

Rheumatoid Conditions.—In describing the above ailment, I prefer, for the sake of avoiding useless argument, the term "rheumatoid conditions."

As long as we are not quite agreed upon what rheumatism is, whether we are dealing with one or several diseases, there seems to be no particular harm in leaving an already ambiguous subject a little more ambiguous.

Causes.—The most widely and at the same time the most logically accepted cause is an infectious process. This does not mean that the infection is located in the involved joint primarily. It may mean that the infection started in the tonsils, the teeth, the gastrointestinal tract or anywhere else in the system.

Pyorrhea alveolaris has been commonly accepted as an inducing cause. Pyorrhea is an almost universal affection among the lower class, it is also quite common among the better class of people. Since "rheumatism" is no respecter of persons, it follows that in the great majority of cases, the patient with rheumatoid conditions is also a sufferer from pyorrhea. There is no more direct proof that pyorrhea is the direct cause of rheumatism than any other infection.

Faulty metabolism is considered by some as a leading causative factor; yet in my experience rheumatoid conditions manifest themselves in all walks of life and under any and all of the various dietetic fads. It cannot be shown that the living up to a strict diet has influenced the individual attacks to any appreciable degree. On the contrary it has very definitely been shown that the total abstinence from all food for several days, not only shortened the present attack, but materially lengthened the time between the attacks of the habitual sufferer.

On one point all seem to have agreed, that it is a toxemia of some kind. I will go a step farther and say that it is an autotoxemia. This toxic material is not introduced from without, it is the result of the ever present wear and tear of our own body cells. Such a view is in direct harmony with our every day experience, as well as with our therapy.

If a horse, a purely vegetarian animal, has been overdriven and so overworked and overheated, then is allowed to suddenly drink plenty of cold water, perhaps stand in a cold draught, that animal is sure to become foundered (rheumatoid). What really has happened is plain enough. The sudden and violent labor caused sudden and increased body wear. As long as the extra heat developed by the extra labor was maintained, complete oxidation could be carried on and the tissue wear could be eliminated, but when the body was suddenly chilled, all of the anabolic functions were arrested. Faulty oxidation, insufficient elimination, foreign body accumulation in and about the muscles and joints resulted in the rheumatoid condition.

Treatment.—The galvanic current is capable of causing decomposition of any compound thru which it is passed. It is decomposition or the reduction of worn out animal tissue into its final components that is desired. Nature failed to do this, the galvanic current will succeed. Apply the electrodes, both of which are of similar size, in such a manner that the painful and swollen joint lies between the electrodes so that the current is bound to traverse the affected area. It is the interpolar action of the current that is desired. The current should be as strong as the comfort of the patient will permit. Thirty to forty minutes must be consumed. Such a treatment may be repeated once or even twice daily. This treatment will change the general composition of the local tissue, it will cause an electrolysis. Debris is easier broken down than normal cell structure, hence such treatment is in line with nature. On general principles, when the pain does not seem to yield, the positive electrode must be made smaller and placed directly over the site of the pain for its polar effect, for about fifteen minutes following the interpolar application. Relief is usually obtained for several hours afterward.

Accessory Treatment.—The terminals from a diathermic apparatus may be placed

above and below or antero-posterior to the joint, the heat in the parts should be as great as the comfort of the parts will permit; this will assist in the oxidizing and, by the hyperemia which this current causes, prompt absorption of the exudate. Free elimination is always imperative. Most patients who suffer from autotoxemia are either hyper- or hypo-acid, it is essential that either condition is neutralized with appropriate medication.

THE TREATMENT OF CERTAIN SKIN AFFECTIONS.

Sycosis.—A chronic, easily recurring infection of the hair follicles of the adult beard, which may of course occur on any other hairy part of the body. The infection is caused by the presence of the staphylococcus pyogenes albus and aureus. The most common cause is an abrasion of the skin during the act of shaving, later the infection.

Treatment.—Apply the Cornell X-Ray tube into close contact with the diseased area, moving the tube about for a period depending upon the size of the area involved, ten to twenty minutes thrice weekly. After the fourth to the sixth treatment the hairs will fall out, a reaction, slightly inflammatory, will manifest itself with the result that healing takes place very promptly with no, or only slight, scarring.

Auxiliary Treatment.—Apply cloths wrung out in pure distilled water, keeping them as moist as possible with comfort for three or four days. By a process of osmosis the tissues will take up the water, thinning the pus which then exudes more readily. Epilate all the hairs and apply a mild ointment of the yellow oxide of mercury.

Acne Rosacea.— *Causes.* Somewhat more frequent in men than women, may be caused by anything capable of interfering with the local venous circulation as the rims of spectacles too tightly worn over the bridge of the nose; frequent exposure of the face to colds causing a congestion of the parts, certain toxic substances either systemic or dietetic, coffee, tea and alcoholic beverages. All these causes simply produce at first a congestion which if continued results in a more or less permanent dilatation of the blood vessels (venous) of the parts. The nose and cheeks are the principal sites of the disease. In chronic or unchecked cases an acne may develop in conjunction with the rosacea; should these acne lesions tend to break down, infection with a hyperkeratosis is the result.

Treatment.—The positive pole consists of a felt pad, properly moistened in a normal saline solution and is firmly placed at the back of the neck. The negative pole is armed with a handle holding a fine steel broach, such as is used for the removal of superfluous hairs; this needle is carefully inserted into the dilated blood vessels. The operator must be so placed that he can reach his rheostat without taking his eyes off from the needle, gradually turn on the current to the point of tolerance which will be about one to one and a half milliamperes. Slowly count up to ten or consuming about twenty seconds, then as gradually reduce the current to zero and insert needle into a new vessel. Ten or twelve such areas may be treated at one sitting. The reaction is usually rather mild and no especial precautions need to be taken. After the lapse of one week or ten days the vessels will all be atrophied and a marked improvement is noticeable; when the positive pole is again placed as before and assuming that there are no more veins requiring treatment, the negative is now connected to a roller electrode either metallic or carbon covered with chamois skin and moistened. Make contact upon the cheek and turn on the current to point of comfort or a sensation of warmth beneath the roller electrode which should be about five to eight milliamperes, gradually move this roller over the entire affected area, for about five minutes, being careful never to break the contact; a general sensation of warmth will be the result with a softening of the tissues, increased local circulation and consequent absorption of all excess tissue. This treatment should be continued as long as there is bogginess and acneform lesions present. As soon as the tissue becomes smooth which will happen after from six to twelve such treatments, then use the same electrodes but reverse the current with the pole switch, making the pad in the neck negative, while the roller electrode becomes the positive; at this time

the roller electrode may be dispensed with and a properly placed pad electrode substituted. Absorbent cotton moistened, then molded around about the nose over which a piece of lead foil connected to the rheophores (conducting cords) has been placed makes a perfectly fitting electrode, is clearly and can be renewed each time. The poles have thus changed at this time so that we can take better advantage of the polar action. The negative in the neck is the moisture increasing pole and by increasing the local blood supply in the cervical region, the sympathetic ganglia controlling the blood supply to the face become more energetic and this energy is manifested by contraction of distal blood vessels.

At the same time the positive pole having a tendency to dry the tissues, assists at the proper moment and a blanching is the final result which brings about a cure in a perfectly logical manner. This treatment should last about eight or ten minutes each time and should be repeated daily or on alternate days for a period of at least one month. Unless the original cause is removed relapse is very common.

Accessory Treatment.—Seek and remove all reflex irritation, as functional derangement of stomach, liver, bowels, uterus. ovaries, etc. The diet must suit the individual, whatever causes flushing of the face, tea, coffee, alcohol, meats and spices must be avoided.

Telangiectasis.—*Causes:* More common in the males than females. A condition of middle or advanced age. A dilatation of the smaller blood vessels and capillaries. Usually a central red spot or lacuna from which radiate in all directions several enlarged blood vessels. More common upon the cheeks and nose, sometimes other parts of the body, said to follow exposure, exposure to severe cold, sometimes seen on persons addicted to alcoholic abuses or other toxic substances. Once acquired nothing short of complete destruction of the dilated vessels by electrolysis is recommendable.

Treatment.—A pad electrode the size of the hand is placed upon any convenient place in the close proximity of the lesion, this is attached to the *positive* pole of a galvanic current, while the negative is armed with a fine steel broach which is inserted into the full length of dilated blood vessels, then a current for about ten seconds is allowed to flow or until the operator has counted twenty, as he would count for any purpose. The current is then reduced to zero and a new vessel selected. As the clot or the process of negative electrolysis is a soft alkaline clot, it soon becomes absorbed without leaving a scar. It sometimes, however, happens that the negative electrolysis is insufficient on account of the size of the dilated vessels and the softness of the clot formed. In that case the poles may be reversed with the pole switch and the needle now becomes the *positive* pole, but as the positive pole is the metal decomposing pole, *care must be taken that the needle is either gold or platinum,* else an oxychloride of the metal will be deposited into the skin, leaving bluish or dark lines similar to tattoo marks.

Accessory Treatment.—Remove the cause thereby avoiding recurrence.

Acne Vulgaris.—Most common between the ages of fifteen and twenty years, affects males slightly more than females.

Cause.—Constitutional and local.

The constitutional causes are usually an over-production of sebaceous material which becomes especially apparent either after a digestive disturbance or some reflex action due to uterine or ovarian conditions. If the lesions become serious enough to require treatment beyond the correction of the constitutional diathesis, then some local factor as infection with consequent inflammation has taken place.

Treatment.—Correct the hygiene of the face, then apply at any near convenient spot a pad electrode attached to the *positive* pole of a galvanic battery, the other pole is attached to a fine needle, seek to penetrate the center of each follicle, then turn on the current to about ½ to one milliampere allowing it to flow for thirty seconds. Electrolysis takes place within the follicle and prevents the future accumulation of sebaceous matter within it. Each individual follicle must be treated. The results are far superior to curetting as the remaining scar is invisible, and the treatment by no means as painful as curetting.

Accessory Treatment.—Correct all functional reflexes, as they play a very important part as causative factors? Massage the face with an electric vibrator apparatus. The hollow rubber cup should be passed gently with the highest possible rate of vibration over the parts for five to eight minutes. The parts will appear tumefied and feel hard to the touch but they do not pit on pressure; this condition remains for ½ to 2 hours, then areas return to normal. The X-ray has been used with considerable success in sever cases, but should be used with caution. Personally I have never seen the necessity for its use. High frequency from glass vacuum electrodes acts as counterirritant and rubefacient. Unguents and lotions beyond their soothing, cleansing and antiseptic properties are of doubtful value.

Hypertrichosis or Hirsuties. — The causes for an overgrowth of hair are so varied that no one cause can be assigned. It is of course as common in men as it is in women, but it is only in the latter that we are called upon to treat this condition. I have seen this condition in all ages, blondes as well as brunettes and in all parts of the body. The face, forearms and the back of the hands and fingers are the locations where this overgrowth of hair becomes the greatest source of annoyance, altho I have upon one occasion been obliged to remove all the hairs from the entire extensor surface of the lower limbs before a young woman patient would consent to marriage.

Treatment.—When the hairs are few and of rather strong growth electrolysis is the choice of methods. The region, if in a brunette, requires little or no preparation, but if as frequently happens the patient is a blonde, then before starting the operation the field must be prepared. Secure a candle or in its absence, a wooden match or two will answer the purpose, the candle or the match is lighted and held closely to the under-surface of a porcelain saucer allowed lampblack to form upon the porcelain. When a sufficient amount has accumulated a drop of olive oil, liquid vaseline or similar fatty substance is mixed with the lampblack. This mixture is then thoroly rubbed into the region about to be treated for one or two minutes, then wiped off with a piece of absorbent cotton. Every hair in its follicle will now be surrounded by an accumulation of this lampblack so that the operator does not strain his eyes, neither is he obliged to make use of magnifying glasses.

The *positive* pole of the galvanic current is attached to a large pad electrode and applied at any nearby convenient location; always bearing in mind to locate the two poles as near each other as is practical, so as to have as little resistance to overcome as possible.

It requires voltage to overcome resistance and every unnecessary volt used increases the pain, while it only requires a certain amount of milliamperage to do the work. The negative pole is attached to a needle holder and a very fine steel broach purposely made for this work. In the absence of such a steel broach a very fine cambric needle will answer the purpose. Insert the needle for about one-eighth to one-sixteenth of an inch into the follicle, now gradually turn on the current thru the rheostat to a point of tolerance, which will be about one-half to one milliampere. If it is one milliampere that is passing, with of course as low a voltage as possible, the needle should remain in position about ten seconds. At the end of five seconds decomposition of the tissues will occur, this may be seen by the accumulation of froth or foam around the needle. Gradually reduce the current to zero and withdraw the needle. With a pair of epilation forceps take hold of the hair, if it has been properly loosened, it will come out of its follicle without the patient being aware of the traction made. Have a small paper card handy and touch the root of the hair to the card, it will adhere there. I usually fill four or five rows, ten hairs in each row. This not only keeps a record of the number of hairs removed at each sitting but it satisfies the patient that there are actually so many less at each time. The various punctures should be made as far apart as is possible because the more healthy skin intervenes between the various punctures from time to time, the better is the healing process; while if a number of these injured follicles lying in close proximity to each other should become infected, an unsightly scar might be the result. The aftertreatment consists in removing the lampblack

and proper cleansing of the parts. The patient should be instructed to frequently bathe the parts with hot water. About one week later a new lot may be so treated.

Each follicle, after healing has taken place, is filled with fibrous or scar tissue. About ten to fifteen per cent. of the hairs so operated upon will return. With practice and care the percentage may be decreased to even five per cent. Should there be a heavy growth of hair this practice is altogether too tedious. The X-ray is perhaps the best and surest permanent depilatory we possess. Attach a Cornell tube to either a coil or static machine. If attached to a coil the interruptions must be as slow as the particular type of interrupter will permit, not more than twenty interruptions per second. A very handy little instrument known as the X-ray flasher may be attached to any make of coil; with this instrument in operation the interruptions may be made as low as ten per second. These slow interruptions have little or nothing to do with the therapeutic effect, but they prevent the tube from becoming hot, thereby not only maintaining a steady vacuum in the tube but preventing a heat burn to the patient. When the tube is properly attached bring the part to be treated in direct contact with the surface of the tube. Allow the tube to remain in one position from three to five minutes, then change to a new position until twenty to thirty minutes have been consumed. After six to twelve such exposures have been made upon any one area, a slight redness will be present when the patient enters the office. (A redness is always there when the patient leaves the office but passes away in one or two hours.) When this slight redness is present at the beginning of treatment, about one quarter of the original time will now suffice to keep it there for about one week or ten days. If now the hairs are examined they will be found to be loose in their follicles and can easily be removed with the fingers. Treatments should not cease or instead of every other day, one treatment of short duration, about three minutes, will suffice in preventing a regrowth, which might otherwise happen if the X-ray treatments were discontinued too soon.

No after treatment of any kind is necessary if the technic has been correct. Should however the erythema in a very susceptible patient become alarming, cease all X-ray exposures and apply the small vacuum cup from a vacuum pump, causing suction for about thirty seconds then releasing and applying to new spot, continue this for about five to ten minutes three times per week and in ten days or two weeks all trace of the erythema will usually again disappear. If the technic has been perfect, there should be no return of the hairs, no pain during or after the treatment and little or no scaring. I know of no method of treatment that is as sure in its results as the X-ray in large areas of an overgrowth of hair.

There is of course no auxiliary treatment, unless any one of the many depillatories is applied and thereby the entire area cleaned off at once and kept so during the X-ray applications which must be the same as tho all the hairs were there.

LONDON LETTER

(From our Regular Correspondent.)

THE VOLUNTARY HOSPITALS AND THE PROPOSED MINISTRY OF HEALTH.

The British Hospitals Association has circulated a pamphlet which is a well arranged statement dealing with the future relations of the voluntary hospitals to the Ministry of Health, which should now soon be erected, if promises to the country go for anything, and if certain dissentients to the principles of the bill can be persuaded that their opposition is factious. The pamphlet sets out the arguments for believing that the voluntary hospitals should remain on their present splendid basis, by which they administer directly, and to who need it, the medical charity supplied by those who can afford it. But at the same time many large and concrete suggestions are put forward in the pamphlet for the improvement of the methods by which the benefits of the voluntary hospitals reach the sick poor.

It is understood that the bill setting up the Ministry of Health as at present drafted does not affect, at any rate directly, the voluntary system. Indeed, the Council of the British Hospitals Association has received from Dr. Addison an implied assurance to this effect.

But no one can conceive any bill erecting a Ministry of Health whose provisions will not in many directions have an influence on the working of the voluntary hospitals. The pamphlet, for example, asks the pertinent questions as to what classes or sections of the population it is proposed to bring into the net of the public health service, the writer being clearly of opinion that a connecting link will be required between the voluntary hospitals and the various state-subsidised or rate-supported, or public-assistance institutions, all of which will of course play their part in the scheme of the new Ministry. Again, it is evident that the bill must further affect the revenues of the voluntary hospitals which are already in many cases precarious. There is sure to be a decline in the subscriptions and donations of the heavily taxed classes who have hitherto been the chief support of the voluntary hospitals, and if more numerous subsidies are to be obtained in the smaller subscriptions from the working classes, arrangements will have to be made for giving these subscribers or their nominees a direct share in the management of the hospitals. This, in some of the older institutions, will be tantamount to a fundamental alteration in the management of the charities, and it is one the prospect of which liberal minded medical men view without any apprehension, welcoming it rather as certain to lead to an intelligent appreciation on the part of the public of the vast part played for national good by the voluntary hospitals both as centers of medical treatment, nurseries of medical education, and foci of medical progress. It is to facilitate consideration of these and similar important questions that the Hospitals Association, thru its honorary secretary, has set out a series of definite propositions in terms which can be discussed, so that the voluntary hospitals may be able to define the position which they wish to fill and which they think they can adequately fill in relation to the Ministry of Health. These propositions commence with the thesis that the voluntary hospital system should be permanently retained in England, at any rate, and to make the reason for the suggestion clear the functions which the voluntary hospitals should discharge if they are to make good their case are defined. Voluntary hospitals, it is suggested, should be such medical, surgical, and nursing schools as can supply treatment by specialists "made in every respect as perfect as possible in hospitals" "equipped and maintained in all their general and special departments in the highest state of efficiency and adapted to the requirements of the latest medical, surgical and nursing science and education." This high standard of hospital treatment is to be reached first thru the efforts of the hospital which must take every step to keep in the van of scientific educational research. In the second place the public is expected to help the clinical development of the voluntary hospital by proper appreciation of the position of the hospital, so that the practice demanded of it will be of a higher kind, trivial cases being eliminated and only those sent to the hospital which are suitable on the ground of their serious or rare nature. While the statement supports with force and logic the continuation of the principles upon which the voluntary hospitals are worked, it admits that at the present moment there is in this working lack of economy in important directions. This lack of economy is chiefly shown by the employment of the benefits of the hospitals for the relief of diseases, disorders and injuries which in no sense require the highly specialized and scientific treatment which the ideal voluntary hospital of the future should afford. The views of the statement are put forward in the name of Mr. J. Courteny Buchanan, Secretary & House Governor of the Metropolitan Hospital and Hon. Secretary of the British Hospitals Association. They have not as yet been formally considered by the Council of this Association, but it is thought that the pamphlet may usefully be taken as the basis for a discussion on the subject at a conference to be held shortly.

THE IMPORTANCE OF THE HOME.

In the course of an important address on the national policy of Great Britain after the War, Mr. Lloyd George recently drew for a Manchester audience an extremely eloquent picture of the position which the healthy home occupies in the social scheme. The Prime Minister, who is always at his best when going at large to a public audience, flatly declared that, as far as Great Britain was concerned, the war would have been waged in vain unless it led to national resolution and a national policy to secure a higher level of public health. He claimed, and fairly, that Great Britain had come very well out of the terrible ordeal, plunged as she was into a war for which rightly or wrongly she was wholly unprepared, but he pointed out that what the Empire was able to accomplish was considerably damaged by the bad (he used the word "appalling") state of the health of the people between the ages of 18 and 42. These ages cover the period of maximum fitness and strength of manhood, but the compiled statistics, as a result of recruiting investigations, revealed that the British population does not show up well at the prime of life. The Prime Minister stated, giving high authority for his words, that if the public health of the country had been reasonably good, there would at the beginning of the war have been available at least one million more men from England and Wales, and at that date in the struggle such an accession of manpower might have immediately turned the scale against the Central European Empires. Failing this potential million, however, a series of raids had to be made by the authorities on the male population of the country, with the result that many men whose work at home was infinitely more valuable for the Allied cause than it could conceivably be in the ranks, were perforce enlisted to meet the numerical shortage. All this was probably as well known to his hearers as it must be to medical men. But the deduction drawn by the Prime Minister is of particular interest when this country is awaiting a scheme for a new Ministry of Health. Hardly a word

was said about a Ministry of Health or about the organization for medical inspection and attendance which will follow upon the new legislation. The Prime Minister went behind any position to be improved by organization, and pointed out that the *first thing to be secured* is a healthy home for the mass of the population. The text of his address from this point became the importance of the home, and he incidentally disposed of a very convenient fiction that insanitary homes are only to be found in urban slums. This is the accepted belief of the municipal authorities of country towns and the owners and occupiers of land in rural districts, but when the manhood of the country came under the sifting inspection of recruiting officers it was found that the results among agricultural laborers were as disappointing as they were among those following any other industry. These agricultural laborers possessed by right of employment all the things for the lack of which the urban operative is supposed to be weedy, undeveloped, tuberculous, and so on; but the healthy nature of their daily toil in the open air is counterbalanced and more than counterbalanced for ill by the foul insanitary condition of their cottage homes. Mr. Lloyd George directed the attention of the country to the immediate necessity of providing healthy homes for the people, stating that the problem of housing in England must be taken actually in hand and not written about. He will certainly find himself backed up in town and country by the medical profession whose finest efforts of preventive medicine have over and over again been balked by the domestic environment of the mass of the people.

ECONOMY IN FOOD.

The Ministry of Food pursues the active course under the administration of Mr. Clynes which had been laid down for it with wonderful prudence and tact by the late Viscount Rhondda whose business capacities were so wonderfully revealed upon his sudden call to high government office and whose untimely death is so much regretted. The Ministry has issued a new edition of their valuable handbook "Food and How to Save It" which sets out for the information of the public all the plain physiologic facts in relation to food economy. The *Lancet* in reviewing the pamphlet in eulogistic terms suggests that it should be widely read in connection with the food supplement (June, 1918) of AMERICAN MEDICINE, and the analysis of this supplement is summed up as follows:—AMERICAN MEDICINE has certainly performed a service to the medical profession, and consequently to the public, in collecting under one cover so many valuable and up-to-date contributions to the subject of scientific feeding.

THE VITAL STATISTICS OF IRELAND.

The vital statistics of Ireland for the healthy month of August, which have just been published afford no matter for congratulation. The following table shows the births and deaths registered during the week ending August 10, in Dublin, Belfast, and other large towns, together with a summary including 13 other considerable centers:

Towns	*Population	Deaths per 1,000	Total Births	Total Deaths	Deaths under 1 yr.	65 Years and upwards
Total of 19 towns Districts	1,127,268	14.7	487	317	57	66
Dublin	305,100	17.1	180	100	21	21
Belfast	393,000	18.5	148	102	15	20
Cork	76,673	19.0	18	28	5	1
Londonderry	40,000	7.8	17	6	—	3
Limerick	38,518	21.7	15	16	3	5
Waterford	37,464	11.4	13	6	1	1

Political unrest in Ireland or administrative apathy renders Ireland, where war conditions do not press, more unhealthy in the urban centers than England or Scotland. When will medicine lift a protesting voice at the Irish muddle?

Enuresis.—Bed-wetting is a trying enough condition in the case of the individual child in the home, but in an institution caring for a great many it becomes quite a serious problem when present in a large proportion of the children (*Med. Record*, Aug. 3, 1918). Formerly, whether occurring in the home or in an institution, the condition called for disciplinary measures, on the assumption that the child was wholly responsible. At present, however, it is the consensus of opinion that enuresis is entirely a medical problem, not within the individual will of the child to prevent, nor influenced by punitive measures. Even when no definite pathologic condition is found to account for the local manifestation, it is apparent that enuresis often accompanies an inferior mental or physical constitution. It is perhaps very common in the precocious but nervous child, in whom the degree of mental precocity would seem to rule out wilful bed-wetting. However, the irritability of the nervous system in children of this type causes an undue reaction to any stimulus, and they have little control over any of their functions. Of course, there are tangible local conditions that cause incontinence in the bladder, but these do not

constitute the problem of bed-wetting. On the other hand, as a purely local condition but which must cause the great majority of cases of enuresis, anomalies of the foreskin of male children and adhesion of the rudimentary one in female children hold the first place. When this is recognized as the etiologic factor, circumcision seems to cure about 80 per cent. of these cases. There is now no longer any doubt that circumcision in the male child is a prophylactic measure of greatest importance not only in the prevention of this condition but in the prevention of many bad habits. As a therapeutic measure in many backward children who display no basis for mental deficiency, it can be compared with operations for the relief of obstructions to respiration. But altho these physical and nervous conditions are the basis for the bed-wetting habit, there are many exciting causes that need attention in order to prevent the attack or as after care in cases having received the active treatment indicated. Any circumstance which encourages relaxation of the sphinctors during sleep encourages bed-wetting. Sleeping in an overheated room, in an overwarm bed, or on or under a feather bed is likely to cause bed-wetting in a child so inclined. Also a child of this type sleeping with an overfilled bladder will soon lose the power of resistance of the compressor muscle, especially since he already has poor control over it. It is for this reason that fluids of any kind must be interdicted to such a child after about 6 o'clock. And it goes without saying that the awakening of the child during the night to empty its bladder will prevent the annoyance of the bed-wetting until such time as the appropriate therapeusis makes this unnecessary. Drugs usually given in this condition seem of doubtful value, except such as are tonics to the entire organism. Unless the medical point of view is accepted in relation to the cause of enuresis, and treatment is instituted accordingly, little improvement can be expected. On the contrary, the punitive measures usually adopted can but aggravate the condition.

The Treatment of Pneumonia—The Croupous Type.—Ives in *New York Med. Jour.* (Mar. 16, 1918), says faith is placed in the use of serum if it can be obtained; in optochin, or quinine and urea hydrochloride as outlined; in camphor when toxemia is very marked; and in caffeine, sodium benzoate, and digitalis by mouth or hypodermically as sheet anchors, thiocol or creosote carbonate being used with associated bronchitis.

In detail the following points in the treatment are important: absolute rest in the recumbent position, in the proper temperature, according to age and condition; careful attention to the intestinal tract; very careful feeding, including milk, cereals, fruit juice, egg, and limitation of protein elements; following the chill, for the first twenty-four, thirty-six or forty-eight hours, administration of the dosimetric thirty granule:

Aconitine hydrobromide .....gr. 1/800
Digitalin .....gr. 1/64
Strychnine arsenate .....gr. 1/128

This is given to the aged or asthenic patients. To the robust or sthenic type the defervescent compound granule may be given.

Aconitine hydrobromide .....gr. 1/800
Digitalin .....gr. 1/64
Veratrine hydrochloride .....gr. 1/128

These formulas for many years had the endorsement of the late Dr. Francis Delafield, of New York, and are now used by thousands of able practitioners thruout the country. They promptly reduce and control the circulatory disequilibrium. These remedies are used at first half hourly, and later at hourly intervals. For the toxemia, quinine, optochin, or camphor, as outlined, are given, the quinine intramuscularly, the camphor subcutaneously and the optochin by mouth. Digitalis, tincture or powder, is given early. Strychnine sulphate, 0.025 grain, may be used for the vasomotor effect. For severe pain, small doses of morphine sulphate subcutaneously. For sleep or for restlessness, heroine hydrochloride, 1/12 grain, *pro re nata*.

A word regarding digitalis, the sheet anchor in the protection of the heart in pneumonia. Alfred E. Cohn, at the Rockefeller Institute, recently proved that the drug positively acts beneficially in the fever state. Therefore, in pneumonia it is wise to begin the administration of digitalis early in the course of the disease, the purpose being not to produce immediate effects upon the heart, but to put the patient in such a condition that later, when the need arises, physiologic digitalis effects may quickly be obtained by the use of moderate doses by the mouth, subcutaneously, or intramuscularly. To accomplish this Cohn's method is advocated. If the case is seen early, 0.5 gram of the drug is given by mouth on the first and also on the second day. It is given again, in the same amounts, on the fifth and sixth days.

No more is given unless indications arise. Of course it is understood, that these are adult doses, and based on the Cary Eggleston's method of administration. If the patient is seen late in the disease, say on the third or fourth days, 1 gram is given in the first twenty-four hours, then wait one day, and on the two subsequent days, 0.5 gram on each, is given. Should fibrillation or flutter develop, or should the rate unexpectedly rise, the drug is freely used. Cole recommends the product digipuratum because of its accuracy of standardization.

It is obvious that the diet is important. Nourishment must be given in simple form—milk, cereals, fruit juices, with milk sugar—at regular intervals of two hours thruout the day, in amounts of six to eight ounces taken thru a tube with the patient recumbent. Orangeade sweetened with milk sugar is both grateful and nutritious. Avoid producing flatulence. It is highly important to open the primæ viæ carefully at the onset.

It is well to keep regular tabulated entries of the blood pressure on a chart. Recall that

the toxemia at the onset may cause a fall of ten or more points in the diastolic pressure. Thus a low systolic pressure and the abnormally low diastolic pressure may deceive the observer into a false security of a fair pulse pressure. Remember that a low systolic and a low diastolic tend to a poor prognosis. The systolic must be maintained and raised, if possible. Forewarned is forearmed. It is vital that the recumbent position must be maintained from the onset to the termination of the critical period, and for a period of seven to ten days following. Complications must be recognized and met promptly and positively. As all acute infections cause a myocardial involvement to a greater or less degree, inducing degenerative changes, insist on a slow return to the upright position, and restrain the patient for weeks to permit restoration of the enfeebled function of tonicity. Indicated tonics should be administered. Resolution, if delayed, may be hastened by radiation and iodides.

The successful care of pneumonia demands a physician who is alert, accurate in diagnosis, thoughtful, resourceful, and determined, one who is ready to resort to positive measures, if needed, and who knows no relaxation till the patient has wholly recovered or the battle lost; one who can control the case with power, and sustain the patient, family, and friends thru his vigorous and dominant personality. Success must be his motto.

Treatment of Senile Chorea.—True senile chorea should be treated with arsenic, and the method Thewlis (*Med. Review of Reviews*, July, 1918) uses is to prescribe tablets containing 1/100 grain of arsenic trioxide, one being given before each meal and at bedtime. Fowler's solution may be used in five minim doses three times a day, but it is essential to watch for the secondary effects of arsenic in the aged, as elimination is very slow; the drug is apt to have a cumulative action. In the aged, the secondary effects of drugs are fully as important as the primary action, and the bowels should be kept open by free catharsis to prevent this cumulative action. The symptoms of arsenical poisoning are first a puffiness of the lids and coryza, and when these symptoms are noted the arsenic should be discontinued for a few days. Ordinarily, at the end of three weeks, discontinue the arsenic and replace it with the elixir of iron, quinine and strychnine phosphates, now unofficial, administered in doses of a drachm before each meal. At the end of two weeks the arsenic is resumed. In convalescence, the elixir of iron, quinine and strychnine phosphate makes an excellent tonic, but its slightly constipating effect must be overcome by means of cathartics.

If nephritis is the cause of the condition, it should be treated by dietary methods and free elimination thru the emunctories. If the patient is robust, a saline laxative may be prescribed each morning before breakfast, and for the physically frail type of patient a pill should be used. Again, in a robust patient, electric cabinet baths are beneficial.

Acute Nephritis Complicating Infectious Diseases.—Burt, writing in *Journal Record of Medicine* (April, May, 1918), says hot baths and packs to the back have a tendency to relieve the congestion of the kidneys by increasing the secretion of the skin. Milk and water is the proper diet when albumin first appears in the urine, and should be rigidly enforced, but if the patient's stomach rebels at the milk, one can give thin gruel, oatmeal, malted milk or cereal milk. Barley water has some nourishment and can be given freely; a very refreshing drink is made from a teaspoonful of cream of tartar in a pint of boiling water, to which is added the juice of a lemon or an orange; may add a little sugar. This acid is burned into an alkali in passing thru the system. If the patient's stomach is much disturbed and vomits frequently, it is best to withhold all foods for a while and give liberal quantities of hot water; however, one cannot continue this treatment long, for it tends to acidemia, which would add its toxins to those already present and tends to produce uremia.

Bismuth subcarbonate, fifteen grains every two or three hours, is usually sufficient to control the vomiting. To produce elimination the body should be kept warm, hot sponge baths should be given; medicines and hot packs should not be given to produce sweating; nothing is indicated but warm drinks and warm applications to the back. The intestinal canal should be cleaned out by a calomel purge, but too free purgation is not indicated.

Epiphora or "Watery Eye."—Francis in *Illinois Medical Journal*, June, 1918, says that in treating this condition in the presence of pus or muco-pus early probing should not be undertaken. Daily irrigation of the sac with bichloride of mercury 1 to 4,000 or 5,000, followed each time with warm boric solution is the best line of treatment. Recently the writer has been using a few drops of a 1 per cent. solution of ethyl hydro-cuprein hydrochloride twice a week after the bichloride irrigations allowing it to remain in the sac, and am convinced that it is of great value. Hot compresses applied over the sac, very much as one uses them in cellulitis are of benefit, especially in the old cases. The compresses should be changed every 10 or 15 minutes for a few times morning and evening. Massage of the sac with the ball of the forefinger for a few minutes, a. m. and p. m., has served as an aid in many of my cases. During the massage rather firm pressure should be made. One-fourth of a grain or more of protoiodide of mercury t. i. d. is often useful even where syphilis can be positively excluded.

After the sac is free from pus and remains so for several days or more, a few drops of

adrenalin, one part to three parts of boric solution should be placed in the sac with a lacrimal syringe. After about five minutes the sac should be again syringed with warm boric, when we will often be rewarded by the fluid passing thru into the nose. Should this not take place after repeating the adrenalin two or three times on successive days, probing of the nasal ducts is indicated.

Intensive Treatment of Tuberculosis.—Crewe reports having accomplished much by the intensive treatment of this disease. (*Journal-Lancet*, July 15, 1918.)

The treatment is divided into two periods: first, that of intensive treatment, and second, that of graduated exercise.

The first period, or that of intensive treatment, covers from one to three months, the time varying according to the intensity and extent of the infection and the resistance of the patient. During this period the patients are kept in bed, regardless of what the temperature and the pulse may be. They are given from six to nine quarts of very rich Guernsey milk a day. In some cases the milk is fortified by the addition of sugar of milk, but usually only raw, clean, tested Guernsey milk is used. The quality and purity of the milk are important, and we are especially fortunate in being able to secure milk from a splendid herd of pure-bred Guernseys, handled after the most modern and approved methods.

Milk is blood before it is milk. Osler speaks of it as being nothing more or less than white blood. This diet makes more and better blood faster than is done by any other means. Tuberculous patients seldom have any difficulty in taking from six to nine quarts of milk a day. It should be slightly warmed, and given in thirty-two half-hourly feedings, the patients being instructed to take the milk slowly, and to mix it thoroly with the saliva.

Beginning cautiously, and with as little exertion as possible, all patients are given hot baths, followed by hot packs daily, and are made to sweat profusely. Even patients in very advanced stages bear this well, and all declare that they feel much benefited and refreshed after they have cooled off and rested.

Because of the frequent feedings and the necessity of not allowing the milk to be taken cold, it is impracticable to give the treatment out of doors in very cold weather. Keeping milk in thermos bottles has been tried, but this is not practicable because of the difficulty in properly cleansing them and because the patient becomes chilled by being obliged to uncover while pouring out and drinking the milk.

While it is preferable to treat tuberculosis out of doors, this is not necessary in severe weather.

The Treatment of External Hemorrhoids.—After having tried everything in the whole category of local medicaments, Marrs (*Medical Summary*, May 1918) reached the conclusion that for immediate relief a slippery elm poultice, applied hot and often, is about as dependable as anything of this class. If the congestion is intense and the parts hot and swollen, cold applications in the way of water and an ice-bag may be the more serviceable. A suppository of one-half grain of morphine should be employed if there is much pain. Local anodynes can afford little more than such relief as they produce in a mechanical way. If a thrombus has formed it should be incised with a scalpel and the clot expelled. If heat and compression should not control the hemorrhage the points may be touched with chloride of iron, and in severe cases with a 1-1000 adrenalin solution. Should there be an abraded surface, or a broken-down, suppurating pile tumor, a sedative-astringent remedy is indicated. After cleansing the parts with warm carbolized water the following is very serviceable:

℞ Ichthyol .....3j.
Gallic acid .....3j.
Carbolic acid .....3j.
Tr. belladonna .....3j.

Make into an ointment with picis liquidæ. As an all-round application there is perhaps none better than this. Occasionally a 4 per cent. solution of cocaine may be applied to painful tumors, but this is seldom necessary except where it is desired to incise them. In cases where it is thought that a solution will be more serviceable I use this, first cleansing the parts with warm water and then peroxide of hydrogen:

℞ Tr opium .....3ij.
Tr. belladonna .....3ij.
Glycerine .....3iv.

The most essential thing calculated to abate the symptoms of an acute attack is to relieve congestion of the rectum. Copious enemas of warm water should be used before other remedial measures are instituted. Large doses of olive oil should be administered in order to produce soft, unirritating stools.

NEWS NOTES AND ANNOUNCEMENTS

A Possible Factor of Degeneracy.—Downing in the *N. P. Med. Jour.*, July 20, 1918, suggests that racial degeneracy may be brought about thru the mixture of peoples of different skull type. He points out that two well defined primitive skull types are coexistent with the earliest findings of man on the earth—the long and the broad headed types. The longitudinal diameter of the one is 100 and the transverse diameter less than 80, while the other has a longitudinal diameter of 100 and a trans-

verse diameter of more than 80. The real variation is a long sella turcica and a broad sella turcica type. In these two types the harmony of structure and function, hived in and about the craniocerebral base, bespeak the most rigid and supercrystallized racial heredity and any departure in structure or in function necessarily results in a measure of disharmony. This is demonstrated by the relation subsisting between asymmetry of form, especially of head and face, and degeneracy, both of which may be due to disharmony of structure and function in and about the craniocerebral base. Broadly speaking, in a remote period of the past, the long heads occupied all Asia on this side of a line corresponding to the western borders of China and India. Later they overran India. Of Europe they possessed the lands west of Central Russia; of Africa they occupied at least the valley of the Nile and the countries touching the Red Sea. Practically all other lands were in possession of the broad heads. Downing asserts that wars between peoples of the same skull type cannot be degenerative. In the present war we have at least three conserving factors looking toward efficient preservation and perpetuation of the race: superselection for the race when the women outnumber the men; eighty-five per cent. of our soldier boys will return after the war, racially and parentally nondebilitated, if not virgin; and the young men who remain at home have the same racial vigor and parental potentialities as the returning soldiers. War in itself is not degenerative, and a few generations will suffice for complete restoration. In this country a fourth conservative factor is woman suffrage. Chief among the good results will be a more complete segregation and a strong tendency against race mixing. On the other hand, wars between peoples of different skull types may be degenerative, depending solely on the degree of skull type mixing which follows. Friendly migrations would be equally disastrous. The writer further points out that it was not the wars that destroyed ancient civilizations, but the subsequent mixing of the people with neighbors of different skull type—the Egyptians with the African, the long heads of Asia Minor with the broad heads of Eastern Asia and Eastern Europe, the Spaniard with the African, and so on. Its accomplishment required centuries and its rebound, if any, will need other centuries of time. A happy medium of skull type may be evolved in the centuries to come and a fair level of mankind and civilization thus insured. The long heads who remain comparatively unmixed are the Celt, the Gael, the Teuton, and the Jew. In spite of the destruction of men, of wealth, of art, and of land in the present war, there is no cause for despair. Racial degeneracy and retrogration will not result if there is no skull type mixing after peace is declared. Downing, however, senses danger in the idealism of universal democracy, world-wide socialism, etc. Should the long heads of Europe and America invite or permit immigration of the mixed and broad head skull types, centuries of retrogression will follow, and if there is a rebound—sometimes there is none—it will take other centuries for its accomplishment. It is possible, therefore, Downing thinks, that the problem of saving our civilization will be handed again to the Jews—whose very religion is to continue as an unmixed race—as it was for 3000 years after the wars of ancient Egypt, Asia Minor, and Middle Europe.

Senior Military Medical Association.—Our government is and will continue to be more in need of physicians than of any other class of men in the prosecution of the present war—a war for the maintaining of our established rights and liberties and our self-respect and the respect and honor due us by other nations.

Surgeon-General Gorgas called a representative committee of the older physicians to Washington for conference, and it was there arranged that an organization of the physicians past the age of fifty-five years (the age limit for admission to the Army and Navy Reserve Medical Corps) should be formed, and that it should also admit physicians under fifty-five years if they are kept at home by reason of teaching in medical schools or being unable to pass the severe medical examination required for admission to said Medical Corps.

The Senior Military Medical Association was then formed, and at a largely-attended meeting the following officers were elected: Dr. W. W. Keen was elected President; Drs. J. M. Anders and J. B. Deaver, vice-president; Dr. W. D. Robinson, chairman of executive committee and Dr. A. D. Smith, secretary.

The purpose of the Association is to serve the government by performing such medical work as the members are capable of, especially at or near the member's residence. Its members mostly can do only part-time work, but some are able to go from home and do full-time service. The arrangement will probably be a contract with the government to do special service, with a military grading. The pay will be according to the grading and work performed.

It is felt that the members of the Association can act as consultants in general and special physical conditions of recruits and conscripted men; also, in matters of sanitation and hygiene, and in making general physical examinations and mental and special examinations and in working in local hospitals or established places or cantonments where the sick or injured men may be sent; or those where fitness may be brought about in men medically rejected from admission to the service; also in performing any other work they may be capable of by the direction of the government.

No assurance can at present be given as to when service may be requested. Men may apply for admission to the S. M. M. A. by filling out the blank card which will be supplied upon request to Dr. Alexis Dupont Smith, and returning it properly filled out and one dollar, the annual dues made necessary to cover postage and incidental expenses.

For the present, residential limit of eligibility for membership includes Pennsylvania, New Jersey, Delaware, and Maryland. When points remote from Philadelphia have organized units or branches of the S. M. M. A., membership may be transferred.

The membership now numbers several hundred, whose loyalty has impelled them to offer such service as they can perform for their country, now in the time of its need. Surely no slackers are they, when they might have been excused. Their country's honor their honor.

Bulletin on Spanish Influenza.—The Surgeon-General of the U. S. Public Health Service has just issued a publication dealing with Spanish influenza, which contains all known available information regarding this disease. Simple methods relative to its prevention, manner of spread, and care of patients, are also given. Readers may obtain copies of this pamphlet free of charge by writing to the Surgeon-General, U. S. Public Health Service, Washington, D. C.

Conservation of Platinum thru Physicians and Dentists of the Country.—In view of the limited supply of platinum in the country and of the urgent demand for war purposes, it has been requested that every doctor and dentist in the country go carefully over his instruments and pick out *every scrap of platinum* that is not absolute essential to his work. These scraps, however small and in whatever condition, should reach governmental sources without delay, thru one of two channels: (a) They can be given to properly accredited representatives of the Red Cross who will shortly make a canvass for that purpose. (b) They may be sold to the Government thru any bank under the supervision of the Federal Reserve Board. Such banks will receive and pay current prices for platinum.

It is recognized that certain dental and surgical instruments requiring platinum are necessary, and from time to time platinum is released for that purpose. It is hoped, however, that every physician and every dentist will use substitutes for platinum for such purposes wherever possible.

Physicians are warned against giving their scrap platinum to anyone who calls without full assurance that that individual is authorized to represent the Red Cross in the matter.

For Medical Officers Visiting London.—The Council of the Royal Society of Medicine offers a cordial invitation to the Commissioned Officers of all the Naval and Military Medical Services, when in London, to make free use of the Society's Rooms (which include Writing, Conference, Smoking, Tea, and Dressing Rooms) and to use the Library for reading and reference.

They are also welcome to attend the meetings which are held for the reading of papers, clinical demonstrations, and for discussions. These are announced in the weekly medical journals. The Society's house is open every day, except Sunday, from 11 a. m. to 6.30 p. m., 1, Wimpole Street, Cavendish Square, W. (Principal entrance in Henrietta Street, two minutes' walk from top of Bond Street.)

Death of a Great French Chemist.—We have just learned to our great sorrow of the death of M. Astier, a famous French chemist and the publisher of *Le Monde Médical*. The following announcement is taken from that journal:

"It is with a feeling of the deepest regret that we announce the death of the founder of *Le Monde Médical*, M. P. Astier. He was a man of rare parts and of extraordinary activity. In science, in pharmacy and in politics his energy found fruitful employment and the declaration of war opened up fresh fields of usefulness for his organizing capacity. Of humble origin, his intelligence and capacity for work enabled him to attain a foremost position in the pharmaceutical world. His great idea was to get science and industry to run in double harness and in this he succeeded to a remarkable degree. Nowhere was the extreme usefulness of this partnership more apparent than when, under the shock of the declaration of war, it became necessary to organize chemical manufactories to make good the shortage in various substances indispensable to national defence. In conjunction with Professor Behal he founded the *Office des Produits Chimiques et Pharmaceutiques* which gave unhoped-for results within a few months of its creation.

He took up the question of the army medical services in the Senate and did much to secure their satisfactory working. Unsparing in his criticism when, in his opinion, criticism was called for, he was unsparing in his efforts to remedy all shortcomings. He had just taken up the question of the mutilated soldier but death cut short his effort before he had time to bring his organizing capacity to bear on this complex and urgent question.

As a man he was simple, sincere, unpretentious. His great ambition was to spread a knowledge of French science thruout the world and this he was enabled to do by means of *Le Monde Médical*." In M. P. Astier France loses a great chemist, a fine citizen and a man whose contributions to chemistry and pharmacy will make his name long remembered.

American Medicine

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The War Spirit.—The great World War has come to an end. The impressive armistice accepted by Germany signalizes the complete defeat of the military party, as well as the surrender of an autocratic regime. With the cessation of hostilities, a tremendous wave of enthusiasm and unrestrained emotion swept over the world. "The war is over" was the one thought of countless millions. After a cost of 221 billions of dollars and 10 million lives, while famine showed its gaunt spectre in many lands, and a world stood under arms, a white flag marked the beginning of the end of the cruel devastations of modern warfare.

New problems of war now cry for solution. The time for academic discussions is past. The new business of the world is the orderly reorganization and reconstruction of all the warring nations. Strife having ceased, the deep undercurrents of humanity are reacting to insure the safety, health, comfort and salvation of various nations. The political difficulties which are to be solved at the peace table are of paramount importance, but no less so are the economic and social questions which must be met and answered in no uncertain terms.

Demobilization is not a matter of the next few weeks or months. The readjustments requisite for the re-assimilation of those who have entered into national service will be difficult, and require infinite care lest social disorganizations accompany the readjustments of national life. It is certain that the medical aspects of the present condition of the world must receive unusual attention. The conditions due to the depleted ranks of the medical profession in England, France, Germany, Austria, and other belligerent countries will require immediate consideration, followed by a practical constructive policy in order that the civil population will have adequate skilled forces to care for numerous health problems that war has created. The military experience acquired in building up large hospital organizations, in developing special institutions for the care and treatment of specific disabilities, will be utilized in the reorganization of hospital and dispensary systems. Socialization of medicine has made enormous progress, and possibly the real security of national health may depend upon an extension of state medicine. The advantages of War Risk Insurance undoubtedly have impressed themselves upon the general public and the further development of Workmen's Compensation Acts and Health Insurance may soon be demanded.

The 33,000 medical men who have entered into national service have had a remarkable opportunity for post-graduate instruction, and the general level of the medical profession in this country will have been raised as a result of governmental

training, supervision and organization. The elaborate system of team-work which has been so thoroly tested has created a better understanding of medical and surgical problems and, undoubtedly, will profoundly affect the methods of American medical practice. Group medicine, diagnostic clinics and similar advanced ideas, which had been meeting with considerable opposition, have stood the test of military trial, and have not been found wanting. It is scarcely believable that these experiences in medical cooperation will be lost when the overseas medical forces return to the United States and reassume their civil practices and obligations.

In large measure, the world is dependent upon the resources of this country for the upbuilding of the health of various nations. The supplying of 18,000,000 tons of foodstuffs for alleviating hunger in Europe represents but one phase of activity. The shortage of drugs, appliances and physicians will call for a large measure of support from the United States. It is not unlikely that many young physicians who had not been established in practice will deem it of advantage to remain in England and France for the purpose of assisting the physical regeneration of these countries. The three years of warfare previous to the United States entering into the conflict took an enormous toll of medical men. The depletion of the medical schools, unfortunately permitted during the early years of war, has resulted in a failure to keep medical forces up to pre-war standards in number or competence. The United States alone possesses a medical surplus available for assisting during the next few years.

The tremendous impetus which war has given to the health conservation movements will be reflected in every department of public health activity. The campaign against venereal disease, tuberculosis, insanity, the remarkable development of radiography, occupational therapy, psychotherapy, vocational training, the rehabilitation of handicapped individuals will take on a new significance when applied to the benefits to be derived by the civil and industrial populations who have been waging war in the secondary lines of offense and defense.

The war for democracy has been a war for humanity. The signal triumphs on the battlefields are by no means of greater importance to humanity than the conquests in the laboratories or the successes in the casualty clearance stations, evacuation hospitals and base hospitals. History affords no finer example of medical thoroness and surgical care than that which has been attained under the lash and goad of military necessity. The health and welfare of the United States Army is a most creditable tribute to the organization and efficiency of the Medical Departments of the Army, the Navy and the Public Health Service, supported most enthusiastically by the entire medical profession. The epidemic of influenza in a few weeks has been responsible for American fatalities, probably fifty fold those due to war. The deaths from diseases among the overseas forces thus far are not greater than the deaths ensuing as the result of wounds, while they are less than one quarter the number reported killed in action. Military service has been a healthful occupation.

Honor and grateful thanks of the Nation go to the noble dead and the families which have been honored thru their supreme sacrifices. Their service to the Nation and humanity is beyond human measure or estimation. Unafraid, they have boldly rushed

across the threshold leading to the House of God, inspired by every emotion that emanates from a sense of justice, honor and ideal duty. They have not died—they have merely entered into the larger life of a world ennobled by their living. Among those whose blood has hallowed the soil of other lands have been many medical men whose names have been immortalized. In peace, as in war, they fought the good fight. Fighting for the lives of others, they found death. Their accomplishments, enthusiasm, loyal purpose and high ideals are worthy of emulation. Their names form part of the honor roll of American medicine. The progress of medicine in the future has been fostered by their efforts and their sacrifices. They represent the spirit, the power, the fealty and the service of medical men thruout the world. Their high morale, devoted cooperation, and unstinted efforts in behalf of the armed forces of the Nation call for no unusual praise because they were merely performing their duty. Their humanity toward the injured foes, their frontal attack upon the vicious and horrible cohorts of death form part of the glory and triumph of civilization. They lived, fought and solved the eternal mystery of life, true to the principles of American medicine, and their spirit will carry on in the continued war for humanity, and against disease and disability.

Waiting Room Exhibits.—The numerous campaigns to raise large sums of money for Liberty Loans, the Red Cross, Y. M. C. A., Knights of Columbus, Jewish Welfare, and the countless other organizations engaged in social welfare have been successful, in part, because of the systematic exhibition of posters, pictures, relics and similar agencies for arousing enthusiasm. The psychology of money-getting from the general public is most varied and interesting. Success is dependent upon a wide knowledge of the methods and technic essential to rousing interest that will express itself in tangible pecuniary form.

The medical profession has many lessons to learn from the methods of the professional campaigner for increased financial means. Numerous efforts will be made to further the development of existent or new institutions of medico-social character. The success of the financial enterprises will be dependent upon thoro organization, and an understanding of the means whereby the desired goal may be attained. The science of exhibit planning has been developed rapidly and the concomitant art is approaching more or less definite form, without, however, possessing definite limits of finality, because in the nature of things such perfection is unattainable. While a financial stringency may not exist, there is the utmost importance to be attached to an understanding of the simplest plans for creating public interest, following up the generated enthusiasm, and realizing to the utmost the financial or social rewards that are sought.

All who have attended large general meetings have been interested in exhibits. They are designed to advertise something. They represent a lever to force the public mind and impress an idea upon it. Good exhibits, however, are not matters of chance, but rather the result of careful study. The Public Health Movement has depended for much of its force and value upon significant local, state and national exhibits, varying in duration and extent. The purpose of an exhibit involves getting something over to the public, even tho the object transferred be without cost, and is merely an idea, a generalization, or an organized concept.

Importance of Exhibits in Public Health Work.—It is because exhibits play such a significant part in the advancement of public health work and in the accumulation of funds for definite public purposes that physicians should possess a greater knowledge of their purpose, value and methods of development. E. G. and M. S. Routzahn, in *The A. B. C. of Exhibit Planning* (Russell Sage Foundation), point out "that the function of an exhibit is to get people interested in a subject, or to create a demand that a certain thing be done." Striking exhibits afford quick methods of presentation of ideas in a form more readily grasped than thru description or exposition. They are an appeal to the eye, to the ear, and to the general intelligence and emotions. They reach the public as a group rather than as individuals, and gain because of the advantages of crowd interest and crowd questioning. There is a wholesome advantage to be derived from the mutual cooperation of large groups of persons in the enterprise just as ordinarily will be secured thru the efforts of a group of persons interested in the church fair or a bazaar for a local hospital.

Obviously, there are right and wrong ways of exhibiting and the amateur is wont to handicap his end results if he lacks a working knowledge of the most potent and effective technic. For this reason a knowledge of exhibit planning should be possessed by health officers, sanitarians, directors of hospitals and dispensaries, and all those vitally interested in promoting the welfare of the community thru increasing the facilities and efficiencies of the specific institutions in which they are interested or over which they exercise control.

There is a vast amount of general public health publicity which might be secured thru a rational utilization of the reception rooms of physicians, the corridors of hospitals, the waiting rooms of dispensaries, etc. Millions of individuals daily find themselves waiting in these reception rooms with little to do save to think of their ailments, or perchance, to look over magazines of ancient date, or to weary their eyes by looking at mural decorations not always consonant with high esthetic standards. Many exhibits are available for the use of physicians who are sufficiently interested to give their personal assistance to a public health campaign. A bulletin board, an occasional poster, a public health leaflet, or some other article appealing to the eye may make the reception room of the physician, not merely a place in which to wait but a school room that may be visited with profit, even by those not awaiting medical attention. This represents a field of public health education which has received inadequate attention. The doctor's office, as an instrument for offering exhibits to millions of the population each day, is a factor that merits encouragement and development to the utmost. The fact that this means of public education has not been employed intensifies its value. The physician as a public servant may magnify his worth by assuming some of the functions of a public health propagandist. The doctor's waiting room may secure a new dignity as a medium for disseminating knowledge concerning important topics in local or general, private or public, health and welfare.

Home Nursing.—The vast epidemic of influenza and accompanying pneumonia would have been a serious strain upon

the general public, even tho war had not taken from civil life more than thirty thousand doctors and removed a large proportion of the nurses from the country. The size of the epidemic has impressed upon health authorities the importance of making provision for emergency treatment. The facilities of Red Cross activities, even on a peace basis, would not have been adequate to care for the acute situation resultant from the tremendous invasion of homes by prostrating or fatal infections. Various stricken communities with commendable haste have sought to establish emergency services in hospitals and district nursing in the homes. The rapidity of the spread of the disease nullified to some extent the assistance which might have been given had there been ample opportunity to perfect organization.

It has been made patent that there would be a marked advantage in the development of what might be termed "A Second Line of Health Defense" backing up the efforts of organized health departments. It apparently is very necessary that rural and urban communities effect some form of mobile medical, nursing and social organization prepared to cope with large emergencies. In various districts of the country attempts of this character have been made in preparation for contingencies that might possibly arise under war conditions. The plan merits cooperation and commendation. A knowledge of the capabilities of individuals and the available resources cannot wait until an epidemic is at hand, but should be known in advance, and, in fact, should be indexed and ready for use as occasion arises.

The impetus which has been given to the home nursing movement must not be lost at the subsidence of the epidemic. The need for home nursing is paramount and apparent. The necessity has been accentuated because of the fear of influenza, together with the war activities of the populace which have interfered with securing a sufficient number of capable volunteers. Thousands of persons have been in danger, and possibly hundreds have died because of a lack of skilled nursing attention. Crowded hospitals have not been able to give the highest form of medical or nursing service, while homes have been obliged to go without assistance of any kind for hours and, unfortunately, at times, for days.

The Need for a General Knowledge of Nursing.—It is well to find the constructive ideas and to secure their adoption while present-day memories are fresh and clear. The crying demand has been for better nursing service. It is not desirable to interfere with the development in hospitals of trained nurses, nor in any way to weaken the high standing which has been attained by the nursing profession of America. There is a great need, however, for another type of nurse in the community, whether she be called a nurse's aid, a trained nursing attendant, or a home nurse. Adequate provision for the education and training of a large group of nurses' assistants or helpers should be made with due and proper attention to the educational qualifications essential, and the type of training most helpful for efficient service. In the present epidemic, any volunteer was certain of an opportunity to give assistance, even tho unable to read a thermometer, administer medicines or enemata, or ignorant of the laws of personal hygiene, cleanliness, ventilation, and similar phases of sani-

tary procedure so important in restoring the sick to health.

Great credit is due to the thousands of well-intentioned and high-purposed women who have thrown themselves body and soul into the work of aiding in nursing the sick. They are not to be blamed for any shortcomings in knowledge which they may have manifested. Their motives were of the highest, and their consecration to duty and service undoubted. Nevertheless, there was much evidence to indicate that the general knowledge concerning home nursing is woefully inadequate.

In the preface of Florence Nightingale's *Notes on Nursing,* it is stated:

"Every woman, or at least almost every woman, in England has, at one time or another of her life, charge of the personal health of somebody, whether child or invalid—in other words, every woman is a nurse. Everyday sanitary knowledge, or the knowledge of nursing, or in other words, of how to put the constitution in such a state that it will have no disease, or that it can recover from disease, takes a higher place. It is recognized as the knowledge which every one ought to have—distinct from medical knowledge which only the profession can have. If, then, every woman must, at some time or other of her life, become a nurse, *i. e.,* have charge of somebody's health, how immense and how valuable would be the produce of her united experience if every woman would think how to nurse."

The word England, in the above quotation, may equally well be changed to America. There is a necessity for more school training in home nursing. Our colleges for girls might well include among the required subjects a brief course on home nursing and hygiene as part of the subject matter in their physical education departments. The elementary and secondary schools might quite properly consider the practical lessons to be gleaned from the recent experience and recast some of their courses of study so as to make it impossible for girls to leave the public school system without some knowledge concerning this most practical and universally useful subject. Private schools of all kinds should recognize their responsibility for furthering a helpful and healthful type of training by giving due value to the cultural and utilitarian aspects of home nursing as part of the training in hygiene and physical training.

Health protection is not to be secured merely thru the higher training of physicians and nurses. It is dependent upon a higher standard and general knowledge for the community. The increase of women in industrial and civil occupation emphasizes the importance of spreading information regarding personal health and the methods of attaining and retaining it. A catastrophe is usually a stimulus to inquiry and investigation, but too frequently the matter investigated is soon forgotten in the rush towards newer duties and under press of more urgent events.

The sum total of our knowledge regarding influenza may not have been greatly enriched, but there can be no doubt that there has been a considerable awakening to the deficiencies in public health organization for meeting devastating epidemics. The problems of educational and social control have been considered thruout the country, and it would be a most valuable contribution to the public health movement were this experience to be collated and a constructive program projected upon the basis of the results attempted and achieved. Certainly, the question of a higher knowledge of home nursing would occupy a prominent part in any scheme for meeting a similar invasion by disease in the future.

Influenza Amulets.—During the course of every epidemic, primitive tendencies reappear. The folk lore idea that spirits or supernatural agencies are efficient causes of disease rises in race consciousness when the devastations of smallpox, yellow fever, cholera, or influenza attack masses of the population. One can picture the shamanism of savages, after exorcising a demon, giving the victim an amulet for future protection.

During the epidemic rapidly subsiding in the United States, there has been a recourse to amulets, among the principal ones of which has been camphor for inhalations, for burning as an incense, and more conservatively, worn as a sachet attached to the undergarments. This practice gained considerable usage, not merely among ignorant groups of the population, but among those ordinarily regarded as highly intelligent, and not particularly superstitious. The camphor bag as a protective device has been a modern amulet, worn as a charm to ward off the influenza evil.

While camphor may possess some value in discouraging the presence of insect life, it is beyond reason to believe that wearing it next to the skin can be of any service in preventing the lodgment of infecting microorganisms in the respiratory tract. It is needless and almost useless to attempt, however, to combat successfully a folk idea once it gains a firm hold upon the public.

It is not wise to dwell upon the folly of the amulet as a protection against influenza. Belief and confidence in amulets do possess a certain psychic effect in fostering personal morale at a time when danger appears to be lurking everywhere. The very confidence that individuals have placed in camphor has possessed some psychic significance which, perhaps, has tended to offset some of the feeling of panic which is ever present during an epidemic.

One may ask why camphor is selected as the protective medicament? The odor of camphor is readily detectable in the proportion of .005 milligrams per litre of air. It possesses a not unpleasant and permeating odor. It has long been known that odors have pronounced effects upon the nervous system, some stimulating and others depressing the general nervous comfort of the body. Pleasant odors, themselves, induce deeper inhalations, and thus insure more thoro ventilation of the pulmonary areas. The inhalation of spirits of camphor, for example, has been in general popular use for a stimulating effect.

Used internally, "camphor has an action upon the cerebral cortex by virtue of which, when in moderate dose, it has some calmative influence." It is used in practical medicine as an anti-spasmodic in various hysterical conditions. Its general utility as a therapeutic agent may be covered with the description of Maisch, "a stimulant, antispasmodic, sedative, rubefacient, and resolvent." It is hardly probable that the usefulness of camphor as a therapeutic agent is to be regarded as the basis for its employment as a charm to ward off disease when worn externally. It is notable, however, that the anti-spasmodic stimulant and sedative character attributed to camphor, administered internally, apparently, is carried over in the idea that it is helpful in preventing personal infection by influenzal organisms or any of the other infecting bacteria causative of pneumonia, and the various other complications which have been responsible for the recent high mortality.

Camphor was introduced into Europe

by the Arabs, who used it as a refrigerant. As a charm, its recent employment has served to cool the disquieted spirits of vast numbers of people. So widespread has been its use, that the supply and demand relation has in many instances required, apparently, a rapid increase in the price of camphor; in some communities a 300% increase in cost to the small consumer. It is far easier for certain mental types to have faith in camphor as a preventive of influenza, because of the pungent character of its odor, than to believe in the efficacy of a vaccine which introduces into the system the very type of organisms which the camphor is believed to discourage and overcome.

In the presence of every epidemic, the reintroduction of amulets recurs. The beneficial effects are psychical, but this in turn has indirect physical benefits in permitting a more rational and reasonable method of living, with greater freedom from fears and consequent effects upon the endocrine system. When medical advice cannot be completely reassuring, the recourse of the publice to charms is understandable, and the indirect benefits which may be achieved are not to be laughed at. Calmness thru sense of being protected is a state of being, meriting consideration, and if a bag of camphor can add to this state of the public mind, there is no danger to the public health, so long as the charm is not deemed of greater importance than adhering to the recommendations of the constituted health authorities.

The recommendations of the public health officials are cold facts, stated in unemotional form, and, as a result, the general public mind is wont to experience its own emotional reactions, among which hysteria, fear and panic are most common. The camphor bag, at least, tends to keep in equilibrium the emotional forces of the community, thus supplementing the efforts of those who are attempting to control physically the epidemic invasion. There is still considerable of the primitive savage, as a residuum in human consciousness, to which camphor makes a greater appeal than scientific methods of inoculation, isolation and quarantine.

The use of camphor by the public should suggest some highly important psychologic truths and serve to stimulate the medical profession to greater efforts in disease prevention and control.

Two Hosts.

As life's unending column pours,
Two marshaled hosts are seen;
Two armies on the trampled shores
And death flows black between.

One marches to the drum beat roll,
The wide mouth clarions' bray,
And bears upon its crimson scroll—
Our glory is to slay.

The other marches in silence by the stream,
With sad, yet watchful eyes,
Calm as the patient planet's gleam
That walks the clouded skies.

Along its front no sabres shine,
No blood red pennons wave,
Its banner bears the single line—
Our glory is to save.

—*Oliver Wendell Holmes.*

'Tis the Set of a Soul.

One ship sails east and another sails west,
With the very same winds that blow;
'Tis the set of the sails, and not the gales,
That tells them the way to go.
Like the winds of the sea are the ways of fate,
As we voyage along thru life.
'Tis the set of a soul that decides its goal,
And not the calm or the strife.

—*Exchange.*

The New Surgeon-General.—While we, with a good many other medical men, hoped that some arrangement might be made whereby General Gorgas might remain at the head of the Army Medical Department until the end of the war and until demobilization was completed, there can be no doubt that his successor, General Merritte W. Ireland has a record in the service that removes every fear one may have had as to the administration of this important office, and gives every assurance that there will be no falling off in the efficiency with which it has been conducted.

It was no reflection on any of the men under General Gorgas, or doubt of their ability and patriotism that made us desirous of retaining General Gorgas at the head of the Medical Department as long as possible. We did know a good deal of his personal talents and his administrative ability. Viewing the return of troops from abroad and the demobilization period as critical, we felt that the experience of General Gorgas in helping to build our armies was a very tangible asset to the country.

MAJOR-GENERAL MERRITTE W. IRELAND.
Surgeon-General U. S. Army Med. Dept.

We understand arrangements have been made to retain the services of Dr. Gorgas, even tho he retires as Surgeon-General. To General Ireland, who succeeds him, a hearty welcome will be extended as a physician who exemplifies the best ideals of his pro-

fession and the service that has so long enjoyed the admiration and respect of those who prize efficiency and fidelity.

General Ireland entered the Medical Corps of the American Army in 1891 as a first lieutenant. He was promoted to the grade of captain in 1896. During the Spanish-American War he was with the Fifth Army Corps expedition, which fought the battle of Santiago and received the surrender of the city. Shortly after the conclusion of the Cuban campaign General Ireland was sent to the Philippine Islands as major and surgeon of the 35th Infantry, U. S. Volunteers. Soon after arrival there he was detached from regimental service and placed in charge of the Medical Supply Depot in the city of Manila, which he administered with great success. Returning to the United States at the end of two years, he was called to the Surgeon-General's office in Washington, D. C., in 1902, under Surgeon-General O'Reilly, and placed in charge of the personnel division of that office, which he administered most successfully until 1912, when he was again sent to the Philippines and put in charge of a large hospital in the vicinity of the city of Manila, located at Fort William McKinley.

General Ireland returned to the United States in 1915, and at the time that America entered the present war was the commanding officer of the large base hospital at Fort Sam Houston, Texas. Detached from this duty, he accompanied General Pershing to Europe as a member of his staff and filled the position of assistant to the chief surgeon of the American Expeditionary Forces from July, 1917, until March, 1918, when he was promoted to chief surgeon of the command while yet a colonel. His promotion to the grade of brigadier-general followed in May of the present year, and he attained the grade of major-general in the Medical Corps last August.

General Ireland has recently returned from France leaving General Noble in his place as chief surgeon of the A. E. F.

As General Ireland takes up his new duties at Washington, he may be sure that he has the hearty good will of every medical man in the country. A man of such wide experience, whose record is so gratifying to his friends, and who has contributed so conspicuously to the wonderful achievements of the U. S. Army Medical Department, in the greatest of wars, is certain to see in this new position exceptional opportunities for broad constructive work.

General Ireland does not need our good wishes nor sympathetic interest in the enormous task before him, but from what we have learned of the man, we believe he will esteem them, none the less. We do not hesitate, therefore, to express the hope in behalf of himself and those he will serve, that he will have every opportunity to do the work he is capable of.

A Great Gynecologist Passes Away.— It is with deepest sorrow that we announce the death of Dr. E. B. Cragin. For a good many years Dr. Cragin has been one of the best known specialists in gynecology and obstetrics in this country. As a teacher he was known and affectionately regarded by many physicians who have had the privilege of studying under him. He had a fine scientific mind and his contributions to the branches of medicine which engaged his attention have been of a high order. The following facts are from the *New York Times* (Oct. 23, 1918):

"Dr. Edwin Bradford Cragin, prominent in New York for many years as an obstetrician and gynecologist, died on October 21st of pneumonia at his home, 10 West Fiftieth Street, in his fifty-ninth year. He had been in ill-health for more than a year, but continued to carry on his practice until a month ago.

Dr. Cragin was born at Colchester, Conn., the son of Edwin Timothy and Ardelia Ellis Cragin, and graduated at Yale in 1882, got his M. D. from the New York College of Physicians and Surgeons in 1886, and commenced his practice of medicine in this city the same year, after serving for a time on the hospital staff of Roosevelt Hospital. He was later appointed assistant gynecologist to the hospital and assistant surgeon to the New York Cancer Hospital, and in 1899 became attending surgeon to the Sloane Maternity Hospital.

Dr. Cragin became prominent as a gyn-

ecologist and obstetrician early in his career and was consulting surgeon to the City Maternity, Italian and New York Nursery and Child's hospitals and consulting gynecologist to the Presbyterian, New York, Roosevelt, Lincoln, St. Luke's and New York Infirmary for Women and Children.

He was Professor of Obstetrics and Gynecology at the College of Physicians and Surgeons, Vice-President New York Academy of Medicine, member of the New York Medical and Surgical Society, New York Obstetrical Society, American Gynecological, American Medical Association, and many others. He was a member of the Republican, University and Yale Clubs and the Board of Elders of the Central Presbyterian Church.

Dr. Cragin wrote a number of works on obstetrics. He is survived by his wife, a son, and two daughters, one of whom was recently married to an officer of the United States Navy."

The Sickening Man of Europe.—Germany, apparently envious of Turkey's title of "The Sick Man of Europe," has gone that tottering country one better and is rapidly qualifying itself for the title of "The Sickening Man of Europe." No one can read the repeated and whining wireless appeals of the new German government without a sickening sense of disgust. "Don't let us starve. How can you be so cruel? Are we not brothers? Help us for the sake of humanity!" And the air between Nauen and Saybrook is filled with yammering, whimpering calls for help. Those of us who, despite the trying experiences of the war, tried to imagine that the deceived, misled German masses were not quite as black as they were painted, who looked forward hopefully to the awakening of the drugged soul of Germany when the truth ultimately came to her people, must submit to the painful acknowledgment that there is to be no awakening because there is no soul. Germany in defeat is pitiful. One looks back to France, when the advancing enemy was at the outskirts of Paris; to England, when the submarine campaign seemed to threaten starvation; to Italy, when she was on the point of being crushed by invading hosts—and one finds the soul of these countries glowing with an iridescence that grew brighter when the threat was greatest. No whining, no complaining, but a new burning resolve, a new glorious courage, a more passionate determination to hold out to the last man. The world will never forget the heroism of trampled Belgium, the martyrdom of France, the stubborn courage of England; and the world will never forget the pitiful whining of a country which, at the first great blow of its long-tried enemies, set up a hue and a cry and whimpered for mercy even when her hordes were still in conquered territory. Germany uninvaded, unscarred—and howling for sympathy! There was never a more pitiful spectacle in the history of the world.

It must be confessed that we did not understand Germany. We were not prepared for anything like this, and yet we should have been. There was one German who understood his countrymen, and his understanding has made him an exile in Switzerland. He warned us long ago. He was in a position to know better than we with whom we were dealing. Dr. Muehlon, a one-time director of the Krupp munition works, confidant and intimate friend of the ruling clique in Germany, a lover of truth and justice, wrote a memoir exposing Germany's black part in the world catastrophe, and issuing a warning to the Allies. Germany victorious, he declared, was dangerous. But Germany defeated was even more dangerous. What she could not get by arms, she would try to get by whining, squirming and crying for pity. Most men who read his warning smiled. They know now that he was wiser than they. What he predicted has come true.

The Psychology of the Bully.—If only the Germans had been content to cling to their reputation as Barbarians! There is something almost likable about a thorogoing Barbarian. A defiant, unapologetic savage, who sticks to his guns and will not admit wrong in his savagery, could perhaps even be made a hero of some day when the memory of his brutality is somewhat forgotten. But a whining, groveling savage, a savage who whimpers and pleads that he did not know any better, that he had been deceived, cuts a pathetic figure from which one turns away with disgust. If he did not know the truth, it was not because it wasn't being shouted to him—even from his own housetop. Such resonant voices as those

of Muehlon, Prince Lichnowsky, Liebknecht, Maximilian Harden were dinning the truth into his ears. Only a few months ago Harden said: "We began the war with a dirty trick; we have achieved every one of our virtories thru a dirty trick." He said it in his plainest German, but the German people paid no heed to him. And now they would have us relieve them of all responsibility. When did their repentance begin? When their Kaiser, whom they had supported loyally thru four hard years, had run thru his bag of tricks and could not give them another victory to bolster their hopes. Not till then did they turn on him. "We want justice but we prefer victory, please!" The wolfish way in which they turned upon their defeated Kaiser will add no credit to the German character. It was Foch who made the German revolution, not the German people.

Compare the Allies in defeat with the Germans in defeat. For two years Paris, London, Venice and other great cities had suffered frightful destruction and appalling fatality lists from air raids. The world was horrified by the long list of crimes from the air, but did the French or the English or the Italians complain? They did not even appeal to the Hague Convention. They settled more grimly to their task and suffered in silence. Two years later, when the Allies had at last gained supremacy in the air, the bombardment of Rhine cities began. Immediately there was a hue and cry raised from the populations of these cities. The air raids must be stopped. They were unspeakably cruel. The Kaiser must make an agreement with the Allied air forces to refrain from such wanton destruction of property and life. For two years these very people had shrugged their shoulders and accepted air raids as a war necessity. But when reprisals had begun, they clamored for an immediate cessation of such needless cruelty.

Since February, 1917, the U-boats had been carrying out a starvation blockade against England. The English answered with the building of more ships to carry food from America, with cultivating more of its rich soil, with enlisting women in farm work. There was no whining. If they were to starve, they would starve bravely. Germany's answer to the British blockade, carried out in strict accordance with the laws of war, was: "Gott Strafe England," and the most bitter campaign of hatred the world has ever known.

Last summer the Germans captured an American sentinel armed with a shot-gun. There was an immediate protest to Washington against the barbarism of such weapons. The inventors of poisoned gas, of flame-throwers, of Zeppelins, of explosive bullets, complained that such weapons as shot-guns were a breach of the Hague Conventions! Germany defending the inviolability of contracts between nations; Save the mark!

Now Germany is in the dust. The Kaiser is gone. A new order has been set up in Germany and a world-wide campaign has been set up to arouse sympathy for her suffering masses. The women of Germany are appealing to their "sisters," Mrs. Woodrow Wilson, Miss Addams, to help them in their need. The workers are appealing to the workers of the world to give them a helping hand. The bankers are appealing to the Allied bankers to save them from ruin. The aristocrats are appealing to the aristocrats among the Allies to save them from threatening Bolshevism. It is an appeal to the brotherhood of mankind. The appeal will be heard, it will be answered. But if the appeal had come four years ago instead of today, it would have been answered more generously, with less of contempt and pity. Germany is a trifle late with her humanitarianism. She comes as a beggar, not as a comrade. Four years ago, she might have eaten at the table of the world. Now she must ask at the back door for the leavings.

The New German Flag.—Germany is looking for a new flag. She has had enough of the Red, White and Black of Kaiserism. No one who has read the above lines can be at a loss for a helpful suggestion. There is one color that must occupy a conspicuous place on any flag that will be truly representative of Germany's leaders as they have revealed themselves to the world in recent days. We respectfully suggest a broad band of yellow.

What Is the Explanation?—Why should a people that had accomplished so much in every line of industry and every branch of thought; a people whose capacity for organization and systematic effort had excited the admiration of the world; and finally, a people whose home life had been

repeatedly extolled by those who had had occasion to dwell among them as ideal in its simplicity, strong ties of affection, and high moral tone, suddenly undergo such a terrible change? The personal courage of the German soldier has been freely admitted by the British, French and our own men. Time and again our doughboys have been surprised in talking with German prisoners to find their opinions and viewpoint of life so similar to their own. They have had the same longings for home and peace. In innumerable instances a wounded poilu or Tommy has received first aid and the kindliest treatment from a wounded German. The sight of the suffering of an adversary aroused the German's sympathy just as it would in a man of any other race. And yet while in the midst of combat, as one of a group under the control of his officers he has never hesitated to commit the most frightful atrocities or resort to the vilest methods of fighting. To the soldiers of the Allied nations, "Fritz," as they have called him individually has been a strange combination of contrasts, a curious admixture of good and bad.

In this country, we know many Germans for whom we entertain the most sincere respect. Years of association with them in business and professional life have shown them to be men of the highest principles. We know that they have viewed the acts of Germany during this war with horror and aversion. They have been wholly out of sympathy with the policy of frightfulness, or the German idea that might was right. With all the natural sentiment these men have had for their native land and all the affiliations of their boyhood days, they have been among the severest critics of Germany's position and methods in the present conflict. Not a few of these German-born citizens have been saddened beyond words. Loyal as they have been to this their adopted land, and fully sympathetic with its principles and aims in entering the war, it has grieved them immeasurably that the country they held so dear because of its memories and associations should have forfeited the respect of mankind in general.

In other words, these Germans whom we are proud to claim as friends and business associates view matters just exactly as other honorable men do. They have no patience with deceit and underhanded methods, and cruelty and moral obliquity are looked on with the deepest horror.

With these facts before us, what is the cause of the present mental and moral condition of the people in Germany? What has led them so far from universal standards of national honor and honesty?

It is a difficult question to answer, but when the correct diagnosis is ultimately made we believe the condition that some one has called mass psychology will furnish a rational explanation. We will find that there is such a thing as national psychosis. For some time the people living in Germany have been completely dominated by militarism. In a most subtle and insidious way the people have been taught to believe that the success of the state was the *summum bonum*, that all else should be subordinated to its progress, and in promoting such progress, that the ends always justify the means. Gradually this doctrine has prevailed and in accepting it, many an individual has felt an almost religious exaltation in submerging personal principles while working for the good of the state. Lack of space prevents going into this question in detail, but it would seem that the German people are the victims of the governing class. We are not offering this in condonation, but purely in explanation. There are many other phases of the question without doubt, but one fact seems to stand out more clearly than all others, and that is, now that the war is practically over, there is no greater obligation for those who wish to help Germany get back to a solid basis of national sanity and morality than to strive in every way to restore the health and moral balance of the individual German mind. We refer, of course, to those who have lived under the influence of Kaiserism.

Our Casualty List.—The startling announcement that the total casualties suffered by our forces abroad reached the vast figure of 236,117 is really not as startling as it might appear at first blush. The announcement, of course, occasioned great surprise in all quarters. By the middle of November the total reported casualties had scarcely reached 80,000, and the general feeling was that, when the last lists came in, there would not be more than 100,000 altogether. The report that there have been 236,117 casualties since April, 1917, therefore, came as a distinct shock, and even those who ought to know better are at a loss

to explain the reason for such a seemingly unwarranted leap in the figures. It is well to recall that, when the first 50,000 mark was reached, there was given out the statement that the authorities had deemed it wise to hold back from the published lists, a great number of slightly injured which properly come under the head of "casualties," but which were of such little consequence that they incapacitated the men for only a few days at most—chiefly flesh wounds and other minor injuries. At that time these minor casualties numbered well over 50,000. These presumably were forgotten. Certainly they were not added to the casualty lists appearing in the papers daily. Since that announcement was made, it is safe to say that at least 50,000 more such slight injuries were sustained in the A. E. F. and were not reported. They have, however, been counted as casualties in the total list now given out. Thus, of the total of 236,117, well over 100,000 are wounds of such slight consequence that they may well be ignored. Subtract this number from the complete list and the casualties come well within the figure generally predicted, that is, a little over 100,000. If we bear this fact in mind, the casualty figures lose their alarming appearance at once. Why the authorities saw fit to present these figures without an accompanying explanation it is hard to say, but we feel certain that such an explanation will be forthcoming presently. At any rate, it is to be hoped that it will, thus relieving the anxiety that has been aroused everywhere.

To physicians, however, the total casualty figures carry a special message. Large as they are, a close scrutiny will inspire members of the profession with a lively sense of gratification. For a long time there has been a good measure of concern in some professional quarters over the large proportion of deaths from disease in the lists that have been coming day by day. In a typical list that appeared early in November, out of a total of 1,500 casualties, there were more than 200 deaths from disease. This proportion seemed excessive and alarming, especially in view of the general feeling that all the armies have been particularly immune from the ravages of disease and epidemic in this war. It is clear, now, however, that the figures were very misleading and that the proportion of deaths from disease to deaths from wounds and other causes was much lower than appeared. Now that the total figures are presented, we learn that there were 14,811 deaths from disease in an army that numbered considerably over 2,000,000. Roughly, that would be less than three-quarters of one per cent., certainly not a disheartening figure—probably about the rate of death under normal conditions in any city of a population of 2,000,000. In fact, considering the extraordinary number of civilian deaths that occurred during the influenza epidemic and knowing that our army abroad and at home was exposed to this epidemic, the figures are decidedly in favor of the army and constitute a splendid tribute to the care these men had while in the service of their country.

Our Victory "Celebration."—The people of this country had the rare occasion to celebrate victory on two different days—one as a result of a false rumor, the other on the receipt of the authentic news of Germany's complete surrender, but the opportunity was a lost one. The mistakes of the first celebration were repeated during the second. The greatest and most momentous victory in the history of the world—a victory not of armed forces, such as the victories of the past, but the triumph of lofty principles—found the people of the United States in a mood which reflects but poor credit on their appreciation of the significance of this victory. We had thought that the end of all this horrible slaughter, the termination of the frightful baptism of fire thru which the old world had passed and from which the new world was to come, would find our people in a mood of deep and solemn thanksgiving. Europe had paid a fearful price for this victory, America had paid a heavy enough price. The announcement of Germany's surrender was a solemn moment in the evolution of world freedom. And how did the masses meet this great moment? Did they remember the millions who had laid down their lives for liberty—the liberty they were left free and alive to enjoy? Did they remember those still living who had exposed their lives day after day for eighteen months to make the world "safe for de-

mocracy" and were soon coming home broken and weary and needing a brotherly, helping hand? On November 18, the closing day of the great United War Work drive, the total receipts were so far below the objective set that the time had to be extended two more days. It was the first of the drives not to succeed in this country, and this failure comes after the news of our great victory. The money was meant for the comfort and cheer of the very "boys" of whom we had declared ourselves so proud, whom we had cheered so vociferously at the picture houses, at all the parades. Now they had achieved their great purpose. More than two million of them, waiting in Europe to be sent home to their families, needed comfort, entertainment, friendly counsel. Those at home had their opportunity to discharge, in ever so slight a measure, the great debt they owed our soldiers, and they failed them. The boys were forgotten. Under the strain of victory the best traits of our people seemed to break down. The lessons of saving, of sacrifice, of cooperation seemed to disappear. Was it a victory celebration, or was it just a mad orgy? The money that should have gone to the boys waiting over there was paid into the courts as fines for drunkenness and disorderly conduct. The city was left with a street-cleaning bill of over $150,000 for the two days of celebration—money that was sorely needed for other purposes. The streets were littered with paper at a time when paper is almost worth its weight in gold—thousands of tons of paper, telephone directories torn up, office stationery seized by inconsiderate employees and scattered from the tops of skyscrapers. The test of a gentleman is his conduct when he is angry. The test of a nation is at the moment of greatest happiness. How did our people meet this test? During the great celebration, war workers were pleading for pennies at every corner—and were not getting them. The whole $170,000,000 should have been collected on that first day, when victory had been assured. The collections that day were pitifully short of the mark set. We celebrated our victory by disowning the men who had purchased this victory at such great cost to themselves. We were happy, but we were ungrateful. The price of our happiness was paid into the coffers of saloon keepers and café proprietors. It should have gone into the "All for One" hat. The remembrance of our victory celebration will not be one of our pleasantest memories.

The Responsibilities of War.—Courage, fortitude, loyalty and self denial strengthen and ennoble, says Dr. Oscar Dowling in a recent issue of the *Quarterly Bulletin* of the Louisiana Board of Health. They are the virtues of calm weather, more eminently of days of storm and stress. War permits no flights from responsibility. Every obligation becomes more binding, both in relation to the personal life and the good of the whole—the community or state. It may seem a paradox that in time of war when life appears to be held most cheap, life and health come to be thought of as most valuable. The reason is plain. Physical vigor, physical endurance, physical power begin to have an increasing value in the minds of men. Man—the physical man—counts, and men begin to make the most of men. The attitude toward man is the same as that toward the newest kind of rifle or the latest type of cannon. What is the best kind and what characteristics are most useful? Even with our brief experience we have awakened to the nation's need for men with fewer physical defects and greater physical power. The Nation is beginning to see that if there had been more interest in public health in time of peace there would be now less need for long months of training for endurance of necessary hardships incident to camp life.

Preparation of Hospitals in New York for Wounded Soldiers and Sailors.—Now that it is known how active a part the American forces took in the extensive and murderous battles that were waged on the French front, and the casualty lists are mounting day by day, the time is opportune to review the facilities offered by New York for treating and taking care of the wounded and sick returning from Europe. It is obvious that a large proportion of these must be put into hospitals and institutions in New York City and neighborhood, and it is also obvious that in order that they may receive the best attention without excessive costs, the medical facilities of these institutions, old as well as new, must be well organized and coordinated. The policy of the government is

said to be to return at once to this country chronic cases and those who are so slowly convalescing from their wounds that there is little or no hope of getting them into condition to return to their units. Furthermore, we understand that the government intends to have the greater part of the reconstruction and rehabilitation work done in this country. It is, therefore, gratifying to learn that the authorities of both the State and the City have taken careful stock of all available hospital facilities, and if not already in perfect readiness for an influx of wounded on a large scale they very soon will be. It is better to be overprepared than underprepared, and no effort or legitimate expense should be spared to provide ample accommodation for our boys who have been wounded. Whether centralization is the plan best adapted to meet the needs of the situation with the development of a number of new institutions or whether the injured and sick fighters should be scattered among the various existing hospitals is a question which must be decided by those most fully qualified to judge. But whatever the decision is, there must be no delay due to indecision or red tape. The experience of Great Britain in this direction should prove of great value.

Disease and Marriage.—It appears that the very commendable stir in the National Council for Combating Venereal Disease, in London, in favor of legal measures to ensure sounder marriages is destined to come to nothing after all. For a time certain elements in the Council held out promise of vigorous agitation to encourage the enactment of a statute making it compulsory for young couples applying for marriage certificates to undergo a physical examination to determine whether they were free from diseases which would make their marriage a menace to themselves and to society. To those in this country who followed the trend of this movement it seemed that such a step, if successful, might mark a new era in the history of social health, and they looked forward hopefully for favorable developments. Unfortunately, the promise was not fulfilled, and the whole movement frittered down to the official declaration on the part of the secretary of the council recently that the sense of the members was that it should urge upon parents the advisability of investigating the health of their daughter's suitor or their son's choice of a wife. Once more those members of society, best qualified to exercise authority and to point a way, have deemed it advisable to thrust upon parents a responsibility which it has been shown again and again parents are very loath to assume. Such a course is exceedingly regrettable. It has been demonstrated on more than one occasion that, tho parents are in the best position to serve as guides and teachers to their children in matters of sex and of the mysteries and duties of marriage, in nine cases out of ten they do not avail themselves of this privilege and almost invariably prefer to leave the education and enlightenment of their sons and daughters to the mercy of chance. If this is true of the less formidable problem of the instruction of their adolescent children in the mysteries of sex, to fortify them against the dangers of ignorance or of knowledge acquired from unwelcome sources, it is certainly true of the more forbidding problem of investigating the health of a prospective son-in-law or daughter-in-law. To leave this to the parents is to leave it undone. There is not one father in a hundred who will take it on himself to say to his daughter's suitor that he will not give his consent until he has a certificate from a reputable physician guaranteeing his freedom from disease. In the case of the girl, such a procedure is even less practicable. Only a firm and insistent law could make such a course effective.

That there is need for such a law, no one will deny. Opposition in the past has come chiefly from such sentimental ones as believed that it is vulgar to acknowledge any but the spiritual aspects of marriage, as well as from those who considered the institution of marriage already sufficiently complicated without introducing new complications. But it is vital to the interests of society that this complication should be introduced. The pretext of modesty and decency in which all opposition to a saner and franker attitude toward the problem of social disease finds refuge, is hopelessly out of date. There can be no immodesty where the well-being of the race is concerned. Is it not high time that we give at least as much thought to the mating of our young men and women as we do to the mating of our pet terrier or our adored Persian kitten?

SEX WORSHIP AMONG THE ANCIENT PEOPLES AND THE ISRAELITES OF THE BIBLE.

BY

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Ontogeny is the repetition of phylogeny. The law of recapitulation decrees that every animal has to recapitulate briefly the history of its race in its own development. The race has passed thru all the stages of corporal development the embryo is passing during its introuterine existence, and the child in its mental, cultural, moral and religious development passes thru the same stages the human species passed in the course of its evolution. By the observation of the child's mental development we may hence trace the feeble steps humanity, in its infancy, has taken in the remote confines of time.

Looking at evolution from the point of view of economic determinism, man's development has somehow taken the following course: During a certain dearth of vegetable food, a certain anthropoid ape happened to strike upon the feature of using animal food for its maintenance. The frugivorous, arboreal animal thus became a terrestrial, carnivorous animal. Originally frugivorous, his teeth and jaw were not adapted for carrying off his prey, like the cat or dog, and he had to use his fore-extremities for this purpose. His locomotion had hence to be effected by his hind-legs only. The quadruped became a biped and assumed the erect posture. Thus the quadramanous arboreal man-ape changed into a bipedal terrestrial ape-man.

As a hunter it was of great advantage to the ape-man to live in packs like the wolves. During the hundred thousands of years these ape-men lived in packs, they perfected their old and evolved many new superior animal qualities[1] and humanized the same. The breed constantly improved. Those not

[1] Different animals possess different superior qualities which needed only perfection to become human.

(1) The constructive impulse, as found in the beaver's house or in the bird's nest.

(2) Language as found in the modulation of the bird's voice, or in the emotional vocal expressions, gestures, sounds of rage, of entreaty, of pain, of warning in the dog.

(3) Customs, found in the monogamic marriage of the anthropoids or wolves, who, the living in packs, are divided up in monogamic pairs, or the custom among the Siamang gibbons among whom, on their journeys from tree to tree, the father carries the male and the mother the female baby.

(4) Claim of property as found in the dog, in the hunting range of the pack and the lair of different animal families.

(5) Solidarity as the helpfulness of the hunting pack or in the hive.

(6) Discipline as found in the gibbon who boxes the offspring's ears for bad behavior.

(7) Cleanliness, gibbon mothers take their babies to the water, wash and dry them.

(8) Sports and games as found among young animals generally.

in possession of the higher attributes were eliminated in the struggle of existence, and the survivors' intelligence reached by degrees the human standard. Millenium by millenium, century by century, year by year the mind of the ape-man was expanding into steadily widening realms, till the brute creatures had been converted into human beings.

The final conversion of the brute into man took place when his mentality had advanced far enough to conceive the construction of arms, such as the stone-headed clubs, wood spears, bows and arrows, and to learn to use these weapons in defense against his enemies. Man had been surrounded by many dangers. Both in sleeping and waking hours, he was constantly being preyed upon by enemies. He was always in the enemy's country, always on the firing line. Only in numbers could he find safety, hence the pack. The invention of arms which represents the first step in civilization—civilization being the mastery of man over nature—made man independent of the pack. The monogamic pairs could now set up separate households in caves or in tents.

In the single households a complete division of labor between the sexes took place. The care for the satisfaction of the nutrition-need[1] was taken over by the man, and all labors and cares connected with the preservation of the race[2] were placed upon the woman. To this division of labor man owes his survival value. Upon this division of labor is based the differentiation in the male and female mental characteristics. The man's activity was more sporadic and accidental;[1] hers was constant. The man derived his behavior from outside, her activity was based upon constant automatic processes, going on in her own body. With her the necessity works its way from within, it is an inner quality; with him necessity works from without, it is a phenomenon of the external world. Her activity in bearing and bringing up children is an emanation of her own ego. Her solicitude for her offspring is a part of her very life. Parturition with its attendant fears and pains develops in the mother a very tender feeling of possession after a fight won. Her children feel it and hang onto her even after they have reached adult age. In this way the entire family gathered around each mother.[2]

From the family with the queen-mother developed the clan and matriarchy when her daughters brought their husbands to live with her.[3] The former duty of the single husband now evolved upon all the males of the clan. They had to care for the food supply and the shelter of the clan and to protect it against the attacks of wild

[1] At that period the progenitor of man obtained food by chance like most of the other animals living in the tropics. His mentality had not advanced to the degree as to enable him to plan ahead how to obtain food, as man does nowadays thru agriculture and breeding of animals. This division of labor had such a decisive influence upon the mental development of the two sexes that its effects are felt to the present day.

[2] Nature is concerned with two instincts only, self and race preservation, and she invariably sacrifices the individual in the interests of the race.

[1] In one expedition he often gained enough food to last for days, weeks, or even months.

[2] Family life necessitated restraint, obligations, obedience and led to a certain social morality, based upon the cathegorical imperative, and it was the mother who had to enforce the rules of conduct.

[3] Traces of male exogamy are still found in the Bible. "Therefore shall a man leave his father and mother and shall cleave unto his wife." Gen. II. 24.

beasts and enemies,[1] the females took care of the children of the clan. The clan became now the unit, as formerly the family, and within the unit monogamy was no longer of any economic necessity. Promiscuity came in vogue and among some tribes lasted till the times of Caesar and Strabo (B. S. Talmey, Love p. 127, footnote). Only the natural innate aversion of the female to blood chaos (B. S. Talmey, AMERICAN MEDICINE, July, 1917) still kept the fastidious loosely together in pairs. Generally sex life within the clan became promiscuous, and the child naturally knew only his mother who enforced discipline among her breed. Thru the opposition of the female against the sexual approach in general and at certain periods of her life in particular, which coyness made wooing a necessity, she also ruled the male adult population of the clan. This accounts for matriarchy.

During the long periods of pack life and family life man was continually groping for knowledge. By the time the period of the clan had been reached man's mentality had grown to such a degree that, child like, he began to ask for the cause of things. One of the greatest mysteries for him was propagation.[2] This mystery most forcefully impressed his mind. He was not yet advanced enough to recognize the father's relation to the child.[1] It requires a much higher degree of intelligence to recognize the phallic rôle of conception. But gestation, parturition, and lactation are sensual phenomena and matters of simple observation even by the simple-minded. Hence it did not require great judgment-power of discernment for primitive man to perceive the identity of the female with the giver of life. The birth of a child awakened in his primitive mind the greatest awe, and what gives rise to awe is attributed to a Spirit. Man began, therefore, to attribute divine powers to the female.[2] In the gynocratic condition of society, woman thus became queen and goddess at the same time. Especially the organ by which the child enters life, the "yoni,"[3] became an object of supreme reverence and was adored as the door of life.

The imperious all-absorbing mating impulse was another phenomenon which inspired primitive man with awe and bewilderment. Here again the yoni played an important part. The yoni was the dispenser of the highest bliss known to man.

Another mysterious phenomenon which inspired primitive man with awe and dread was menstruation. Again it was the yoni whence the monthly sanguinous discharge issued.

All these causes contributed to consider

[1] In his care for the maintenance of the clan, the man learned to extract out of nature the means for physical sustenance by turning energy into mental power and he developed a higher creative intelligence. The female only needed the imitative intelligence. This differentiation in the mentality of the sexes, which for the purpose of adaptation was of the greatest survival value, survived to the present day. Musical composers, or creative artists, are mostly men, while as singers, or imitative artists, the females excel.

[2] We may infer the reasoning of primitive man from the behavior of the child. One of the first questions the child asks when it has reached a certain degree of mentality is, where do children come from? When in the course of evolution the species reached a certain degree of mental development, man asked the same question, only in a different form. He saw where children came from but he did not know how and why.

[1] Even nowadays we only know the mechanism of impregnation, conception, gestation, and parturition, but the force behind it all, the *élan vital*, is still a mystery to us. We could attribute it to a god as our remote ancestors did.

[2] The attribution of divine powers to woman was still found by Tacitus among Germanic tribes.

[3] Analogous to the Latin name "*vulva*," the folding door, yoni is derived from the Sanskrit word "*janua*," the door, akin to the Latin "*janua*," the door or Juno, the goddess of birth (Iliad XI. 270). Tertullian calls woman "*janua diaboli*" the door of devil.

the body of woman as the temple of life to come, as the holy of holies. Especially her yoni, the door of life, became an object of veneration and worship.

From all these considerations yonic worship may be inferred to have been the primitive worship of mankind. It preceded phallic and sun-worship. At a time when man had as yet no notion of the germinative function of conjugal intercourse, when mating and birth had as yet no interrelation for him, he could not possibly have recognized his phallus as the source of the life of his race, nor the sun as the spring of all life on earth, and made them objects of worship. But the awe of parturition, the dread of menstruation, and the fascination of conjugation, all three emotions provoked by incidents occurring at the threshold of the yoni, found easy vent in the veneration and worship of this female organ at the dawn of human intelligence.

Yonism was thus the first mode of religious worship among all primitive men. For them children came from the almighty creative power implanted by a god into the womb. It was the communion of a god with a human female.[1] The feminine external generative organ was adored as the symbol of the creative deity. The organ of birth became a sacred symbol. The mystical female principle in nature, the eternal feminine, was exalted and worshiped. Especially the living yoni of the virgin was regarded with reverence. She was supposed to impart and infuse new life and vigor (I. King I. 2).

The adoration of the vulva led in a later period to the use of certain emblems resembling the same, *e. c.*, the triangle. In the erect posture, when the entire female genital is removed from sight by the thighs, all that is accessible to the eye is an inverted triangle, covered with hair, the pubes (B. S. Talmey, AMERICAN MEDICINE, April, 1918). The most common emblem worn to the present day by the yoni-worshipers in India is, therefore, the hirsute of yoni, which has the form of an inverted Greek delta "Δ" the ancient Hebrew *"daleth,"* the door. Other symbols of the yoni were the oval, the crescent, the ring, the shell, concha venerea, the arch, the garden, the rose, the fig, pear, the cavern, the tower and pyramid, representing the mountain of Venus and the fruit-bearing tree.[1]

[1] All Greek heroes descended from a divine father and an earthly mother. The first conception in the Bible is attributed by Eve to Jehovah. "And Adam knew Eve, his wife, and she conceived and bare Cain and said, I have gotten a man from Jehovah." (Gen. IV. 1).

[1] At a later period, during the second Temple, when sex-worship had entirely been effaced and expunged from Judea, these yonic symbols were still used in poetry and song to avoid gross sexual expressions.

In the Song of Songs, *e. c.*, the tree signifies woman. "This thy stature is like to a palm-tree. I will climb up to the palm tree" (Cant. VII. 7-8). The yoni is expressed by garden, "My vineyard is before me" (Cant. VIII. 12), says the girl in the dialogue. "Come my beloved, let us go forth into the garden. Let us get up early to the vineyards. There will I give thee my loves" (Cant. VII. 11-14). "My beloved has gone down into his garden, to the beds of spices, to feed in the gardens" (Cant. VI. 2). The lover says of the girl: "A garden inclosed is my spouse, a spring shut up, a fountain sealed" (Cant. IV. 12). The girl answers: "Let my beloved come into his garden and eat its delightful fruit" (Cant. IV. 16). As seen here the fruit signifies the physical pleasure or as the writer always calls it 'sex-libido,' experienced by the male. The female libido is also expressed by fruit. "His fruit was sweet to my taste" (Cant. II. 3).

A similar substitute of the fruit of a tree for erotic libido is found in the story of the "Tree and the Serpent" in Genesis III. 1-7. This story is the allegory of the first human physical union, which brought self-consciousness of man's and woman's true nature. The expressions used in the narrative are the former yonic symbols. The episode was evidently wedged in into the history of creation by a compiler after his return from the Babylonian captivity. The Babylonian religion is based upon two principles, Ormuzd, the god of light, and Ahriman, the god of darkness, represented by a serpent. An Egyptian painting, based upon the same legend, represents a woman offering an apple to a man with erect phallus, thus showing the story to be a sexual allegory. According to the Talmud, the recognized interpreter of the Old Testament, Eve has been physically se-

In temples or in other places of worship the emblems were more elaborate. The Asherah, often mentioned in the Bible, was the image of the yoni, in honor of Ashtoreth, the goddess of the feminine principle. It was a representation of a huge vulva made of wood, with a fissure, as the door of life. Above the fissure, there was a representation of the clitoris. The vulva was surrounded by thirteen tufts of hair, indicating the thirteen monthly menstrual periods of the woman.

The commonest form of the feminine symbol was the representation of the Venus mountain by mounds or isolated artificial hills. The mound and the pyramid were the conventionalized forms of the *Mons Veneris,* erected in honor of the feminine deity. Temples and altars were placed on high hills and mountains.

The mound, the tower, the arch, the altar represented the *Mons Veneris,* or the pubes, the only visible approach to the yoni (B. S. Talmey, *Am. Jour. Urology.,* May, 1917).

duced by the serpent. "When the serpent came on Eve he defiled her with the poison of desire" (Sota 9; Yeb. 103a; Ab. Zor. 22b; Shab. 146a). edge means the love-act, *amplexus venereus.*" Ibn Ezra *ad versum* says: "The tree of knowl- Targ. Yer. to Gen. IV. 1, says that Eve became pregnant by Samaël, the king of the demons, the Serpent of paradise. Now, according to the Talmud, Samaël is supposed to visit young girls when they sleep alone and cause female pollutions, just as dream-pollutions in the male are caused by the interference of Lillith. In other words, congress with Samaël means autoerotic practices.

All this tends to show that the ancient exegetes of the Bible have already recognized in the story of the "Tree and the Serpent" a sex-allegory. According to the writer's opinion, the Serpent here means the auto-erotic urge, or voluptas, not the phallus, as some interpreters incline to think. In this case the phallus of Adam would be the cause of the fall of man. The tree in the story represents woman or rather the female attribute, her yoni, and the fruit signifies sensual delight or libido, in the sense of the Song of Songs. Accordingly the story reads as follows: The Serpent, or sex-urge—first visits woman. Erotic desire is autochthone in woman. Menstruation and rut will make their appearances in due season, whether there is a male present or not. Nature renews itself in yearly, semi-yearly, or monthly periods. The season of the blossoms or of oestrum will arrive at expected moments in obedience to a rhythmic law. The erotic impulse of the woman announces itself without outside help, (B. S. Talmey, AMER. MEDICINE, April, 1918). The male, on the other hand, needs the contact stimulation by the female for the provocation of his erotic impulse to the degree of tumescence. Hence woman regards her body as made for the stimulation of male sensations, and the female body has a sexually stimulating effect upon herself no less than upon the male. (Talmey, Love, p. 307). She is solicitous of her charms and carefully watches over them in the mirror of life. She is more or less narcissistic. When Eve observed her own charming beauty in the mirror of a pure lake, she found that her charms had a stimulating effect upon herself.

There are really two women in the legend. Eve representing the individual woman and the tree representing the fruit bearing female principle in nature. When autochthone erotic urge began to manifest itself in the first woman, the seductive principle, represented by the Serpent, asked her why she must not taste of the tree of knowledge. She began to contemplate the woman-tree, or in other words to take cognizance of the specific female attributes and she found that "it is good to be tasted," that the female charms are stimulating for both man and woman, that they are a "delight—in Hebrew '*thaavah,*' longing, desire craving—to the eyes and attractive to acquire wisdom." But as long as the tree is not touched by the man, as long as there is no contact stimulation, there is no danger of seduction. On the seducer's question she, therefore, answers: "Of the fruit of the Tree of the midst of the garden ye shall not eat of it, neither shall ye touch it." Jehovah Elohim, in chapter II. 17, does not mention the word touching. "Thou shalt not eat of it," is the only command. But Eve found that in the moment of contact man loses control and willpower. Hence she refrains even from touching the charms of the tree. "But the seducer urges her to touch the tree—in the Talmudic language, the serpent pushes her against the tree.—In these autoerotic exercises she finds the fruit or the libido desirable, delightful, and charming and she offers the fruit to her husband to eat it 'with her,' *i. e.,* she tastes it again now in company with her husband, while the first time she tasted it alone, in the company of the autoerotic seducer, the Serpent. When Jehovah Elohim asks Adam for the reason of his transgression of his creator's command, Adam does not accuse autoerotic urge or the Serpent. He maintains that the stimulation of the female has caused his yielding to desire. But Eve attributes her fall to the erotic urge or to the Seducer, the Serpent. The Serpent is not asked for any reasons. The Serpent represents sex urge or an emotion, and an emotion is a condition when marked concepts overcome the power of will, judgment and reason.

As an emblem of the vaginal orifice or vestibule, every hole and natural opening were sacred to the feminine deity. Every cave, cleft, fissure, crevice, in rocks or stones were used as emblems of worship. The pointed oval was a conventional design of the yoni, as the door of life. So was the conch-shell a familiar emblem of the yoni. The moon, especially the crescent, was an emblem of the feminine deity. Some animals also served as symbols of the feminine principle in nature. The cow was a holy emblem of the female deity. Temples dedicated to the feminine deities usually contained golden images of cows and calves (Exod. XXXII. 1, I. Kings XII. 28). The mouth of the fish, as a rule, resembling the orifice of the womb, was a common emblem of the yoni. Dagon, the god of the Philistines, had the form of a fish, as his name indicates (I. Sam. V. 1).

The most sacred emblem of the feminine deity was the chest or ark. The ark was the greatest sanctuary, representing the yoni as the receptacle of the new life. It was the holy of holies. It was the sacred receptacle of the divine wisdom and power. The most sacred object in the worship of Osiris was the ark. The ark of the Egyptians contained the triune creator, the phallus, or the creator, the egg, or the preserver, and the serpent, or the destroyer and reproducer.[1] The profanation of the ark, even by merely looking within its sacred enclosure, was punished with death (I. Sam. VI. 19).

The religious development from the primitive adoration of the living vulva, which afforded man the greatest bliss in life and called forth his energies and passions, to the high elaborate symbolism of the ark has taken untold ages, probably a hundred thousand years. During this period, while woman was the supreme ruler of the clan, and her yoni was worshiped as the sole patron deity of fecundity, man's mentality had grown to such a degree, as to recognize the male rôle of propagation. His generative organ, the phallus,[1] therefore, became also an object of veneration, and phallicism began to flourish simultaneously with yonism.

During these vast periods, great changes took place in man's marriage relations. Man passed thru the inordinate promiscuity to the consanguineous family, punaluan family, pairing family, till he reached the patriarchal family of the Bible (Talmey, Love p. 385).

This stage had been reached after man learned to tame animals. With the taming of animals and its consequent abundance of food, the male came to ascendency, and matriarchy gave away to patriarchy. With the man's ascendency to the wordly power of the clan, his phallus came to be regarded as the main source of life, and as the representative of the creative power, placing the yoni entirely in the shade. The phallus came to be considered a fitter object to be exalted, worshiped and deified. The phallus became hence the main symbol of the world's creative power. He became the father of all things. His representative was the sun, which gives light and life to the world, impregnating mother earth in the spring and fructufying the entire nature. The worship of the sun became thus a part of the phallic worship. Among the priests of the sun-worshipers, *e. c.*, the priests of Cybele, emasculation was often practiced, showing the relationship between

[1] In Hinduism the same trinity or Trimutri is found in, Brahma, Vishnu, and Siva, Brahma, the creator; Vishnu, the savior; Siva the destroyer.

[1] From the Sanskrit root "*phal*" to burst, penetrate, produce, be fruitful.

the Sun-worship and Phallus-worship. The phallus was sacred to the creator and its sacrifice to the deity by castration was considered the highest devotion.[1] Even the priests believed in the actual presence of a god in the phallus and prayers were devoutly offered to the symbol of this omnipotent god.

In the beginning only the erectile part was worshiped as a monotheistic deity. Later on when the relation of the appendages of the organ to the creative act was recognized, when man discovered that the testicle is a necessary part of the organ and that it plays the most important rôle in the act of the creation of new life, the perfect creator came to be considered as consisting of three parts, each distinct from the other yet united into one, the trinitarian unity. Thus the Assyrians worshiped a threefold god, Ashur, Anu, and Hea, Ashur representing the upright, the erect one, Anu the right testicle, denoting strength, supposed to beget boys, and Hea, the left testicle, supposed to beget girls.

The complete creator was thus thought as three parts in one god. He is repeatedly called in the Bible by the name of Baal.[2] His emblem was the triad "T," the Samaritan "Tow,"[3] or the inverted "Δ," the *lingam* of the Hindus. Phalli made of gold, silver, ivory, wood are worn as amulets by the phallic worshipers in India to the present day. Under the Hindu name *lingam* they are found in every temple. The Teraphim in the Bible (Gen. XXXI. 19) were images of men with phalli erect. The most common images found in the temples or carried at festivals, *e. c.*, the Greek Bacchanalia or the Roman Saturnalia, at the time of the equinoctia when the Sun appears again to impregnate the earth, were huge phalli in erect position.[1] To these images of the phallus, women suffering from sterility journeyed daily and bared themselves before them or sat upon the representative of the god of fecundity, the creator of all life. It was supposed that the creator came to the woman thru the medium of the man's phallus.[2] When Rachel says to Jacob "Give me children or else I die," Jacob answers, "Am I a representative of the gods,[3] who have withheld from thee the fruit of the womb?"

This cry of Rachel: "Give me children or else I die" was very natural at that period of human history. Children were the most valuable of man's possessions. Barrenness was the greatest misfortune for a woman. Hannah was "in bitterness of soul" (I. Sam. I. 10). Tamar deceives her father-in-law, in the disguise of a temple-woman, in order to have children (Gen. XXXVIII. 13). Lot's daughters stoop to committing incest in order to have children (Gen. XIX. 31-36). To die a virgin without having left a

[1] At a later period the cruel sacrifice of the entire phallus of the priests was mollified to the general more innocent sacrifice of the prepuce of every boy; hence religious circumcision among most of the Semitic peoples to the present day.

[2] Sometimes the trinitarian nature of Baal is expressed by a separate attribute "And there came a man from Baal the Trinity" (II. Kings IV. 42). The god phallus together with the Yoni constituted the "*Arba*," Hebrew, four, or the quadrilateral god. Sarah died in the city "Arba" (Gen. XXIII. 2). Hosea, X. 14, calls this quadrilateral god, Arba-El. "As Shalman spoiled Beth Arba-El in the day of battle."

[3] The ancient Tow of the Hebrew had the form of a cross †, or ×, or +. The *crux anseata* ‡, or handled cross found in the hands of Isis and Osiris is a modification of this cross. These Tows or Totemisms are found in Ezek. IX. 4, "Set a Tow upon the foreheads of the men," and in Job XXXI. 35, "Here is my Tow."

[1] In the Roman Saturnalia a huge phallus was carried in festive solemn procession to the temple of Venus and placed near a sculptured image of a huge Yoni upheld by two genii.

[2] "God visited Sarah" (Gen. XI. 1). "God remembered Rachel and opened her womb" (Gen. XXX. 22). "The Lord visited Hannah" (I. Sam. II. 21).

[3] Jacob uses the word "gods," not Jehovah, but the verb is in singular, the trinitarian unity.

child is the highest calamity that can strike a woman. Jephtha's daughter is not bewailing her early death but her virginity (Judg. XI. 37). At that time the highest aim in life was the begetting of children. For this reason barren women were submitting themselves to the embraces of the priests, the representatives of the god of fertility. To the present day in India, at a certain festival of the creative deity, barren women publicly submit to the priests, who for this reason have to be sexually strong.[1]

This reverence for the child was perfectly natural. The birth of a child excited the greatest wonder and the most devout reverence of mankind. At this period, therefore, the adoration of the live generative organs as symbols of the creative powers of nature was the only worship man knew. At a later period the former sole realistic presentation of the phallus was modified, and symbols of the erect organ were used in its stead. The simplest symbol of the phallus was the pointed stone, the obelisk, the pillar and the column (Gen. XXVIII. 18, and Josh. XXIV. 27). From the pillar, or "mazewah," developed the altar (Isaiah XIX. 19). Most pillars being of stone the word stone or rock became an interchangeable term for the god of fecundity or for Jehovah,[2] who originally was the Baal of the Israelites (Hosea, II. 16; Isaiah LIV. 5). The outgrowth of the rock and pillar was the tower. The shape of the temple with the tower in the front somehow resembles the scrotum with the erect phallus.

Besides the rock other natural objects were chosen as phallic symbols. Hills and mountains had a sacred significance. High trees on account of their straightness became sacred phallic emblems. The oak, elm, pine, fur, and fig tree were worshiped as symbols of the phallus. Besides the inanimate objects, various animals which suggested strong male creative energy, such as the goat or the bull, were adopted as phallic emblems. Especially the snake was a phallic symbol of the highest significance, on account of its shape and erectility, *quia se eregit.*[1] The snake was the symbolization of the animating spirit of procreation. The divine passion being the vital source of procreation, the energy in the production of life was worshiped in the erectile phallus thru the emblem of the snake.[2] The serpent thus became the symbol of divine passion, reproduction, life, eternity, wisdom.[3]

With the recognition of the male rôle in procreation, the union of the sexes which hitherto was only the most pleasant became now the most solemn of man's activities. The congress of the sexes came to be regarded as divine and sacred, the holiest act of man. The symbol representing the holy union is still found in India in the Lingam of the Yoni. Some of the Asherahs of the Bible represented Baal in union with Ashtoreth. This divine union was not seldom represented by a simple cross,[4] which expressed the reverence for the divine act, the sublime result of which is a new

[1] "A eunuch shall not approach to offer the bread of his God" (Lev. XXI. 20). "He that has his privy member cut off shall not enter into the congregation of Jehovah" (Deut. XXIII. 1).

[2] Deut. XXII. 3; I. Sam. II. 2; II. Sam. XXIII. 2; Ps. XVIII. 2 and 31.

[1] The brazen serpent of Moses (Num. XXI. 8-9), was worshiped till the time of Hesekia (II. Kings XVIII. 4).

[2] As inflaming man's passion and exciting the spirit of lust, the serpent became the personification of evil, the tempter, the seducer (Gen. III. 1).

[3] Two serpents twined about an upright pole, the "Caduceus of Mercury," the emblem of Medicine, typifies the phallus receiving life and health and invigorating and giving energy to the sick.

[4] The cross was thus a sacred symbol long before the birth of Christianity.

life. Man and woman as separate individuals are incomplete, barren, impotent; in their union they become a perfect soul and realize the immortality of life. Hence the act itself became the object of divine worship. The devotees united in congress before the Asherah, as a tribute to Astoreth, or Mylitta, or Venus, in a small bower near the idol, the bower being surrounded with curtains or hangings. In the temple of Mylitta at Babylon, called "Beth-Shagatha," the house of congress, every woman had to sacrifice her chastity at least once in her life (Herodotus, Euterpe 46). The sanctified indulgence in the divine act of creation was considered the most appropriate mode of adoration of the creative deity.

These rites led to the practice of sacred prostitution in temples. The consecrated women handed over the money they received for their services to the priest for the maintenance of the temple. To the mind of the ancients no more appropriate or holier means could be devised for raising money for religious purposes than a sanctified indulgence in the divine act. Hence the temple-courtesan, in contrast to the common harlot, was held in high honor and was considered as sacred as the priest. In Hebrew she is called "Hakadeshah," the consecrated, the holy, and it was not the least degrading to associate with her, as the story of Judah and Tamar shows. The women of the temple were sitting before the door of the sanctuary, waiting for visitors (Gen. XXXVIII. 14). The "nautch girls," or the girls of the idol, practice this sacred calling in India to the present day. These girls are considered sacred, and it is a great honor for the family if a daughter is selected by the priests to be one of the nautch girls. They are the objects of devout adoration. Juvenal tells us that almost every temple in Rome was practically a licensed brothel.

At the celebrations of the resurrection of the sun in April, in honor of the queen of heaven, Ishtar or Easter, when buns were offered to her in the shape of reproductive organs (Jer. VII. 18), and at the celebrations of the death and resurrection on the third day, of Tammuz (Ezek. VIII. 14), indiscriminate promiscuity prevailed in all the temples of the sun god. To be as a god, to create as he has done, the worship consisted in the exercise of the sacred function itself. In the later periods this worship became the pretext for converting the adoration of the love-act into the rankest sexual license.

Naturally such a worship, in which man found the need of religious adoration and at the same time gratification of his divine passion and the acme of human bliss, appealed very strongly to man's emotions and all the sermons of the austere prophets of Jehovah did little avail. Again and again the Israelites returned to the worship of Baal.

Originally even Jehovah seems to have had some relation to Baal-Shelisha, the Baal of the Trinity, a plural deity. The world has not been created by the Monotheos, Jehovah, but by the polytheos, Elohim, a plural diety.[1] Henceforth Jehovah is sing-

[1] Elohim is the plural of Eloha, still the verb is invariably used in singular a plural unity. In Chap. I. 26, Elohim says "Let us make a man in our image after our likeness." Here Elohim is expressly a plural.

From the first verse in the first chapter to the fourth verse of the second chapter, it is only Elohim who creates the world. Elohim creates male and female at the same time (Gen. I. 27). In the fourth verse of the second chapter appears Jehovah Elohim, quite a different personality. He creates Eve in the twenty-second verse of this chapter. In the episode of the Tree and the Serpent the deity is called either Elohim or Jehovah Elohim. Jehovah without Elohim appears for the first time on the scene in Chapter IV. 1. Henceforth the deity is represented by the tribal god Jehovah alone. Elohim almost disappears entirely.

ular, and his votaries may all be considered monotheists, altho he is sometimes called Baal by these very votaries. "And it shall be at that day," said Jehovah, "that thou shalt call me 'Ishi' and shalt call me no more Baali" (Hosea II. 16). "For thy Baal is thy maker, Jehovah of hosts is his name" (Isa. LIV. 5). But as a rule Jehovah is one. "Hear oh! Israel: Jehovah our Lord is one Jehovah" (Deut. VI. 4).

But this belief in the unity of God is only found among the few select. The people in general still adhered to the ancient sex-worship. Even among the Javists the phallus was still an object of veneration and considered holy. Abraham sacrifices the prepuce of his phallus to Jehovah. When taking an oath the patriarchs required the placing of the hand on the phallus. Abraham says to Eliezer: "Put thy hand under my phallus and swear" (Gen. XXIV. 2). Jacob let Joseph put his hand under his phallus and swear (Gen. XLVII. 29). The phallus was still so holy that a woman was not allowed to touch it even in the defense of her husband. "If the wife taketh the adversary of her husband by his phallus, then thou shalt cut off her hands" (Deut. XXV. 12). The highest ambition was to deprive the enemy of his phallus, just as the American Indian cut off his enemy's scalp. David bought his wife, the princess, for two hundred phalli which he gave to the king (I. Sam. XVIII. 27).

Yonism in the Biblical times was almost entirely supplanted by phallicism, or rather by the worship of the union itself, which naturally required the male and female elements. What was left of the former exclusive yonism were the symbols, such as the calf, the mound, and the Asherah. When Moses left the Israelites only for a few days, they made themselves a molten calf and said: "These be thy gods oh Israel" (Exod. XXXII. 4). The calf was a yonic symbol. Jeroboam made two calves of gold and said to the Israelites: "Behold thy gods, oh Israel, which brought thee out of the land of Egypt" (I. Kings XII. 23). Jehu "departed not from the golden calves" (II. Kings X. 29).

A prominent part in the yonic symbolism of the Bible played the mound. Even under Jehoshaphat the mounds were in vogue. "Nevertheless the mounds were not taken away, for the people offered and burnt incense yet on the mounds" (I. Kings XXII. 43). The same was the case under Jehoash. "But the mounds were not taken away, the people still sacrificed and burnt incense on the mounds" (II. Kings XII. 3). Ahab "sacrificed and burnt incense on the mounds and on the hills and under every green tree" (II. Kings XVI. 4). On these mounds there were images of the Asherah, representing either the yoni alone or the yoni in union with the phallus. "I shall scatter them beyond the river because they have made their Asherahs, provoking Jehovah to anger" (I. Kings XIV. 15). In the same chapter, verse 23, it is said: "For they also built them mounds and images and Asherahs (on every high hill, under every green tree. Even Solomon went after "Asherah, the goddess of Zidon" (I. Kings XI. 5). Besides the golden calves there was the image of the Asherah in Samaria. "And there remained the Asherah also in Samaria" (II. Kings XIII. 6). Hosea (IV. 13) gives the reason for this tenacious adherence to Yonism: "They sacrifice upon the tops of the mounds and burn incense on the hills under oaks and poplars and elms because the shadow is good; therefore, your daughters commit whoredom and your spouses adultery."

This mention of the several trees which were phallic symbols shows that at this period yonic and phallic worship were not separated any longer, as it is still found in India, to the present day, where there often exists even a certain antagonism between the yonic and the phallic worshipers. In Judea, at that period, phallic worship had almost superseded yonism. Most of the emblems were taken from phallicism. The symbols, as a rule, represented the triune deity. "She saw the men engraved on the wall, all in the image of the trinity" (Ezek. XXIII. 14-15). This trinity-image was the representation of the phallus and the testes, Ashur, Anu, and Hea. Sometimes the emblems were in form of small images of men with erect phalli, called "Teraphim" "And Rachel had stolen the teraphim that were her father's (Gen. XXXI. 9). Even in the household of David who was a fanatic Javist the teraphim were not unknown. His wife, Michal, took the teraphim and laid them in bed (I. Sam. XIX. 13).

The Javists, themselves, gave Jehovah the attributes of phallicism. Jacob took a stone and set it up for a pillar and poured oil upon the top of it (Gen. XXVIII. 18). This was a phallic ceremony. Joshua (XXIV. 26) took a great stone and set it up there under an oak which was by the sanctuary of Jehovah." Even Moses gives to Jehovah the attribute of the phallus: "He is the rock, his work is perfect" and "Israel forsook God which made him and lightly esteemed the rock of his salvation" (Deut. XXVII. 4 and 15). In verse 18 of the same chapter the phallic simile is even more pronounced: "Of the rock that begat thee thou art unmindful." The same thought is expressed by Isaiah (XVII. 10), "Thou hast forgotten the God of thy salvation and hast not been mindful of the rock of thy strength," and in second Isaiah (LI. 1), "Look unto the rock whence ye are hewn and to the hole of the pit whence ye are digged." Here we have a complete picture of the phallic-yonic combination.

The identification of Jehovah with the rock, the symbol of the phallus, is often met with in the Bible. Even the Javists used this phallic symbol in their poetical expressions: "Trust ye in Jehovah forever, for in Jehovah is the rock everlasting" (Isa. XXVI. 4). Jehovah is called "The rock of Israel" (Isa. XXX. 29). In Isaiah (XLIV. 8), Jehovah himself says: "Is there a God beside me? There is no rock, I know not any." Samuel (II. Sam. XXIII. 3) also says: "The rock of Israel spake to me." Hannah (I. Sam. II. 2), sings: "Neither is there any rock like our God." In Habakkuk (I. 12) we read "And a rock thou hast established for correction." The Psalmists often call Jehovah a rock, "Jehovah is my rock" (Ps. XVIII. 2). "Who is the rock save our God" (Ps. XVIII. 31). "Unto thee will I cry, oh Jehovah, my rock" (Ps. XXVIII. 1). Jeremiah wonders over Israel: "Saying to a stock, thou art my father, and to a stone, thou hast brought me forth" (Jer. II. 27).

Another phallic symbol worshiped by the Israelites from Moses to Hezekiah, *i. e.*, almost during the entire Jewish history, till the destruction of the first Temple, was the Serpent. Hezekiah "brake to pieces the brazen serpent that Moses made for unto those days the children of Israel did burn incense to it" (II. Kings, XVIII. 4). This shows that even during the reign of the Javistic kings such as Saul, David, or Solomon, the people worshiped this phallic symbol.

The sun was another phallic emblem worshiped by the Israelites. Josiah "took away

the horses given to the sun and burnt the chariots of the sun with fire" (II. Kings XXIII. 11). Amulets representing phallic symbols of the sun were worn by Israelitic women around their necks. "And her phallic symbols of the sun between her breasts."

The most frequent phallic symbol worshiped by the Israelites was Baal, which represented the image of the male genitals.[1] Already in the desert under the leadership of Moses we find that "Israel joined himself to Baal Peor" (Num. XXV. 3). During the entire period of the Suphetes and kings we find Israel again and again worshiping Baal. Jehu "destroyed Baal out of Israel" (II. Kings X. 28). Under Jehoash, we read, "And the people of the land went into the house of Baal and brake it down" (II. Kings XI. 18).

As a rule, it was not Baal alone that was worshiped but Baal in union with Ashtoreth in the form of the Asherah. The gross adoration of the organs of generation had changed into the worship of the union of generation. Most of the allusions in the Bible to sex worship deal with the Asherah which was the symbol of the love-act. In Judges (II. 13) we read: "Israel forsook Jehovah and served Baal and Ashtoreth. Then again it is said (Jud. III. 7) "They served Baalim and Asherahs." Jehovah commands Gideon (Jud. VI. 25) to "throw down the altar of Baal that his father had and cut down the Asherah that is by it." Before Jephtha saved them, "Israel again served Baalim and Ashtoreth.

We may best judge of the extent of sex worship among the common people by the repeated sermons of the prophets of Jehovah and by the sporadic activities of some of the kings against it. Samuel warns his people to "put away the strange gods and the Ashtoreth" (I. Sam. VII. 3). King Asa removes his own mother from being queen, because she made an idol for the Asherah, and he destroys this idol.[1] King Ahab went "and served Baal and worshiped him; and he reared up an altar for Baal in the house of Baal which he had built in Samaria. And Ahab made an Asherah" (I. Kings XVI. 31). Elijah, the prophet of Jehovah, says to Ahab: "Gather to me all Israel unto Mount Carmel and the prophets of Baal 450 and the prophets of Asherah 400. And they cried aloud and cut themselves[2] after their manner with knives and lancets till the blood gushed out upon them" (I. Kings XVIII. 19-28). The reasons for the destruction of Samaria are given as follows: "And the children of Israel did things that were not right, and they set up images and Asherahs on every mound and under every green tree and made them molten images, even two calves and made the Asherah and worshiped all the host of heaven and served Baal" (II. Kings XVII. 9-16).

The same conditions prevailed more or less in Judah, as seen by the activities of the Javistic kings there. Hezekiah removed the mounds and brake the images and cut down the Asherah (II. Kings XVIII. 4). But he seems to have left some of them which dated back to the time of Solomon. For his grandson, Josiah, destroyed not only the graven image of the Asherah set up by his father, Manasseh, in the house of

[1] St. Jerome calls Baal "*Priapus colentibus maxime faeminis. Baal Peor ob obsceni magnitudinem quem nos Priapum possumus appellare.* Maimonides affirms that the adoration paid to this idol consisted in uncovering the genitals before it.

[1] According to Rabbi Solomon Jarchi's testimony, this idol was "*instar membri virilis.*"

[2] This refers to the castration practices found also among the priest of Cybele in Rome who ran thru the streets, bleeding from the fresh wounds.

Jehovah (II. Kings XXI. 7), but also the mounds which were standing since the times of Solomon (II. Kings XXIII. 4-13). Josiah, the grandson of Manasseh destroyed all the vessels made for Baal and for the Asherah, "and he brought out the Asherah from the house of Jehovah without Jerusalem unto the brook Kidron and burnt it. And destroyed the mounds which Solomon had built for Ashtoreth the abomination of the Zidonians and for Chemosh[1] of the Mohabits and for Milcom of Ammon."

The repeated relapses of Israel into sex worship had their erotic reasons. Many a passage in the prophets reveals these reasons. "Inflaming yourselves with idols under every green tree" (Isa. LVII. 5), or "Where was the seat of the image of ardor provoking ardor" (Ezek. VIII. 3), such passages reveal us the nature of the worship. This provoking of erotic ardor was the reason for the people's adherence to this mode of worship. "They went to Baal Peor and reclused themselves to the shame" (Hosea IX. 10). This reclusing to shame was the erotic reason for going to Baal. The stern Amos (II. 7-8), gives a still more articulate expression of this attraction Baal had upon the people. "A man and his father go unto the same maid to profane my holy name. And they lay themselves down upon clothes pledged by every altar and drink the wine of the condemned in the house of their God." This stern prophet shows that complete promiscuity prevailed in the temples. The great prophets also refer repeatedly to these erotic practices in the sanctuaries of Baal. "Upon a high lofty mountain hast thou set thy bed" (Isa. LVII. 7). "There were their breasts pressed there they bruised the mamillae of their virginity" (Ezek. XXVIII. 3). "Upon every high hill, under every green tree thou wanderest, playing the harlot" (Jer. II. 20). "Rejoice not Israel, thou hast gone a whoring from thy God" (Hos. IX. 1). "Judah has profaned the holiness of Jehovah which he loved and copulated with the daughter of a strange god" (Malachi II. 11). Hosea describes the two different kinds of women in these temples: "They, themselves, are reclused with whores and sacrifice with temple-women" (Hos. IV. 14). Michah tells us about the source of the temple-treasury. "For she gathered it of the hire of a harlot" (Michah I. 7).

From these remarks of Hosea and Michah it is seen that temple-women did dwell in the temples on the mounds and that the fees the women received for their services served for the maintenance of the sanctuaries, in spite of the command: "There shall be no temple-women of the daughters of Israel nor a sodomite of the sons of Israel. Thou shalt not bring the hire of a whore into the house of thy god Jehovah" (Deut. XXIII. 18). Later on the temple-women may have been imported from abroad, *e. c.*, during the reign of the kings when it is said, "And there were also temple-women in the land" (I. Kings XIV. 24), but at the time of Eli and his sons it would appear that these women were the daughters of Israel, "They lay with the women assembled at the door of the tabernacle" (I. Sam. II. 22).

Some of the kings tried to get rid of these women. Asa took away the temple-women out of the land and removed the idols (I. Kings XV. 12). Still some of them must have remained in Judea, for Jehoshaphat had again to remove them. "And the remnant of the temple-women which remained from the days of his father

[1] Chem, Siva, Ball Vul, Pan, Mutinus, Fricco are the names of the same deity.

he took out of the land." Later on Josiah had to fight again this evil. "And he broke down the houses of the temple-women that were by the house of Jehovah, where the women wove hangings for the Asherah" (II. Kings XXIII. 7).

The religious history of Israel thus shows that the chosen people passed thru the same stages of religious evolution, as all other tribes and nations did. The Israelites too were first given to Yonism, then they became phallic worshipers and finally turned to the worship of the union of the yoni with the phallus, or to general sex worship with its train of all kinds of excesses.

Jehovah, from the time of Moses to the last king of Judah, was in the conception of the people in general not the creator of the universe but Israel's tribal god to whom the people turned when in distress, in prosperity they went back to sex worship. The universe was created by Elohim, a plural, probably a trinitarian, deity, like the triune god of Egypt or the Trimutry of India. Only a small select minority, the poets, seers, and singers adhered exclusively to Jehovah and claimed him as the creator of the world. "Jehovah is Elohim" is emphasized by David (II. Sam. VII. 28), and by Solomon (I. Kings VIII. 60) "and there is no other creator." The people in general considered Jehovah the exclusive tribal god of Israel.

With the destruction of Jehovah's first temple in 586 B. C., Jehovah himself disappears as a tribal god. Henceforth the Jews are pure monotheists. In captivity the Israelites are purified by tribulations and suffering and with them their conception of Jehovah. He is henceforth no more the tribal god of Israel but the only God of the universe who, in contrast to the dual principle of the Persians, "forms light and creates darkness, makes peace and creates evil." "There is none beside me. I am Jehovah and there is none else" (Isa. XLV. 6). Only in the second Isaiah, written after the captivity, could Jehovah say: "I am the first, I am the last. Mine hand has laid the foundation of the earth and my right hand has spanned the heavens" (Isa. XLVIII. 12).

The pure monotheism of Israel, therefore, dates back from the time of Ezra and Nehemiah. Jehovah becomes the creator of the universe. He is Jehovah Elohim. As the supreme ruler of the universe, He is the creator and savior not only of Israel but of all the peoples and nations,[1] and the last of the prophets, Malachi, could hence exclaim: "Have we not all one father? hath not one God created us?" (Malachi II. 10).

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Caffeine.—Fussell (*Penn. Med. Jour.*) states that alkaloid in two or three-grain doses by mouth, or caffeine-sodium-benzoate hypodermically is of value when the patient is weak, either from grave toxemia or from failure of the circulation.

Chancre.—Never cauterize a chancre (*Critic and Guide*). Make applications of calomel ointment or powder, or use black wash.

[1] Where there is only one creator, the laws of human logic do not admit any other view than that all who worship the creator of the world believe in one and the same god even tho they may address him under different names. If the creator of the universe is Brahm, as one part of humanity claims, or Jehovah, as another part affirms, or Christ, as again another maintains, or Allah, as a fourth asserts, or Nature, as the atheists declare, at the same time each part of humanity affirming that there is no other creator, then the one creator has simply five different names. Hence all the religious wars have been waged for the sake of a name: "And what is in a name?"

MOTOR NEUROSES, POST TRAUMATIC AND OTHER.

Treatment by Kinesitherapy, Manipulative Orthopedia, Mobilization, Passive Active Movements.

BY

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Many different kinds and degrees of disordered motivation follow injuries (traumata), among which are paralyses, contractures, tremors, tonic protective spasms down to mere ataxia or impairments of precision and loss of conscious control. Effective treatment should be directed to not only the primary but the underlying causes.

These motor impairments are, in many instances, not amenable to radical cure or even to satisfactory repair. The phenomena are, however, capable of amendment, sometimes of clinical cure. Loss of motor control may be complete or partial; capabilities of betterment vary, some are capable of unexpected restorations. The key to success is prompt and consistent attention from the earliest, especially during the acute, stages.

The neuro-muscular mechanisms have become so sadly disarranged, jolted or injured, as to induce varying degrees of permanent disability. Where there has been only such damage to the central or controlling mechanisms as leaves normality in some essential neurons, cells or structures these may as a rule be reawakened, set in orderly adjustments, restituted and motivation reestablished.

Measures most promising are mechanical stimulations capable of eliciting desired reactions.

The problem is two-fold: (1) to repair the peripheral mechanisms, putting them in condition to functionate. Then, and not till then, can it be determined: (2) how far the centers are capable of restoration. This obtains even when galvanic responses are negative. Later under improved conditions they may show unexpected vitality.

It seems to me physicians too often fail to take into full consideration the absolute interdependency between body and mind, constituting as they do one individual unity, whereas psychologists reckon upon this basis uniformly. "Physical Training is Mental Training" is the attention-seizing title of a recent paper by Dr. James McBride (*Scientific Monthly*, Oct. 15, 1915). The immediate applicability of this sound dictum is that in spite of such disablements, even where a reaction of degeneration follows trauma, one often encounters almost unbelievable restorability.

The central object of reconstructive motor training is volitional training, a series of exact, complete processes or procedures from initial impulse to complete coordinated and applied acts.

Heretofore the individual in all probability was never conscious of directing his movements, except by the vague matter-of-factness of acquired automatisms. Now, however, whether full success or failure follows, whatever restoration of coordinative capabilities, or semi-helplessness ensues, depends on how completely one can be made to realize the paramount importance of achieving conscious control. A personal confession may help. Altho myself vividly interested in this subject, and giving constant attention to clinical problems where motor integrities are aimed at, it is only of late that I have learned to appreciate the infinite complexities, or rather the

limitless possibilities and resources, of functional reeducation.

Lameness in arm or leg, in back or neck, frequently persists for the sole reason that the sufferer was not intelligently trained; or it may be lacked willingness to cooperate or most often was lacking in motor intelligence.

Let me pause to emphasize this last point: Some men are so clumsy they can only perform those simple acts which absolute necessity forces upon them. In earliest years, while the plasticity of brain and muscle adjustments are at their best, these persons acquired a working set of automatics. This motor capacity in some ceased to be up to par or they suffered from deficiencies in educability, adaptability, variability, and they become motorally mentally retarded—like a dementia præcox.

Individuals differ notably in departments of intelligence, and we must admit that motivation is an essential part of intelligence.

Disuse Cripplings Follow Injuries, Wounds and Enforced Inactivities.—In civilian practice disuse cripplings are met which often persist long after they should have been remedied. The circumstances and findings are not markedly unlike those produced by war. Most war injuries are kept under control of military surgeons, but a certain proportion will require the collaboration of civilian practitioners. It is well for all physicians to familiarize themselves with the facts.

A considerable number of disuse cripplings arise in the exigencies of industrial hurry, pressure and the crowding demands of dangerous occupations. The element of primary or delayed shock must always be reckoned with. "Shell shock" is a subject for a civilian to discuss only from findings of army surgeons.

In everyday experience the primary condition of a patient when injured varies widely from causes due to mere feebleness, all the way to degenerative conditions; from youth to late age; from the timid to the courageous or apathetic. Hence vagaries, structural and mental vitiations and vulnerabilities must vary widely. Military men, on the contrary, constitute a selected group of young, sound, vigorous, trained individuals in whom original defects are rare. Hence the element of primary defect is less in evidence.

Motor integrities occupy our immediate attention. One problem is, first and last, to restore kinesthetic functions, to expedite recovery of motor facilities. The outstanding feature of severe injuries, especially of those which are extensive as well as intensive, is a widespread perturbation of reflexes, the defense mechanisms, as effects bear upon centers and subcenters. These gross reflexes are thrown out of gear. Until solved and equilibrated they may cause a bewildering array of morbid phenomena. Localized reflex disturbances deserve patient scrutiny and adjustment.

We are coming to recognize more clearly the role of reflex perturbations as the key to obscure clinical phenomena. Enthusiasts like Albert Abrams first invite scorn of those who omit to examine into the subject, because they are called "men of one idea." Later their testimony is welcomed.

Attention to the reflex phenomena in explaining states of tuberculosis is directed by F. M. Pottenger. The reflex arc is coming to be appreciated, especially in one overstimulated, irritated or shocked.

In war wounds the question of the gross reflexes becomes commingled with those of automatisms. The partly voluntary, the unconscious and the controllable reflexes

are involved—gradations of reactions to stimuli which are alike in being native to the individual, but which vary in their relations to states of consciousness, those which are innate and those which are acquired, and all which are subject to jolts, to shocks, to bewilderments. Functional paralysis due to protracted motor inactivity is common in both civilian and military experience.

Among the possible causes of motor impairments occurring in the absence of any apparent organic nervous lesions such factors can be reckoned as disorders of reflex action, sympathetic disturbances, suggestibility, emotionality (so-called hysteria), and perhaps unclear changes in the central nervous system and especially the variants in hypo- and hyper-function of the ductless glands.

Prolonged inactivity of a limb or limb segment or group of muscles acts as an efficient cause of functional paralysis. Usually this occurs when a limb has been immobilized unduly long because of a wound, inflammatory process, fracture, or even a mere pain. The joints are then found stiff, the muscles torpid, and all the tissues hypersensitive. In timid, lazy, aboulic, or obsessed individuals, the required personal efforts at mobilization are not made, and to the initial disturbance a paralysis thru inactivity is thus superadded. Peripherally, such conditions occur as muscular atrophy with subnormal irritability to electric stimulation; also decalcification of the bones, joint stiffness, hypothermia, cyanosis, hyperidrosis and hyperesthesia become established. Where the limb is habitually held in a faulty position, permanent loss of dynamic equilibrium between opposing sets of muscles follows, and joint movements are correspondingly restricted.

Later the nerves supplying the inactive muscles lose conductivity and spinal motor centers become weakened, depleted, thus increasing the tendency to muscular atrophy. The cortical kinesthetic centers themselves become torpid; kinesthesia and voluntary motion are impaired and the effected limb practically passes from the consciousness of the patient, who carries the affected part around like a foreign body. A critical period arises in such cases at which the kind of management the patient receives governs the ultimate result. At this stage prompt and energetic treatment, if reinforced by disciplinary measures, will usually be needed to avoid morbid trends and disabling after consequences.

Atrophies take place in cells leading all the way back to centers, cortical and spinal and the subcenters in the ganglia. Likewise compression of nerve terminals and larger trunks are met. Sensory areas exist in muscles, fibrous junctures and joints.

Lesions of fibrous structures and junctions of fibrous structures and muscles produce a large proportion of minor distresses and lameness. Disabilities of, or interferences with, voluntary motion have to do also with impaired volition. Volitional training is the outstanding demand.

An actual paralysis may exist, some part of which is due to disuse and some part shows loss of electrical (galvanic) response, which may not be permanent. Nerves may have been cut, or parts of nerves, or subsidiary nerves or fibers severed or crushed. These may recover or may remain incompetent in accord with the promptness and completeness of treatment.

Nerves supplying inactive muscles may have lost their conductivity, hence the spinal motor centers are weakened, atrophied or anemic. One word as to treatment, later

offered more at length. The physician would be wise to familiarize himself with the special craftsmanship of manutherapy, mobilizations, manipulative orthopedia. This he should apply himself. If, however, he is disinclined to do so, he must achieve a competent knowledge of the subject in order to direct the masseur.

Contractures and paralyses of reflex origin yield to treatment by simple biokinetic or orthopedic measures, manipulative orthopedia readjustment and nerve pressure. Electricity is often a valuable adjuvant but is, at best, lacking in actestic scope or intelligent differentiation.

A certain proportion of contractures and paralyses are psychogenetic (psychoneurosis or psychopathy); a smaller number are due to disease in the central nervous system; others arise from reflex irritation. Mental perturbation may accompany any or all; may aggravate them; may mask them, but when removed by restoring conscious control thru suggestion, explanation, reassurance and training, they may be reduced in their disabling effects and become practically cured.

Exact diagnosis is oftentimes difficult enough, even for the most astute and experienced. Differentiation is materially aided by eliminating the mental element and separately appraising the physical residua. Also treatment by the simple means to be described may, and often does, reduce the problem yet further. When after a series of such efforts they continue, then and only then, need we accept the conclusion that the condition is one of degeneration.

Aside from disordered states of the nerves, altered states of the muscle are to be dealt with. In contracture there is hypertonia. In paresis there is hypotonia, sometimes flaccid paralysis; in others hypertonia accompanies contracture.

In purely psychopathic contractures suggestion or deep anesthesia may cause them to disappear. These may recur on regaining consciousness, sometimes half an hour before awaking. The so-called hysterical (psychogenetic or emotogenetic) element may not be eliminated by ordinary rational forms of treatment and only by protracted educative measures.

In war wounds any of these contractures or paralyses or admixtures or both, are likely to occur suddenly in men presumably sound and vigorous, hence probably no primary degeneration exists or except rarely.

The bulk of contractures will be found of reflex origin in war injuries. Hence we may proceed to undertake an individual case with confidence of securing benefit. Often wounds which involve the bones or soft parts, also cases without injury either to nerve trunks or big vessels extending to areas subjacent to the damaged point, demand particular care. These, so Babinski says, produce reflex contractures under various aspects, intensities and localities both the paralytic and hypertonic forms.

Occasionally, so he says, we meet complete flaccid paralysis as of the hand and fingers consequent upon a wound of the second intercostal space, but such cases are so rare we have to deal for the most part with hypotonic states. Sensory disturbances, pain and hyperesthesia often accompany.

Reflex disturbances may, of course, be the consequence of wounds of the nerves. Also he mentions that contractures may be complicated by fibro-tendinous retraction and are to be differentiated only under anesthesia. It is interesting to note in this connection that some cases are aggravated by electricity and by massage (Sicard), yet are not hysterical (psychogenetic).

The measure upon which, in my opinion and experience up to date, we can best rely is the intelligent application of manipulation by the physician himself. After he has experimented, learned the nature of the phenomena, even tho the primary cause may still elude, only then can he safely entrust the treatment to an ordinary masseur but with exact instructions which must not be exceeded.

Let me emphasize a fact gleaned from much experience, that the word "massage" is interpreted variously and often most confusingly. I have learned to wholly disregard the often dogmatic statements of most learned neurologists as to indications *pro* or *con*. The only reliable decision can be reached by cautious handling of the part, beginning by explorations of the spinal subcenters, learning the status of the paravertebral structures and by tracing down toward the periphery. Often there will be found evidence of hypertonus, sensory disturbances, hyperesthesia in associated muscle masses, in origins, *i. e.*, points of exits or "nerve points," or in nerves in continuity, any or all of which may have been affected. These may have arisen reflexly, *i. e.*, from the seat of peripheral irritation or transferred to the cell bodies in the cord and thence efferently.

Experience and cautious exploration all the way from outlying points to the cord and back again are alone capable of giving the information essential to apply treatment successfully. (See article "Tonic Spasm or Cause of Disability," *N. Y. Med. Record*, Oct., 1918).

Grapes in Dyspepsia.—Grapes are of great value in dyspepsia. The patient must eat good ripe grapes, first, last, and all the time, until he is well.—*Amer. Jour. of Clinical Medicine.*

HYPOTHYROIDISM—REPORT OF CASES.

BY

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Case 1—Jewett S., aged 15 months, weight 6½ pounds. Height and weight practically same as at birth. Only one ounce of nutritive—milk—can be taken at a feeding. Skin wrinkled, rough, dry and chalky in color.

Abdomen pendulous, legs short and crooked.

Forehead protruding. Very little intelligence in eyes. Constipation alternates with diarrhea. Temperature subnormal. Fretful, miserable baby.

Mother and father normal, healthy, no history of blood dyscrasia or acquired disease.

CASE I. Jewett S., when three years old.

First-born, full term child of proper aged parents.

No thyroids palpable.

Diagnosis—congenital hypothyroidea.

Treatment—one-fourth grain of thyroid gland combined with pancreatic material and posterior pituitary substance.

Three months later child weighed 11

pounds and 2 ounces, could take three ounces of peptonized milk (or goat's milk when obtainable) at a feeding and one quart in the twenty-four hours.

Pluriglandular treatment always embracing small doses of thyroid has caused increased intelligence, improved strength, appetite, etc., until child, now three years old, weighs over 20 pounds, walks, talks and appears as seen in the picture.

Case 2—Brother of case 1. Normal at birth, soon became jaundiced. Ceased to increase in weight shortly after birth. Similar treatment to case 1 was administered with satisfactory results.

Case 3—Boy of twelve. Son of normal parents. Boy fat, low immunity, shy, rather backward at school, infantile genitals. Small doses of thyroid with thymus and pituitary gland products caused a rapid metamorphosis to a normal youth normally developed.

Case 4—Girl of fifteen, delayed menstruation, headaches, greenish, chalky complexion, myocardial weakness, halting pulse, etc. After short exhibition of thyroid in small doses with pluriglandular substances menstruation was established, complexion improved, headaches relieved and intelligence quickened.

Case 5—Mrs. R., aged 34 years, weight 246 pounds. Married eleven years, no children.

Enlarged lymphatics, tonsils protrude into throat, voice rather hoarse in conversational tones, but magnificent "Schuman-Heink soprano" when singing.

Was given thyroid glands in from four and one-half to six grain daily doses.

Treatment was discontinued when patient's weight reached 200 pounds because signs of pregnancy were manifest.

A full term normal child was delivered at proper time, but patient declined to repeat treatment a year or so later when weight had returned to 250 pounds.

Case 6—Woman at menopause. Irregular menstruation, headaches, diurnal drowsiness, nocturnal insomnia, stiffness in joints, falling out of hair, "thickening" rather than fattening, irritability and faintness.

Thyroid and ovarian substances caused one or two normal menstruations followed by normal menopause, with subsidence of joint stiffness and other symptoms.

Case 7—Female, menopause attended with prolonged bleeding. Thyroid in grain doses combined with ergotin three or four times daily controlled bleeding.

Case 8—Fat female, menopause, enlarged uterus, intermural fibroid attended with menorrhagia.

Thyroid in combination with quinine hydrochloride caused the disappearance of tumor in less than six months.

Case 9—Old man, high blood pressure, difficult micturition, stiffness in joints, unsteady gait, insomnia, retrospective and unhappy.

Thyroid in one-thirtieth grain doses combined with pituitary, testicular and pancreatic substances caused a new lease on life with awakened interest in surroundings.

Case 10—Represents the hypothyroidism following syphilis. A young man in the secondary stages of syphilis with delusional insanity, nape of neck baldness, myxedematous tissues, etc. Was given salvarsan suppositories, thyroid and pituitary gland products alternating with the mixed treatment. Altho he had been unable to work for two years, in less than three months he was at work on Camp Taylor.

The above ten cases have been selected as typical stages of hypothyroidism from birth to old age.

Hypothyroidism may be congenital or may occur at any age, especially at the subsidence or beginning of some endocrinous function as in the thymus at birth, the tonsils in childhood, the ovaries or testicles at puberty, the menopause and senile impotence. Almost miraculous results follow the use of thyroid in genuine hypothyroid headaches, joint pains, "growing" pains and adult stiffness and soreness, retarded growth, dulness, constipation, subnormal temperature, coldness, acidosis from deficient oxidation, diurnal drowsiness, noctural insomnia, brittle nails, ununited fractures, loss of hair, especially outer

third of eye brows and over nape of neck, lowered resistance, acne, psoriasis, eczema and herpes, neurasthenia and melancholia, disturbed menstrual conditions, nocturnal enuresis, enlarged tonsils, adenoids, soft bones, tumors, and many conditions due to hypoendocrinism.

Myxedema is rare, but mild degrees of hypothyroidism are seen by every doctor at almost every office hour.

Harrower says minor hypothyroidism is as common as orange trees in California.

I desire to add my testimony as to the success of organotherapy in all such cases.

THE TREATMENT OF WAR WOUNDS ESPECIALLY BY THE CARREL-DAKIN METHOD.

BY

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The method for the treatment of infected wounds has been developed in the course of two years by direct experiments on the wounded. Researches were conducted in the laboratories of the temporary hospital No. 21, at Compiegne, which was largely aided in its work by the Rockefeller Foundation. The following doctors have been associated with Dr. Carrel in his work: Surgeons Dehelly, Guillot and Woimant; the chemical work was done by Dr. Dakin and Dr. Daufresne. Captain Lecomte du Nouy made the mathematical and physical researches. The purpose of the method was to prevent or to stop suppuration, to sterilize the wound and close it. It is due to a combination of processes which makes it possible to employ antiseptic substances under such conditions that they are entirely efficacious.

The method involves no new principles. The road was opened by Pasteur and Lister, the surgical technics used being known to every surgeon. Neither is the method characterized by the use of any new chemical substance. The antiseptic properties of hypochlorite of soda have been known for a long time. The progress is due to the systematization of these procedures in a new way. This systematization has been brought about by scientific investigation and the employment of two methods utilizing measurements. The first was the bacteriologic study of the condition of the wound and the recording of these steps on a curve showing the states of the disinfection.

The second was that of measuring the progress of healing by means of a precise technic based on the discovery of some of the laws of cicatrization. The method, therefore, is dependent upon the employment, rigorously controlled by the microscope, of an approved agent, under conditions of contact, concentration and duration, established by direct experiments upon infected wounds.

The antiseptic chosen is the Dakin solution of hypochlorite of soda, neutral to powdered phenolphthalein. Dr. Carrel gave the name of Dakin's solution to sodium hypochlorite, deprived of its alkalinity, in order to distinguish it from Labarraque's solution, which contains a great deal of alkali. Its advantages are: its high bactericidal power; its dissolving action on necrotic tissues; and the ease and cheapness of its preparation. The concentration has been empirically placed between 0.4 and 0.5%. If the percentage of sodium hypochlorite is less than 0.4% the antiseptic power of the solution is too low; if greater than 0.5% the solution is irritating.

The action of Dakin's solution on bacteria and tissues was studied by the comparison of the curve of sterilization and of cicatrization. These experiments showed

that sterilization was obtained without any destructive action upon the living tissues.

Action of hypochlorite in solution on an infected wound comprises two processes:

1. *Chemical reaction;* bacteria as well as other organic material in wounds, necrotic tissue, blood clots are dissolved, chlorine-nitrogen compounds are formed of the nature of chloramines.

2. *Antiseptic action,* not only of the hypochlorite itself, but also of the chloraminic compounds so formed.

It is important to emphasize the following facts: The hypochlorite solution will dissolve necrotic tissue and blood clots. Chloramine T and dichloramine in oil have not the power to dissolve necrotic tissue and blood clots.

Dakin's solution may be satisfactorily prepared in any one of several ways. First, by double decomposition of calcium hypochloride and sodium carbonate. This method, the one first used by Dakin, has been, because of the ease of obtaining the necessary chemicals, the most available one. The alkalinity of the solution, after the precipitation of the calcium carbonate is neutralized by the use of a mixture of sodium carbonate and sodium bicarbonate in the precipitation. In either case, it is necessary to determine the percentage of available chlorine in the bleaching powder with which one is working. Second, by the electrolysis of a sodium chloride solution, this method gives the product a non-irritating quality, but requires apparatus and electric current which are not always available. A third very simple method has been developed here by the action of liquid chlorine on sodium carbonate.

The most efficient action of an antiseptic is obtained only when it enters into intimate contact with the bacteria causing the infection. Therefore, surgical and mechanical cleansing is essential.

The soldier after being wounded is a man in a state of incubation, inoculated with bacteria. The substance of the wound is composed of blood clots, muscular debris, undergoing autolysis, forming a splendid culture medium. To alter these ideal conditions for the development of bacteria is of prime importance. The wound must be widely opened and maintained open. No call for hesitation in making very free incisions. War wounds are more extensive than they appear. Under a small skin wound there may lie a large bruised, necrotic and destroyed area of muscle tissue, infiltrated subcutaneous tissue, blood clots, missiles, and above all shreds of clothing which carry and disseminate the dangerous gas producing organism (spores of Welsh bacilli).

After careful hemostasis one can see the entire wound without retraction of its parts.

If the patient has been received a few hours after being wounded, thoro cleansing of the wound is made by washing the wound with neutral soap and sterile water. This purely mechanical cleansing is important and renders the wound nearly aseptic —to the eye it seems ready for closure, but the immediate closure must be deferred until subsequent smears from the wound show surgical sterilization. The patient must be watched carefully over a period of ten days. Immediate primary closure is not a scientific method, it is always dangerous, and the surgery of war must be, above all, a surgery of security.

In the case of fresh fractures, the incisions must be free, soft parts laid open in such a manner that all parts of the site of fracture may be exposed. Free splinters are removed, all adherent splinters are pre-

served. Experience has shown that fractures so treated become surgically sterile and rapidly consolidate.

The treatment of old suppurating wounds with fractures differs. Before surgical intervention it is necessary to reduce the patient's temperature and to diminish the number of bacteria only by chemical sterilization. Ten days after this primary sterilization, when the infection is reduced as much as possible, the surgical cleansing is performed, under anesthesia, foreign bodies and necrotic tissues are removed, and the surgical act is followed by the introduction of tubes for a new and thoro chemical treatment.

After surgical treatment the wound is ready for the contact of the liquid. In the sterilization of a wound the antiseptic plays a part comparable to that of a knife in a surgical operation; it acts like a "chemical knife."

To bring the solution of hypochlorite in contact with the wound, tubes of rubber have been found most practicable. These are 30 to 40 mm. in length and 4 mm. in diameter. They are closed at one end by tying with a strong linen thread and perforated from the same end over a length of 5, 10, 15, 20 centimeters by means of a punch, making a series of holes (½ mm. in diameter), perforating both walls at 1 in. apart.

These tubes are disposed in a wound so that the liquid may readily spread over the whole surface. They are not applied over gauze, but directly to the wound, and then the compresses, soaked with Dakin's solution, are laid over them. Gravity plays a very considerable part in the distribution of the liquid; the tubes must be arranged in such a manner as to utilize it (in case of wound with surface inclined), all the tubes in a wound are connected by means of glass distributing tubes with the irrigating flask.

The reservoir for liquid usually employed is a flask holding a litre; its interior orifice has a diameter of 7 mm., to which is attached an irrigating rubber tube with a calibre of 7 mm. closed by a pinch cock. All these dimensions have been studied for a convenient working of the apparatus. The flask is graduated per 50 c. c. and hung at a height of from 60 c. m. to one meter above the level of the bed, according to the number of tubes in the wound.

The concentration of the solution in contact with the wound changes rapidly, and therefore to maintain a concentration of the antiseptic it is necessary to renew it often by adding new fluid at the surface of the wound. It has been found empirically that it is enough to renew it every two hours. The continuous method would be the best, but not practicable on a large wound. Every two hours the nurse releases the spring of the pinch cock for a few seconds and delivers from 20 to 100 c. c. to the wound according to the nature of the case. The total quantity of liquid injected in 24 hours varies from about 250 to 1,200 c. c., the only fixed rule is that the wound should be kept constantly moistened by the liquid, without the patient being made uncomfortably damp. At the time of the dressing, the surrounding skin is protected by means of squares of gauze sterilized in vaselin.

The third conditon to be considered is that of duration of the instillation. Time is very important, instillation of liquid is continued day and night until the wound is sterile. There is no method for determining the length of time to continue instillation without a bacteriologic examination of the wound. Clinical observation (modi-

fication in the appearance) is absolutely unreliable as an index of the real condition existing in a wound. The sterilization of the wound is controlled by a simple method —"war method"—which can be performed in every ambulance, and sufficiently precise to indicate surgical asepsis, the only one the surgeon needs to know. Bacteriologic examination is part of the treatment. Smears are taken every two days from the most infected parts of the wound, the instillation being stopped two hours before the time of the dressing. Smears must never be taken from a region of the wound which is bleeding. When the sterilization is about to be obtained, it is useful to examine the neighboring skin. These smears are made on clean slides, then fixed by passing thru the flame and stained by carbol thronin or methylene blue. The bacteria are counted, on the surface of the smear, microscopically. The average number of bacteria per field is then estimated and charted. In this way curves are obtained which give to the surgeon the necessary information about the condition of each wound. Thus it is possible to know if the antiseptic is applied in proper condition and when the wound may be closed.

When only one bacterium is found in five or ten fields, surgical asepsis is obtained and the wound can be sutured with safety.

1. Wounds of soft parts whose sterilization has been begun a few hours after instillation are closed after two days, if the count remains at 1 microbe per 5 fields. In case of fracture it is preferable to wait until the wound has been surgically sterile for four or five days.

2. Wounds whose sterilization has been begun after a period of suppuration, more or less long, show sharp ascents in the curve and one should find the secretions sterile for a week at least before suturing.

It is well to practice the closing of a wound at as early a period as possible. Wounds united before the eighth day contain non-cicatricial tissue and before the twelfth day the skin is movable on the deeper structures. For the closure of the wound no special procedure is employed. Before the twelfth day, wounds are closed by strapping or elastic traction. After this time the skin becomes adherent to the subjacent parts and must be dissected to a sufficient extent before suture. The closure is usually made without drainage.

The application of these principles constitutes a "method," that is to say, an entity, a combination, of which each single part is essential to the rest. (Of course, its interest to many physicians at the present time lies in the original use for which it was evolved, but there are vast possibilities for the combined solution and method which extend into every branch of medicine and surgery in which infection plays a part.)

A great many suppurating fractures which would have necessitated an amputation have been sterilized and closed. Sixty per cent. of old suppurating fractures of the thigh were sterilized and closed.

Almost three-fourths of the amputations performed for infection could have been avoided if the sterilization of the wound had been effected.

Chemotherapy, in any infectious process, is merely a method of assisting nature thoroly able to protect tissues if only the original conditions of the body are restored as far as possible and offending material removed. However, it must not be forgotten that all the details of the method combine to produce in a certain way a certain result.

No modification or change can be made in either the solution itself or in the processes for the mechanical and chemical treatment.

Both mechanical and chemical treatment are important; if the surgical work has been inefficient, no method will give the sterilization. If the following treatment is not properly applied, no results are to be obtained; the method requires the intelligent collaboration of doctors and nurses.

SALICIN IN INFLUENZA.

BY

EDWARD WILLARD WATSON, M. D.,
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In the *British Medical Journal* for Aug. 3, 1918, Dr. Turner advocates salicin, in large doses, as almost a specific in epidemic influenza.

In the epidemic of 1889-90 and the recurrent epidemics of '91 and '92 the writer of this article employed salicin, almost from the beginning, selecting it for trial from having just read Dr. Maclagan's article on Rheumatism, in which he advocated large doses of salicin in rheumatism—an ounce or more a day—stating that children, primarily treated without success, with salicylic acid and the salicylates, gained strength and were rapidly cured by ounce doses which he claimed were tonic rather than depressing in their action.

During that epidemic, which was far more universal in its incidence than the present one, I found that salicin given in 30 to 40 grain doses every two or three hours, or, if the onset was at night, a heaping teaspoonful in cold water, at bed-time, was a real specific, as truly so as quinine in malaria. Ever since that time I have continued to depend on it in the sporadic influenzas so frequent every winter and have found it almost always satisfactory.

In the present epidemic, when it could be obtained, salicin has been equally useful, but alas, the crude salicin of the earlier day, which was both cheap and plentiful has disappeared, and in its place, when there is any, is the purified salicin of the U. S. Pharmacopeia, costing from four to six or seven dollars an ounce and wholesale houses often have only an ounce on hand. Why this drug was "purified" and where the original crude article, which was very satisfactory, disappeared to, is a mystery that many searches have failed to reveal.

My experience with salicin was published in 1891 in a series of papers on the influenza epidemic written by Dr. Roland G. Curtin and myself and read at that time at the Philadelphia County Medical Society. The papers were based on over 4,000 cases personally observed by us and which were followed by practically no mortality, little or no true pneumonia, sometimes prolonged sweating, but very generally, rapid recoveries.

Many families in my knowledge still treasure the prescription for salicin, and many have kept the drug on hand as a household remedy, taking it by the teaspoonful for the influenzas, with headache, chill and fever so frequent in many winters. Recently, in going to have their old friend renewed, were amazed at its tremendous rise in price and the difficulty of getting any quantity at any price.

Whenever I have been able to get it, the results in this epidemic have been the same and in some cases that have developed into so-called pneumonia, its use has seemed to turn the scale to recovery.

38 South 19th Street.

Hysteria.— To control a fit of hysteria dash cold water in the patient's face, by cupfuls, one after another, until the end is accomplished, *Med. Summary,* or press a lump of ice to the nape of the neck.

THE NEXT STEP IN THE CONSERVATION OF THE RACE.

BY

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Things will be different after the war. Every one will admit that much. Whether conditions will be better or worse will depend upon how well we learn the lessons which the great war is writing upon our hearts with blood and fire.

The war has discovered many flaws in our industrial and social life. Some of us knew these flaws were there, but it took the great national task of winning to force their correction upon us and it is very doubtful if we shall ever go back to some of the pre-war methods of handling industrial and social problems.

But the most vital flaw which the war has discovered is the terrible weakness of our man power. Many of us have known for years that it existed, and have been urging the family, the community, the state and the nation to awaken to their danger, but our pleading has fallen upon deaf ears.

The great national task of furnishing millions of able bodied men for service in the army has brought us face to face with the fact that we are not building up a structure of man power of which we can justly be proud. Thousands of our boys are rejected as unfit for national service because of defects which had their beginning, or were contracted, in childhood and here is the tragedy, which in large measure could have been prevented, as, for example, defects in sight and hearing, bad teeth, malnutrition, physical deformities and mental weaknesses.

Preventable most of them, and while knowing how to prevent them we have not done so but have allowed them to go on accumulating until a great world catastrophy has brought us face to face with fundamental defects in our methods of conserving the human race.

Professing the ideals of prevention, the medical profession has steadfastly turned its back upon its ideal, and has gone on exploiting the misfortunes of the people as it practiced the cure of disease.

The mental and physical flower of the race have been turned into the hopper of the god of war, and the maimed, the halt and the blind have been left behind as the nucleus with which to reconstruct a war-bedraggled human race.

With twenty to forty per cent. of our man power defective, almost beyond repair, it would seem that our main hope for the future must lie with the children who, tho they may be subject to the same conditions which caused the defects in the present generation of grown-ups, are still in that state of mental and physical plasticity with which it is quite possible to construct and reconstruct an efficient race.

It is quite within the realm of reason to say that the medical profession knows how to prevent, at least in large measure, the diseased conditions of childhood which have resulted in such large numbers of disqualifying defects in men of draft age. Why then have we not done it?

This unfortunate state of affairs is due entirely to economic reasons.

The great majority of the medical profession have felt that they could not live on what the people were willing to pay for prevention, and the great mass of the people have felt they could not afford to pay for that intangible thing called prevention. The doctor felt that he was only well paid for curing disease; this feeling being brought

about by the attitude of the average person that if the doctor gave him something to relieve his pain there was definite value received; whereas no one could be certain that he would have had a pain had he not done as the doctor advised. This erroneous state of mind has resulted in a double-sided exploitation; the people exploiting that part of the Hippocratic oath which obligates a physician to treat the poor free, and the medical profession exploiting that part of the unfortunate human race who could afford to pay for having their misfortunes relieved, the great mass of humans who reside between these upper and nether millstones being alternately exploited and neglected as economic conditions warranted.

It is quite evident that no better conditions may be hoped for in the immediate future unless there is a very decided recasting of the mental attitude of the people toward the profession and of the men of the profession toward their opportunity and obligation for human service.

This recasting has been going on slowly but steadily for many years gathering headway as the years advance, but nothing has demonstrated the need of immediate, forceful and rapid recasting of the social status of the medical profession as have the conditions made evident by the great war.

Whether for war or peace the human race must be made more efficient. It is up to the medical profession to do it, but they cannot do it without a complete reorganization of the methods by which they are now striving to conserve the man power of the race.

The writer is willing to admit that the people and the profession may not be ready at this time for the complete socialization of the medical profession, but this much he asserts with all the emphasis of which he is capable, that the time is ripe and the present condition of the man power of the world demands, at least the immediate and absolute socialization of, medical work for all children.

Horrors of horrors! Socialism! No, just plain common sense.

Years ago our fathers realized that these United States could not reach their ideal unless the men and women who compose its citizenship were trained to think straight, and so they organized our system of public schools and later to make them more efficient compulsory education became the definite policy of this country and now every child whether rich or poor must have a definite amount of educational energy expended upon it at the expense of the community.

Millions of dollars are wasted every year, in an otherwise comparatively efficient educational system, because our children are not physically able to take full advantage of the facilities for education which we place before them. Besides this, when a great national need comes we find our people physically below par.

It requires very little mental strain to admit that good health is quite as important a prerequisite for good citizenship as a good education. Certainly our experience of the past year should convince the most persistent personal-liberty advocate that the time has come when *compulsory health* must become an active policy of this country, at least in so far as our children are concerned.

Thousands of our men are unfit for national service because in the past we have allowed them the "personal liberty" of ruining their own health. Thousands of others are unfit for service because we have allowed their parents the "personal liberty" of neglecting the health of their children.

Thousands of men and women are mentally unfit for citizenship because we have given the mentally unfit the "personal liberty" of propagating their kind without limit. Thousands of others are unfit for service because we have inadvertently allowed economic barriers to stand between them and good health.

Nothing now stands between a child and a good education but his inheritance and his desire and ability to respond to the stimulus of our educational efforts.

Why should a false economic system stand between a child and good health? Why should this same system be allowed to retard the progressive physical and mental efficiency which a country should expect of its citizenship?

For some years there has been developing in this country a system of medical school inspection. The purpose of this system has been, first, to prevent the spread of infections, and second, to point out to parents the need of medical care. As far as the first aim is concerned some places have reached a very creditable measure of success thru vaccination for smallpox, whooping cough and diphtheria and thru quarantine of children in their own homes. The only weakness in the system is that infected children are usually not discovered early enough and segregated. Quarantine is largely a matter of locking the barn after the horse is stolen.

When it comes to pointing out to parents the need of medical care we find a greater weakness in the program. If the child belongs in a family with certain financial limitations coupled with the belief that the notice from the school physician carries a definite governmental command, the parents are very apt to take the child to a hospital clinic for operation or treatment. If the care means operation, the work is usually quite satisfactorily done. If, however, the care means continuous treatment it usually frazzles out before very definite good has resulted because the unpaid hospital clinician loses interest or the parents are unable to bear the loss of time necessitated by taking the child often clear across the city to the clinic, several times a week.

If the child needing care happens to be in a well-to-do family which supports a regular family physician, there is usually created more or less friction between said family physician and the school doctor, and the matter is too often disposed of by the family doctor with: "Now, Mrs. Blank, don't you worry, when Mary needs her tonsils out I'll tell you."

And if the child happened to be in the great middle class, the end result of the notice from the school doctor will depend upon the intelligence of the parents or their ability to pay for the work needed.

Where there is a competent visiting school nurse there may be some good follow-up work done depending upon the amount of territory she has to cover, but in the large majority of communities no follow-up work is attempted. If the child has tonsils this year and the family does not see fit to attend to them, the school physician simply sends another notice next year and so on until the child leaves school at sixteen years of age and becomes the administrator of its "personal liberty" inheritance.

Except in those cases where the visiting nurse explains to the parents the desirability of having the child attended to or where frequent health talks are given to groups of mothers, there is practically no educational program.

Except thru ignorant fear of government

there is little hope of cooperation from parents if they do not know what you are trying to accomplish, but there is hardly any limit to their cooperation if they understand that your whole aim and desire is to keep the child well and strong and not a matter of making more work for the doctors.

The writer has for ten years conducted an ear, nose and throat clinic in one of our largest public schools. The work has been very successful in spite of the many drawbacks, but he believes the success is largely due to the definite policy with which he organized the clinic of trying in every case, where possible, to make the parents understand why the child got sick, what they can do to help us get it well and what they can do to keep it from again getting sick. In but few cases has he failed to gain their coöperation to the fullest extent of their intelligence.

A very persistent and intensive educational propaganda should be a part of every program of medical school inspection for it is with all one of the most important elements in any plan for reconstructing the race.

Nothwithstanding my criticisms, which are not intended to be destructive, the few successes, the many failures and the large amount of superficiality of medical school inspection have all played a very important part in our progress toward and have very definitely demonstrated the need and the desirability of now taking the next step.

We have spent a great deal of personal and community energy in pointing out the need of prevention and measures of cure, but most of our efforts have gone to waste because we have had no machinery for enforcing the adoption of our suggestions.

The standards of education laid down by our fathers were ineffective until we put in motion the machinery which compelled the acceptance of these standards.

We know what the physical standard of health for a child should be. Is it not time that we organize the machinery which shall compel the recognition of these standards by the individual and the State? This it seems to me can only be done thru a complete reorganization of our medical practice with children.

The Plan.—The plan involves the organization in every public and private school of a medical clinic. The clinic should be of such size and character as will best meet the particular needs of the locality. There should, of course, be no limit to its service. Any child who needs medical care and treatment should receive competent and adequate attention.

The clinic should be all-inclusive, that is, it should include in its organization prenatal and post-natal clinics for children up to school age; general medical, surgical, and dental clinics for all children of school age; and clinics for special branches as may be demanded by conditions.

These clinics should be in the public school building or in a separate building connected by a covered passage. Any other method of handling the situation simply obstructs progressive efficiency.

The permanency of special clinics should be decided by the need of the district, but medical, surgical and dental clinics should be permanent fixtures in every school.

Several cities in the country have centralized dental clinics for poor children (there should be no such designation as poor children), but while these clinics are doing a lot of good work they do not begin

to meet the situation as do the *separate school clinics.*

The physicians doing this work should be whole-time employees of the community. They should, of course, be chosen because of their medical work and not because of political adaptability. Those doing general medical and surgical work should have regular hours at both sessions of the school and again in the evening so that parents may come for consultation and advice. The school doctor and a visiting nurse should be subject to emergency calls.

Clinics for less common ailments such as ears, nose, throat, eyes and skin should be available at less frequent intervals, one man looking after several schools.

When the physician is not holding clinics in the school he should be visiting the sick children in their homes or making inspections of the conditions under which children live and work.

In large communities or cities there should be established in several large districts or in one central place in the city a large well equipped child study laboratory to which may be referred by the physician of any public or private school such cases as may not properly be handled in the school clinic.

Centralized in this institution would be such work as orthodontia, operative work of eyes, ears, nose and throat, X-ray work, chemical and blood analysis and a psychopathic clinic.

The two large centralized dental clinics in this country, the Forsyth in Boston and the Eastman in Rochester, are both admirably adapted for reorganization into child study laboratories of this character.

Where a centrally located institution is not available for special work and investigation, the work could be apportioned to the various hospitals or located in one or more of the larger schools, but the centrally located child study laboratory is by far the most comprehensive plan for coordinating the school clinics.

Of course a system of this kind necessitates the socialization of the hospital system of the community, at least in so far as the care of mothers and children is concerned, if they are to become real public servants.

Reservations for all hospitals should be made thru a central office in the child study laboratory and should be made to meet the need of the case. The maternity houses of the various hospitals should be coordinated with the prenatal clinics of the schools and all reservations for them should be made thru the central office.

Operative treatments which cannot be given at the child study laboratory should be referred to one of the hospitals, but in as much as under the plan the hospitals are under municipal management it would be entirely in keeping with the ideal of doing things with the least waste of time and energy, always keeping in mind, however, that the time and energy of a child are important enough to warrant very serious consideration when deciding where to economize.

Prenatal clinics are so few and far between in this country that a word may not be out of place. It is said that something like one baby out of every six or seven is dead at birth or dies very shortly after. Now if these babies are worth saving and can be saved without an irremediable sacrifice of the health and energy of the mother, is it not time that we put some intelligence into training the mothers of these babies how to live so that their babies won't die; and if they cannot be saved and made into

healthy members of society without sacrificing the mother too much then is it not time that we taught these over-strained mothers proper and safe methods of contraception? Is it quality or quantity that we want?

In connection with the prenatal clinic we should have an adequate corps of obstetrical nurses; well trained women who can handle any ordinary normal case without medical assistance, but who will always have the experience of the prenatal clinician to fall back upon in case of difficulty.

Of course, every clinic should have sufficient visiting nurses to do the necessary house to house follow-up work, the ideal being kept constantly in mind that the object of the work is to keep children strong and well and if they get sick to get them well and back into school as soon as possible.

In suburban communities the school physician of course may be a part-time employee, but even here it would be wiser to give one man several schools or sufficient to keep him busy all the time, for the dividing of a man's allegiance between public and private work is sooner or later bound to end in the sacrifice of efficiency in one or the other or both. Suburban communities may arrange with the nearest child study laboratory to do their special work.

No plan, however simple it may be, which has for its objective the equalizing of social justice can be put into operation without seemingly becoming a hardship to one or other of the elements involved. This plan offers no exception to the rule.

The medical man who thinks it is his right to exploit the sick children of the community will certainly feel the moral and economic pinch of the plan; likewise the man whose eyes are focussed more keenly upon his tax bill than upon the health and welfare of the community will feel the burden of a plan which must of necessity increase his direct tax burden; but both of them deep down in their hearts, however superficial they may be, must admit that it is the only reasonable road open to us now.

Social justice may not come except by sacrifice, but when the burden has been readjusted properly those who have felt the seeming sacrifice most keenly will realize that the burden has been made not only economically lighter but is a pleasure to carry.

There was once a man whose house was sadly in need of repairs. The builder said it would cost a thousand dollars. The man said he could not pay so much, but gave the builder five hundred and told him to do the best he could. The builder got his men and organized them for the work; he tore off the siding, exposing the weaknesses in the frame and superstructure; he dug around the foundation and jacked up the corners exposing the defects in the foundation and sills; and then he packed up and went away. Of course the man was furious. But, said the builder, you only gave me enough to take this preliminary step. I have done the best I could. I have showed you the necessity of taking the next step.

We have a temple of the living God which sadly needs reconstructing. We know that the foundations tremble under their load; we know that the superstructure is out of true and mutilated. The devastations of evil men, the neglect of selfish and ignorant men, and the placid self interest of the best of us have left it unfit for its purposed use. We know what is needed; we have the materials at our very hands and the workers have been trained for the work. Why then shall we not take the next step which will

mean the reconstruction, the rebuilding of an efficient race, a monument worthy of the Great Architect?

133 South Clinton Ave.

ON THE ECONOMICS OF MEDICAL ORGANIZATION.

BY

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Almost everybody is speculating more or less, each according to his particular interest in life, on the changes that will come in business methods after and from the war. It is also generally agreed that the adjustments in the battle-devastated areas of the eastern and western "war zones," colossal as they must be, will really be secondary to those for the millions of people, healthy and invalided, to be released from military service of every description.

As medical men our particular interest lies, of course, in the thousands of doctors who must have rehabilitation; and in the bearings which this will have upon medical practice in general. Some of us are old enough to remember the army surgeon of the Civil War and his subsequent career, but we can hardly imagine that history can thus repeat itself, because the pre-war conditions then and now are so vastly different. Of the three great evils now responsible for the medical "purgatory," *viz.:* abuse of medical charity; fee-splitting; and petty jealousies, the latter alone is common to both periods. The first two are doubtless grafts upon the third, as the parent stalk; but they are now the shade makers. Furthermore, the average doctor who participates in this war will not come home like the army surgeon of fifty years ago, with a naturally established reputation for knife juggling. In the first place, he will be too numerous (30,000 of him—or more); and in the second place, the triumphs of conservative surgery, with C-D. solution and liquid paraffin, have robbed operative technic of much of its glory. In fact, he will be recognized as just one of a team; and from this point we may start our calculations.

Rehabilitation he must have as the reward of his patriotism and altruism; but with the efficiency of team work drilled into him, he is likely to find it easier to get old patrons back on his books than to get satisfaction out of the varied service required of him and with a considerable part of which he has been long out of touch. He may want to "play his own position" only; and as a natural result he will ask for organization. Not the organization so fervently preached in past years by the paid organization agent of the A. M. A. for the objects named, and never thus to be realized, but the community team, or teams, according to the community numbers. Not only will he cite his own experience, but he can as well point to the long patent fact that the acme of medical service goes to the wholly impecunious in the metropolitan hospitals, more surely than to the millionaire in his palatial home.

Consideration of the *savings to be expected* would follow; some of which are: one suite of offices, including a room for emergency minor surgery, one general reception room with one telephone and one attendant who should be bookkeeper and collector, plus card index record keeper; and no duplication of books, periodicals and apparatus.

Constitution of the team, naturally with due regard to the fitness and congeniality of the personnel, will be next in order. It

is of course *essential* that there should be an internist, a surgeon, a pathologist who is also a roentgenologist, an obstetro-gynecologist and an ophthalmo-otolaryngologist; and *desirable,* if material is available, to have certain understudies recruited from the younger men. The latter would be especially useful for venereal cases and anesthesia.

In short, with the better and more remunerative service thru the elimination of waste, both of effort and outlay, and without added expense to the patient (rather, in fact, less), the appeal for team work can hardly be resisted. Moreover, it is in harmony with modern methods in almost every other line of human endeavor, the individual being gradually lost in the combination.

The only bar to this scheme is the possible lack of provision for the country doctor. But with the shortening of distances, thru the automobile, plus better and better roads, and the telephone, the country doctor, as such, is rapidly disappearing. If the trend towards town life persists he will soon be wiped out completely. The constitution of teams will also not be the work of a day. It must go thru a period of development, with inevitable readjustments; and this will bring opportunity for the country doctor to come in.

So long as human nature remains human, and the individual predominates, there will be jealousies between doctors; petty, despicable and subversive of the nobler traits inculcated. Human nature may not be changed, but individualism may be curbed; and that would lessen opportunity for, if not wholly eradicate some, crying evils. "Big Business" is big in direct ratio with the perfection of the team work; an object lesson too long ignored by medical men, and now, in the war, more vividly portrayed. "Group practice" thus seems the most likely change to come to the medical profession after, and from, the war; and some preparation for it will not be out of place.

AFTERTHOUGHTS OF THE LATE EPIDEMIC OF INFLUENZA.

BY

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New York City.

Despite all precautionary measures here, the influenza has extended and attacked many. From my point of view, it could not well be otherwise. The atmospheric conditions are those which control the epidemic and over which we have little or no influence. My observation would go to show that isolation and quarantine are of little value in arresting the disease. The query arises whether they do not rather tend to prolong the disease, as the editor of AMERICAN MEDICINE points out.

Take, for example, the little children of our schools. They were obviously immune, altho they might be carriers of disease. Now then, in the school they are under daily observation, whereas at home they are not and going about from apartment to apartment, they would be more apt to disseminate disease. Hence to shut up the schools would be a mistake. Thus, the Health Board of New York wisely resolved and did not act as was foolishly done in some of our cities.

No doubt, it is wisdom, and surely more decent, to put one's handkerchief before one's mouth in coughing, or sneezing. And yet, I doubt again the efficacy of this preventive measure, in lessening the disease. If the person is susceptible, he will take the disease, despite these, or any precautions. If he is not, he will remain immune, but

how long the immunity will last, no one can predict surely.

As to the utility of vaccines, it is still undetermined. In some instances, they appeared of marked value—again, the effects were not notable. Should we give a vaccine simply against the bacillus of Pfeiffer, or must we rather recur to a polyvalent vaccine made from different strains of various micrococci and mainly those present in pneumonia? It seems rational, to my mind, to employ the latter if we make use of any, because our chief dread in influenza, or colds, is the occurrence of pneumonia and its rapidly fatal outcome.

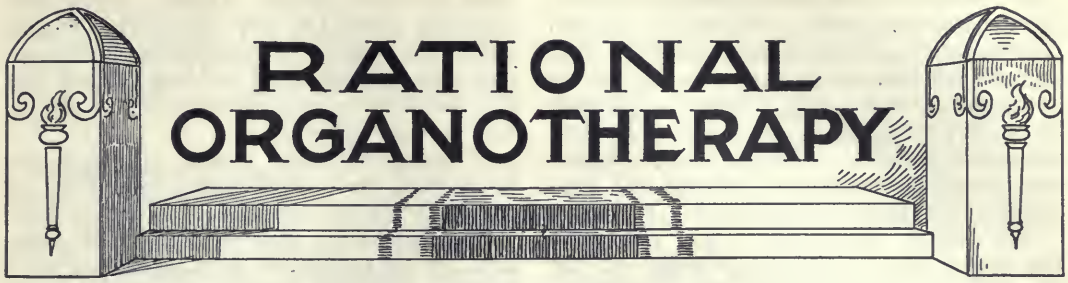
We are ever victims, as I believe, of advanced scientific research, in one respect at least. It covers up old, time-worn ideas and gives them new names and undue importance in prognosis. Thus modern acidosis has become a much dreaded complication, or outcome in disease. Some authors today are disposed to believe that acidosis is a determining factor in influenza. They go so far as to attribute its presence to the changes of diet that the war has brought upon us. The diminution in the amount of sugar is bad and the injudicious use of proteids and fats adds to the fateful outlook, as they state.

For many years, we have known that in acute colds a mild alkaline treatment is effective. Thus, Dr. Bulkley advises repeated doses and to me, too large ones, of bicarbonate of soda, to ward off, or greatly diminish a cold. Surely, whenever there has been too much eating, lack of exercise and a lithemic state, this has value. Personally I have given, with happiest results, a Seidlitz powder mixed in a tumblerful of water and drunk at intervals during the day. A very convenient and efficient remedy is the dry powder of Seidlitz of Squibb. About one and a half to two teaspoonfuls may be added to a pint of water and drunk in divided portions, in twenty-four hours. The Rochelle salts and tartaric acid of this powder are surely very valuable in all obscure rheumatic or gouty conditions and these, no doubt, make individuals more susceptible to influenza, as they do to ordinary colds.

I have long placed great reliance in warding off and in the treatment of colds, upon salicylate of ammonium. With some people, it is objectionable on account of its stomachal effects and tendency to produce slight nausea. For these, I would again revert to salicin in cachets. Salicin is a bitter tonic and also, anti-rheumatic. To be of pronounced good effect in curing colds, or influenza, it should be given in large doses and frequently. At first, ten to twenty grains every two hours is none too much. Indeed, Maclagan gave as much as twenty grains every hour for five to seven doses, with the happiest results.

When the attack of influenza is on the wane, I know of no better nerve tonic for the patient who is weak and debilitated from the attack, than the glycerophosphates of lime and soda, combined with kola and port wine. The frequency and the amount of these drugs to be taken should depend upon the patient and his reaction. With some the usual dose is too small, especially if we need a rapid and stimulating effect to the impaired nerves.

Capsules for Quinine.—Ravaut (*Presse Medicale,* Mar. 18, 1918) urges the use of capsules which pass thru the stomach unmodified. By this means all disturbing influence on gastric digestion is avoided. The technic for making protecting capsules is not perfected; those he has been using crumbled in three months.



Thyroid Disease and Sexual Development in the Female.—The average physician is graduated from a medical school—then, says Simonton (*New York Med. Jour.*, Aug. 17, 1918), with or without previous hospital training, locates in some community where he practices for the rest of his life. Local conditions and diseases are to him normal in that he is not in a position to know that some constitutional difference might exist between the people among whom he practices and those living in other localities. He may notice, for instance, that most of the women and many of the men have goitres. He attributes this to the limestone water or to lack of iodine in drinking water and gives it no further thought. He does not connect the two facts, 1, that these women are sexually undeveloped; 2, that they have goitres. He knows that the majority of the confinement cases he attends are very difficult. He knows that he must use forceps in many of his cases, that he must sew many perineal tears; that many mothers consult him about their daughters just coming into womanhood, telling him of their suffering and irregularity in menstruation. He may examine some of them and may diagnose infantile uterus but makes no effort to do anything for them. Why? Because he thinks that such conditions are universal; that women all over the world have the same troubles. And there is nothing in the text-books to teach him otherwise. Undoubtedly there are isolated instances of these cases in all communities, the result of heredity, consanguinity, etc., but not in the proportion here encountered.

The writer has practiced in several localities. After some years' work in the hospitals of a large city he located in a smaller city, his experience covering in all a period of about thirteen years. Six months ago he located in the country on account of ill health. In these six months he has had to use forceps oftener and has had more perineal tears than in all his former practice. He has been consulted by more women begging for relief from menstrual pain and irregularity than ever before in his experience—fully fifty per cent. of the female population covered by his practice. He has never met any such proportion in other localities. The condition is due to thyroid dyscrasia, either as a result of limestone water, consanguinity or both. Practically half the female and some of the male population have goitres. Interaction between the ductless glands (in this case ovaries and thyroid) has not been normal with a resulting subnormal sexual development (not true infantilism but a condition not far removed).

Some of the goitres have been accompanied by hyperthyroid but the majority by hypothyroid symptoms: slow heart, irregularity of heart and menses, rough skin and scanty menstruation. The latter symptom represents the author's departure from concurrence with most writers. Practically all state that "hypothyroidism is accompanied by profuse menstruation." In Simonton's experience fully ninety per cent. suffered from scanty, irregular menstruation. These symptoms have, in every instance, been brought to normal by medication directed toward correction of hypothyroidism.

In the cases showing heart and skin symptoms and in those with arthritic symptoms relief has invariably followed the administration of thyroprotein (Beebe). In the sexually undeveloped cases (painful menstruation, irregularity, painful coitus, sterility, frigidity, etc.) corpus luteum has given wonderful results. The corpus luteum is that obtained from the pregnant sow; all others are worthless. Several of the writer's confinement cases where forceps

were necessary and second degree perineal laceration took place, refused to lactate. Thyroprotein produced an abundant milk supply but had to be continued tho in a very small dose. Any attempt to discontinue the thyroprotein was followed by drying up of the milk. This would seem added evidence that sexual development had been hindered by hypothyroidism.

The above observations have prompted the hope that further knowledge of the thyroid and treatment of the developing female will remove or ameliorate that bane of modern women, child bearing. Parents must be educated to consult their physician about their developing daughters. Physicians must become familiar with the proper treatment of these cases.

Pluriglandular Organotherapy.—Perhaps the latest and what promises to be one of the most efficacious therapeutic moves yet advanced, when properly manipulated, is the combination of active substances or entire organ of the various glands concerned in the "ring" of internal secretions.

A writer in the *Charlotte Med. Jour.* (Oct., 1918) says, one would hardly be able to claim, however, in its present form, that this "shot gun" therapy is truly scientific or devoid of danger even.

Let us stop for a moment to consider the powerful influence manifested by each individual gland upon metabolism in general—the influence of one gland upon others in the "ring"—and the possibilities lying in the production of a disordered balance, we can readily see that so-called "empirical organotherapy" had better be termed "haphazard organotherapy" potent for harm. In fact, it is not improbable that the claim of a certain writer that "such chemical drugs as iodine, which act evidently thru their influence in endocrine glands," may have some bearing upon the origin of diseases other than those indicated specifically by endocrine dyscrasia. Other writers have claimed that table salt, unknown to savage tribes, was responsible for the appearance of diseases also hitherto unknown. Cancer, for instance "was unknown to savage tribes until advent of the white man." He gave them salt it is true but he also "gave them syphilis." Did the syphilitic toxin cause glandular dyscrasia—let us say thyroid dyscrasia—or did the iodine (which acts evidently under thyroid supervision) so disorder the balance of his internal secretions that normal control of cell metabolism was lost and disordered embryonic cell proliferation was permitted?

If our endocrine glands are, and we know that they are, forcibly influenced by toxic conditions, even to the point of complete exhaustion, with inhibition of function, isn't it reasonable to suppose that their balance properly maintained may be the source of our antitoxins? If so, aren't we "flirting with danger" when we take a chance on further upsetting this balance by indiscriminate organotherapy?

When we find symptoms of glandular disorder, would it not be better to try to locate the gland at fault and use specific treatment? In all probability establishment of proper conditions within the glands, or the quality or quantity of its secretions will show that symptoms referable to other glands were merely secondary. To one capable of tracing the origin of such diseases a careful family history is invaluable. This carries us back to the old subject—Heredity—to which so many diseases owe their origin.

Physical Therapy

Under the Editorial Direction of Albert C. Geyser, M. D., New York.

REMARKS ON THE FARADIC CURRENT.

Physics.—The production of the faradic or induced current is the result of mechanics. There is no electrolyte, no metal to be decomposed, and no chemistry. A primary current, the source of which is immaterial, is passed thru a primary coil. Surrounding this primary coil is a secondary winding. The terminals of the primary coil are connected with the source of the primary current. The primary current may be generated by wet or dry cells, or may be taken from the street current of a dynamo. There is no metallic connection between the primary and the secondary coil. In fact, for therapeutic pur-

poses, the secondary coil is freely movable over the primary. The object of this free movability is to be able to affect either the whole or only a fraction of the secondary winding.

Induction.—Whenever a current of electricity is passed thru a wire, lines of force or magnetic flux are set up, radiating like the spokes of a wheel, at right angles to the winding. When a secondary winding is superimposed upon the primary one, (one spool of wire sliding upon the other) the lines of force or magnetic flux are cut at right angles by the superimposed layers of wire. This cutting of the lines of force induces a secondary or induced flow of current in the superimposed coil. The terminals of the secondary coil are connected to the patient.

Manifestations of the secondary current occur only at the make and the break of the primary current. At the moment that the primary current is closed, a charging or an induction takes place; at the moment of opening or breaking of the primary current a sudden discharge of the previously induced current takes place. The discharging current is always much stronger than the charging one. The reason for this difference in potential or stress or voltage is due to two factors: *First,* the induced or secondary current always flows in the opposite direction to the inducing or primary current; and when two currents in close proximity to each other flow in opposite directions to each other there is a certain amount of loss due to a neutralizing effect; *second,* when the secondary coil is fully saturated, then suddenly discharged, the full voltage of the coil manifests itself in the discharge. The difference in the potential of the make and break current is so great that for practical purposes the break current only is utilized.

Vibrator.—The mechanism which interrupts, makes and breaks the primary current is known as the vibrator. The vibrator or interrupter is magnetically operated and may be attuned to any number of frequencies. From the above description we see that the physics of the secondary or induced current is entirely mechanical.

Electro-physiology.—Since the physics of the faradic current is entirely mechanical, the physiologic effects rest upon a mechanical basis. It is, of course, understood that ever mechanical movement or motion of the human body influences the chemistry of the same accordingly. Whatever chemical changes are produced in the body, as the result of the application of the faradic current, are the direct results of the tissue contraction and relaxation, and not the primary effects of the current.

If a muscle or gland is made to contract and to relax a certain number of times, it matters very little, physiologically speaking, what the contracting agent is. As far as the animal nerve is concerned there is a similarity between a normal nerve force and an electric current; under suitable conditions the nerve does not seem to be able to differentiate between them. In the body we recognize two principal nerve currents, the ascending, normal for the nerves of sensation, and the descending, normal for the nerves of motion. It becomes at once apparent that when it is desirable to influence sensory nerves, the current ought to travel from the periphery to the center; if, on the other hand, it is our intention to affect motor nerves, the current ought to pass from the center to the periphery. An important consideration is the fact whether the pathologic condition, which we are trying to change, is located in the sensory or the motor tract. While it is true that the faradic current is an alternating one, nevertheless, the alternations are not of equal value. There is a distinct polar difference. The negative or break pole is always several times stronger than the positive or make pole. As a general proposition it may be stated that the positive pole is the sedative or pain relieving pole, while the negative is the irritating or muscle contracting pole. There is another reason for the above proposition. Whenever a nerve of sensation is to be influenced the active pole ought to be the positive one; it is placed upon the peripheral end of the sensory nerve so as to cause the electric current to travel in the same direction as all sensations travel, from the periphery to the center. If it is the intention to cause muscular contraction for the purpose of maintaining tone, bulk and nutrition as may be the case in a paralysis of cerebral apoplexy, then the electric current ought to traverse the motor nerve in the normal, physiologic manner, from the center to the periphery. The nega-

tive pole is placed over the belly of the muscle, while the positive pole rests, as close as convenient, at the point of origin of the particular motor nerve.

Many therapeutic failures are directly traceable to the non-observance of ascending and descending currents, as to whether a sensory or a motor nerve is involved.

When either the direct or galvanic current as well as the faradic current is passed thru a nerve or a muscle, a muscular contraction occurs only at the moment of the closing and the breaking of the current. During the interim, while the current is flowing, chemical changes occur in the tissues with the galvanic current only, but muscular contractions are not in evidence.

A muscle requires a certain length of time for contraction and relaxation. As long as the individual contractions are less than thirty per second, so long will individual contractions and relaxations occur. When these stimuli exceed thirty per second there is no longer time for relaxation and tetanus sets in. With a further increase in number, the phenomenon of neuromuscular contraction is still more in evidence until a maximum is reached, which occurs when the number of vibrations reach about three thousand per second; this maximum is then maintained up to five thousand interruptions per second, after which it decreases as the number of oscillations continue to advance until all signs of muscular contractions are lost.

In making use of the faradic current for diagnosis and therapeutics it is essential that the rates of interruption are borne in mind. The usual rapid vibrator can be attuned to as low a pitch as the key of middle C which equals two hundred fifty-six vibrations per second. Lower notes are not obtainable with rapid vibrator. For individual contractions, the slow interrupter must be used; from this the interruptions may be as slow as one per second and up to one hundred or more per second. I have frequently observed that physicians make use of the interrupting handle electrodes for diagnostic work. Such a procedure is open to several objections. In testing a muscle, the slightest contraction must be noticed. This cannot be done if the electrode is disturbed; the interruption must be made mechanically and not by the operator's hand. Again, when the rapid vibrator is being used and interrupted by such a device as an interrupting handle, each contact, no matter how short, means at least one hundred interruptions on the rapid vibrator. The effect upon a nerve or muscle is quite different as to whether the contact is just one charge and discharge or whether one hundred or more such charges and discharges have taken place during the same time. For individual impulses the slow mechanical interrupter must be used.

ELECTRO-DIAGNOSIS

There is a certain amount of similarity between an electric current and the normal "nerve force." When we speak of normal nerve force we mean that imponderable something which is the result of cerebral activity, either in the appreciation of the external world or the causing of voluntary and involuntary muscular contractions.

With the nerves of sensation, something from the external world is received in the sensorium and there translated into appreciation. With the nerves of motion something passes along the motor nerves, ending in muscular action. Sensory stimuli originate on the outside and travel from the periphery to the center; motor impulses travel from the center to the periphery.

The galvanic and faradic currents travel from the positive to the negative pole. When the positive pole is placed upon the central end of a nerve and the negative upon the peripheral end, both the nerves of motion and those of sensation are traversed by the same current at the same time. There is, however, this difference: such a current passes along with the normal nerve force of the motor nerves, while it passes against the nerve force of the sensory nerve; the one it augments, the other it depresses.

When a galvanic current is passed thru a normal motor nerve from the center to the periphery, at the moment of closure, a muscular contraction takes place. Such a muscular contraction is the result of an electric current taking the place of or augmenting the normal nerve force. It requires only a very small amount of current to produce a muscular contraction under normal circumstances. Such a contraction is known as the *cathodal closure contraction*—C. C. C.

If a current is opened or broken no contraction occurs. When the current is reversed in its direction so that the anode or

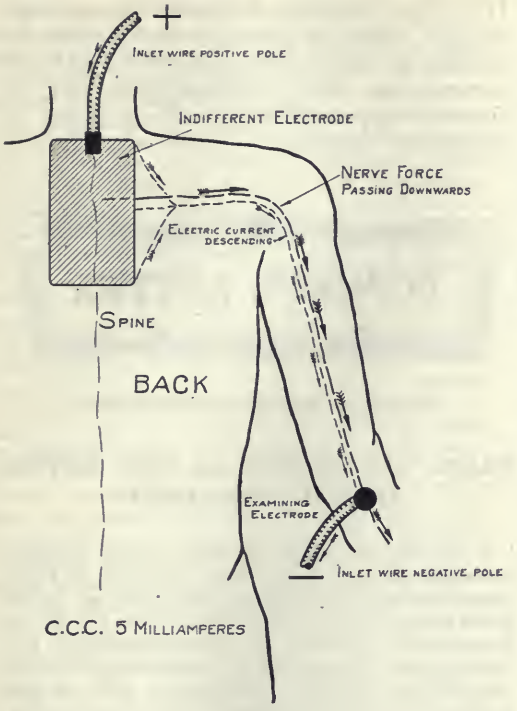


FIG. 1.

positive pole is placed at the periphery and the cathode or negative pole is placed over the spinal origin of the same motor nerve, then a contraction may be secured at the closing or the making of the current. This contraction is known as the *anodal closure contraction*—A. C. C.

The galvonometer will show a reading of nearly double the amount required for the descending current or the C. C. C. The reason for the necessity of the stronger current lies in the fact that this time the electric current is not traveling with, but against the normal nerve force, it is more or less neutralized, hence twice the amount is required to produce a similar contraction.

Muscular contractions may also be secured by suddenly opening or breaking the current. If the anode is placed at the peripheral end of a motor nerve and the current turned on gradually, no contraction will occur; if the current is now gradually increased in strength to nearly three times the amount that was required to produce the original C. C. C., then upon opening the current suddenly a similar contraction occurs. This is known as the *anodal opening contraction*.—A. O. C. The explanation for this will be found in the fact that in the first place the current is traveling against the normal nerve force, and secondly, it is necessary to crowd so much current into the tissues that the sudden withdrawal of it causes a muscular contraction. There is still a fourth muscular contraction that can be produced by the passage of an electric current thru the motor nerves. This fourth contraction is only of academic interest, since the current strength necessary to produce it is very apt to be painful. This current is a descending one, and passes in the same direction as the normal nerve force. When this current is strong enough, a muscular contraction will occur at the opening or the sudden discharging of the galvanic current from the motor nerve. This is known as the *cathodal opening contraction*—C. O. C.

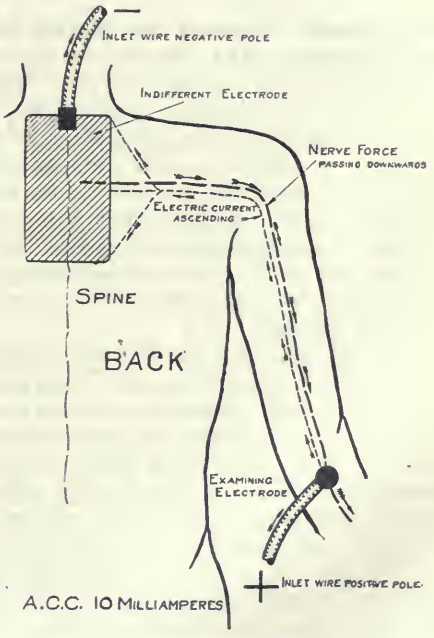


FIG. 2.

We have then three principal reactions of motor nerves to the galvanic current. The order in which they make their appearance is as follows:

1. Cathodal closing contraction—C. C. C.—5. M. A.
2. Anodal closing contraction—A. C. C. —10 M. A.
3. Anodal opening contraction—A. O. C.—15 M. A.

The order of rotation and the current strength required in this particular rota-

tion is known as the normal formula for muscle reaction. When it is desirable to produce these reactions the inactive or dispersing pole, a large pad electrode, well moistened, is placed as near as possible over the area corresponding to the spinal origin of the motor nerve. The examining electrode is about the size of a ten cent piece, well moistened and placed over the motor point area of the particular muscle about to be tested. The examining electrode should be fastened in place and not held by the hand of the examiner. The slightest contraction must be noted and the amount of current necessary to produce it recorded. The motor point of each individual muscle is to be found about the center of the belly of the muscle. The exact location of these points varies slightly with each individual.

The Faradic Current in Nerve and Muscle Testing.—The faradic current is an interrupted, alternating current. When the poles of this current are placed in the same positions as the galvanic current, we produce a tetanic contraction the moment that this current is closed; there is no reaction to the break. Since this current is of a mechanical nature and practically devoid of all chemical influences it should always be used first in all nerve and muscle testing.

Besides the fact that the normal formula follows a certain rotation, the character of the individual muscular contractions must be noted. A normal muscle is composed of a great number of sarcolemmae, each one of which is supplied with a terminal filament or end plate. When a nerve and muscle are normal the response to either current is a quick, lightning-like contraction, because every sarcolemma receives and responds simultaneously. If, however, the nerve or muscle is injured, the various sarcolemmae do not receive the electric stimulus at the same instant, hence a slow, gradual, wormlike contraction.

Synopsis.—In testing a motor nerve or muscle always begin with a faradic current. If the contraction is sudden, and lightning-like upon closure of the current and the tetanus is maintained equally during the flow of the current, with abrupt cessation of all signs of contraction, then such a nerve or muscle may be considered normal. If further evidence is desired the galvanic current must be used in the manner described. If the contractions to the galvanic current are quick, lightning-like and the formula is established, such a nerve or muscle is normal.

LONDON LETTER

(From our Regular Correspondent.)

PRATT AND OTHERS vs. THE BRITISH MEDICAL ASSOCIATION.

In the King's Bench Division during the last fortnight of July, 1918, there was heard at great length before Mr. Justice McCardie an action brought by Dr. Ernest Camden Pratt, Dr. David Holmes, Dr. Andrew St. Lawrence-Burke and Dr. Charles Hodges Cairns (deceased) against the British Medical Association and certain members of the Coventry Division of the Association. The plaintiffs who were at the time of the institution of the action medical officers of the Coventry Provident Dispensary claimed damages for conspiracy, libel and slander. During the trial it became obvious that questions of the largest possible importance to the public as well as to the medical profession were about to be debated, and as, with the consent of the plaintiffs, the judge was sitting without a jury, greater license than usual was given to counsel both in the opening and closing addresses. Questions of precedent and definition of terms were discussed between judge and counsel in a way that would have been waste of time had ultimate reference to a jury been in question. The exact meaning to be attached to such terms as "Professional Honor," "Professional Interest," "Conspiracy," "Malice," "Molestation" and "Intimidation" were debated, the essential differences between hospitals and dispensaries were considered, and the scope and legal powers of the British Medical Association came in for close inspection. It was felt to be a foregone conclusion that Mr. Justice McCardie would reserve his judgment and consider his verdict for a considerable time after the close of the case. On Tuesday, October 15th, the judge delivered his profoundly reasoned judgment in the course of which he made an admirable résumé of an intricate story. His verdict, which was against the British Medical Association on all the principal counts by upsetting the disciplinary powers of that influential body, leaves the profession with no ethical tribunal save the General Medical Council.

The Coventry Provident Dispensary, an ancient and well-managed institution, had arrived some twelve years ago at the position of catering for the medical needs of twenty thousand persons in its important but not particularly large manufacturing center. The patients were collected for the Dispensary by a canvasser who was paid upon commission. Persons whose wages were above £2 a week were not considered eligible for the benefits of the institution, seeing that the payment required of them for medical service amounted to only a penny per week. The condition of that medical service, and the choice of the medical staff of the Dispensary, was in the hands of a lay committee. The Coventry Dispensary was only one of hundreds existing at that time in the country of similar pattern, altho on the whole it appears to have been a favorable specimen. In the hands of some of these dispensaries the medical profession was sadly exploited, many members of the public, perfectly capable of paying decent medical fees, obtained medical treatment for a weekly penny; many medical practitioners who stood out against such a condition of affairs found their patients drifting to the cheap dispensaries; and many medical officers of those dispensaries found themselves working long hours in unsatisfactory conditions for small salaries. The abuses that were occurring all over the country were well-known under cheap contract practice, indeed they have since been recognized by the regulations of the National Insurance Commission. In 1906—for the story of this litigation goes back 12 years—the British Medical Association forbade any members of the Association to take office at the Coventry Dispensary, or to hold any professional communion with the medical officers of the Dispensary. This boycott was further extended by the Association, when it was declared that any consultant surgeon or physician, not being a member of the Association, who assisted in the medical activities of the Dispensary must also be ostracized by the Association. This was the position as long ago as 1906, when the majority of the medical officers of the Dispensary at once resigned their posts in obedience to the action of the British Medical Association. But in 1907 successors were found and against these practitioners a rigid system of boycott was instituted. The intentions of the British Medical Association were in no way concealed. The Association alleged nothing against the personal honor or scientific repute of any medical officer of the Dispensary; they accepted them as men of honor in every respect save the one that by taking office with the Dispensary they had "betrayed the honor and interests of the profession." Mr. Justice McCardie roundly stated the whole position taken up by the Association to be illegal. He found that the medical service given by the Dispensary was perfectly professional, and that no number of instances worth considering had been brought forward where the patients were unduly rich; he found that the medical officers had a perfect right if they chose to take office at such an institution; and that the ostracism exercised for this reason only against them by the British Medical Association amounted to coercion and molestation. He declared that the Association had set up an illegal tribunal and had usurped the powers of the General Medical Council, which is the statutory body dealing under the Privy Council with the discipline of the medical profession. Lastly he added that the illegal action undertaken by the British Medical Association had been accompanied with a severity which he characterized as "malice." He therefore awarded substantial damages and the cost of both sides of the action to the plaintiffs.

A STATE MEDICAL SERVICE.

One thing is perfectly clear to all who take an active interest in the organization of the medical profession in this country, and that is that there is no real consensus of opinion as to what is wanted. There is to be a Ministry of Health, but in the first instance this Ministry will represent mainly a coordination of existing work; its constructive power will be limited, its actual relation with work-a-day practitioners remain to be ascertained. These practitioners would some of them like to be made members of a State Medical Service, and that is exactly what the Ministry of Health does not propose to inaugurate. What the Ministry may do is as yet undeclared; but that it will not create a state or regimental service is sure. Other practitioners are so jealous of their individualities, so resolved to practice only in their own way and on their own conditions, that the modified state service, exemplified by panel practice under the National Insurance Commission, is anathema to them. And yet a third group of practitioners see in panel practice just that middle stage between private and grouped interests which meets their views. If panel practice, they say, were more highly endowed by the state, and if the preventive as well as the clinical side of medicine were recognized at properly constituted treatment and pathologic centers, the National Insurance Commission possesses the scheme along which progress can best take place. Those who advocate the foundation of a State Medical Service are not likely to get their way at once, but their position is so logical that they are not in the least likely to abandon their ideals. The aim of the State Medical Service Association is to put within the reach of every member of the community the greatest possible measure of health by harmonizing the competing agencies, public and private, engaged in clinical and preventive medicine, whereas the Ministry of Health, at any rate in the first instance, is concerned with the former agencies only. Now the practitioners in public working under a different branch of the government or education or factory medical officers, medical officers of health, poor-law medical officers, or lunacy experts comprise, with those engaged in public venereal, maternity and infant welfare work, perhaps 20 per

cent. of the persons on the medical register; how to get the other 80 per cent. into proper relation with the official section is the problem before constructive legislation.

As a first step the present whole time public medical services should be brought together under one central department—that is the work of the Ministry of Health; but it is then necessary to coordinate these services, their redundancies pruned and their overlappings abolished, with the clinical work at present being done by practitioners, family, consultant, and specialist. The panel system provides us real clinical service in which all branches of medicine and surgery cooperate, and reviewing all these things an able memorandum of the State Medical Service Association comes to the following conclusion: "The goal towards which we must aim is the establishment of a Public Medical Service which shall include both clinical and preventive medicine, staffed by whole-time salaried officers. It has been suggested that only the administrative work need be in the hands of doctors devoting their whole time to it, while the purely clinical work could be carried out by part-time officers. This view is based upon the assumption that there would still be in the future two kinds of practice, *viz.*, private and public; but it is evident that if, as suggested, there be one efficient service open to all who need its help, regardless of economic position, private practice will tend to disappear. A necessary corollary of the part-time system is the assumption that the benefit of the public services are to be limited to those earning less than some specified income. Any such distinction is subversive alike of the best interests of the profession and the public. A service organized for 'the poor' is bound to be inefficient and unpopular, inefficient because the fees of the wealthy will tend to draw away men of ability, and unpopular because associated with the stigma of limited means."

The recommendation is that private practice should disappear, and that the medical service be placed at the disposal of all and at a general rate of remuneration; and it is quite clear that nothing so drastic will come to pass at once. The memorandum acknowledges the probability that there will be a transition stage between the erection of a Ministry of Health and the formation of a Public Medical Service, but that such a service, if it came, would bring with it many advantages, is indicated in clear terms. Regular salary, guaranteed pension, regulated hours of work, agreed terms of vacation—all these would be possibilities under the scheme of the State Medical Service Association, which as time goes on will surely obtain many adherents. And now is a good time for putting the scheme forth, for medical practice in this country is in a state of complete flux. Panel practitioners are spread with the armies all over the globe, and will never return to the old conditions; the medical schools are thronged with students intent on meeting an acknowledged shortage of doctors; the public is alive to the value of medicine to a country.

DAKIN'S SOLUTION IN GONORRHEA.

To the Editor,
AMERICAN MEDICINE:

I desire to report that I have employed Dakin's solution as an injection in several instances of gonorrhea in the male, with gratifying results—*i. e.*, change in the character of the discharge, and its rapid subsidence—and furthermore without exciting any irritation or discomfort. I had previously used it repeatedly in the treatment of obstinate vaginal lochiorrhea and vaginal gonorrhea, with rapid improvement in every case.

Whether it possesses the curative powers of the silver preparations or not remains still to be proven, but I believe, from the experience so far afforded, that it is worthy of being tried out in this connection.

EVAN O'NEILL KANE.

THE NURSE ANESTHETIST.

To the Editor,
AMERICAN MEDICINE:

A gradually increasing misconception of the art of anesthesia has led to a rather unique condition of affairs.

We find that nurses and other lay persons may, by the simple acquisition of a few rules, become anesthetists. Large institutions have adopted the nurse anesthetist upon grounds of economy, expediency and even sentimentality. It is argued that these workers can be employed at little expense, that the supply meets the demand and that the feminine element eliminates fear and works for smoothness during the induction of the anesthesia.

These institutions may employ lay persons to take their X-ray pictures and to make urinary, blood or sputum examinations, but does any one dream of speaking of these workers as the hospital roentgenologist or the attending pathologist? They are employed as technicians. The nurse who administers an anesthetic is an anesthetic technician. She can never be more without a medical degree, for in order to understand the language of anesthesia one must have intimate acquaintance with anatomy, physiology, medicine, surgery, diagnosis, psychology and special branches.

The nurse who in discussion with a medical man attempts to defend a theory relating to anesthesia cannot fail to feel the presumption

of it and, if graced with wit, to see the absurdity of such a position. Yet it has actually come to pass that medical men have suffered themselves to be instructed by a nurse in the theory and practice of anesthesia.

In justice to an important branch of surgery and to our medical confreres who devote their training and their energy to its development let us drop the term anesthetist as applied to its non-medical workers and adopt the term anesthetic technician.

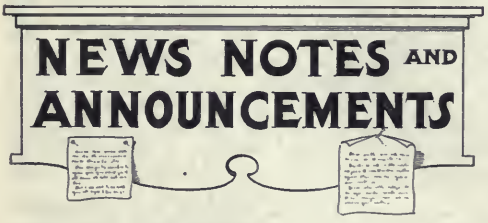
PALUEL J. FLAGG,
War Demonstration Hospital,
The Rockefeller Institute for Medical Research.

PLATINUM NO LONGER NEEDED.

To the Editor,
AMERICAN MEDICINE:

The Platinum Section and the Section of Medical Industry, War Industries Board, desire to express appreciation of the hearty response made by physicians, dentists, and others when the call for scrap platinum was made. As the governmental demand for platinum in the making of explosives, etc., has been tremendously decreased by the curtailed war program, it is requested that no further scrap platinum be tendered to the Government thru the channels indicated in our communication of September 17, 1918.

CHARLES H. CONNER,
Chief Platinum Section.
LIEUT.-COL. F. F. SIMPSON, M. C., U. S. A.,
Chief of Section of Medical Industry.



Another Journal Absorbed by the Medical Review of Reviews.—The Medical Review of Reviews announces that it has just purchased the third oldest medical journal in America—the Buffalo Medical Journal—founded seventy-four years ago by Dr. Austin Flint, and published regularly ever since.

The Medical Review of Reviews is to absorb the Buffalo Medical Journal, beginning with its January, 1919, issue. This is the third publication which the Review has purchased during the past few years.

The Medical Review of Reviews further announces that it will be greatly increased in size beginning with the January, 1919, issue, but that the subscription price is not to be increased.

The Facts in the Case.

A thousand cures are offered for the "flu"
Each swears that his is better than the rest,
Each claims that miracles his stuff will do—
But, none, alas, will stand the acid test.
For fools rush in where angels fear to tread
And cry their claims with sordid hopes of wealth,
They do not count the cost in human dead
Or influenza's toll of human health.

—*J. A. M. A.*

The Fourth Liberty Loan the Greatest Single Event in Financial History.—The United States Government asked a loan from the people of the country of $6,000,000,000, an amount unprecedented in all the history of the world. In three weeks' time, in spite of an epidemic of influenza which prevented public meetings and cost the people many millions of dollars in medical bills and lost time, and in spite, too, of the peace rumors that, in some instances, had a tendency to make the success of the loan seem less vital, some 21,000,000 of the American people offered to the Government $6,886,416,300. Each Federal Reserve district oversubscribed its quota. Thousands of cities, towns and communities oversubscribed their quotas. Secretary McAdoo says that the Fourth Liberty Loan is the greatest single event in financial history.

The Fourth Loan was called the fighting loan; it is a record of Americanism comparable with the record that our soldiers on the battle fronts and our sailors on the seas are making. The people at home have given loyal support to our fighting men.

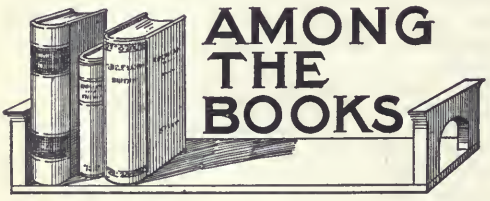
Our soldiers are holding every acre of ground they take. Let the people at home hold every Liberty Bond they have taken.

A Liberty Bond is a certificate of patriotism; keep it to show to our boys when they come back from Europe.

Physiotherapy as War Work for Young Women.—The Surgeon General's Office, War Department, has issued an urgent call for young women to serve in reconstruction hospitals at home and abroad. The Normal School of Physical Education, Battle Creek, Michigan, which is affiliated with the Battle Creek Sanitarium, wishing to do its share toward winning the war, has inaugurated a course in physiotherapy, which meets the requirements of the War Department. Courses begin October 1 and February 1. The length of the course is four months. The curriculum consists of anatomy, physiology, hygiene, bandaging, active and passive movements, hydrotherapy, massage, electrotherapy and clinics. Frank J. Born, M. D., is the director of the school.

The Wholesomeness of Saccharin.—Owing to the very widespread use of saccharin or allied

synthetic substances for sweetening beverages in place of sugar, which is now unobtainable in restaurants and tea shops, many inquiries have reached us, says the *British Medical Journal*, as to whether these coal-tar derivatives, taken continuously tho in very small quantities, have an injurious effect. Some quite unfounded statements have been made to the effect that saccharin disturbs the digestion, injures the kidneys, or is even responsible for gastric carcinoma. These appear to have been evolved from a *priori* reasoning when they were not the product of the uncontrolled imagination pure and simple. There is no evidence that saccharin or its allies have any effect whatever on the human economy, even when it is used in quantities larger than are required to sweeten foods and beverages to suit ordinary tastes. And this in spite of the fact that saccharin has been in use for more than a quarter of a century. The mere fact that it is an artificial substance remotely derived from coal-tar does not necessarily render it poisonous, as some seem to suspect. At the same time, it is, of course, valueless as a food in the sense in which sugar is a food, and, even as a flavor, is to most tastes inferior to the natural substance.



Surgical Experiences in the Great War.—The surgery of the war is a question of paramount interest to American physicians and authoritative statements on the subject cannot fail to be of the greatest value in view of the possibilities that confront every medical man. *American Addresses* by Sir Berkeley Moynihan (W. B. Saunders Company, Phila.) is a volume containing the masterly addresses which he delivered during his recent visit to this country. Than the author there is no greater authority on surgery in Great Britain. In addition to his signal ability as a surgeon Dr. Moynihan possesses unusual talents both as a speaker and as a writer, always employing clear and succinct language. The first address is the only one that does not refer to surgery, and deals with the causes of the war. The other addresses are wholly devoted to war surgery. In discussing gunshot wounds and their treatment he subjects the methods most largely used to rational expert criticism, that is, he points out the beneficial action of the technical details most commonly employed and lays particular stress on what he considers their drawbacks. The wounds of the knee-joint, injuries of the peripheral nerves and their treatment and gunshot wounds of the lungs and pleura are taken up and discussed at length.

The book will surely serve as a very useful guide to American surgeons who are training for the front. Sir Berkeley Moynihan has had an actual experience of the broadest possible scope in the different war zones of France and England, and this taken in conjunction with his keen powers of observation and great surgical skill render his dicta of the first importance to those army surgeons who wish to be fully prepared for the work that is before them.

Infection and Immunity.—It is a truism to state tnat medical science has made marvelous, rapid and extensive advances during the past twenty years or so. Especially have such advances been marked with respect to infection and immunity, so much so indeed that the study of these may be regarded nowadays as constituting practically a special science.

A new edition, the second, of *A Practical Text Book of Infection, Immunity and Specific Therapy* by John A. Kolmer, M. D., D. P. H., M. Sc., with an introduction by Allen J. Smith (W. B. Saunders Company, Phila.) is indeed welcome. The purpose of the book as stated by the author in his preface to the first edition is threefold, namely, 1. To give to practitioners and students of medicine a connected and concise account of our present knowledge regarding the manner in which the body may become infected, the method in turn by which the organism serves to protect itself against the inroads of infection, if it should occur, and also to present a practical application of the knowledge to the diagnosis, prevention and treatment of disease. 2. To give to physicians engaged in laboratory work, and to special workers in this field a book to serve as a guide to the various immunologic methods. 3. To outline a laboratory course in experimental infection and immunity for students of medicine and those especially interested in these branches. These purposes have been well carried out in the book; and while the general plan of the volume remains unchanged in the second edition, it has been substantially improved in various ways which add greatly to its practical utility.

In other words, the edition has undergone careful revision, and additions have been made thruout. In particular, the chapter on Chemotherapy has received especial attention, and the results of the studies of Dr. Jay F. Schamberg, Dr. George Raiziss and the author relative to the action of salvarsan and its congeners, and the special reactions that follow their administration, have been included and discussed. It is obvious that knowledge regarding infection and immunity is very essential to the well equipped medical practitioner as only by the possession of such knowledge can he intelligently interpret many pathologic phenomena and satisfactorily the conditions he encounters. This book will be found to contain, therefore, all necessary data as to fundamental principles and facts and supply all the information needed to post the practicing physician in a field that has developed until it is second to none.

Man's Unconscious Conflict.—Psychoanalysis continues to develop a vast literature. There are few books giving a popular exposition of psychoanalysis in a manner as clear or effective as the one by Wilfred Lay with the title *Man's Unconscious Conflict* (Dodd, Mead and Company). It is doubtful whether the author's enthusiasm in believing that the Freudian principles seem "likely not only to become a complete philosophy of life, but in its practical results to be more valuable than all previous philosophies" will be generally accepted.

In reviewing a work it is primarily fair to weigh the complete work and to pass judgment upon the presentation as viewed and accepted by the author. On this basis one may say that Lay has been most successful in presenting the intricacies of Freudian philosophy and psychology in an intelligible manner with due and proper emphasis upon those phases of the unconscious which form the basis of Freudian theory. The discussion of psychotherapy and the educational applications of Freudian doctrine are excellently presented with all the enthusiastic power of a closely following disciple. One is ofttimes startled by the dogmatic assurance of writers on psychoanalysis, particularly in their assertions as to the mental processes of infants, and in this direction the author is by no means behind his colleagues working in the same field.

Another book characteristic of the Freudian school of writers is their willingness to complicate nomenclature by adding new terms in order to make clear an idea, but in this direction the author has been exceedingly modest. Books of this character are always stimulating, and thought provoking. Who would not think at reading "all drinking of stimulating liquors is a projecting of oneself back to the days of his first drink at his mother's breast, or its successor or substitute, the rubber-nippled bottle. The drinker is still, as he was when a baby in years only, fond of his bottle." Or as the author states, "the real causes for the particular acts of our every-day lives are hidden from us, because they are not available for presentation to consciousness in their crassly archaic forms." Upon this theory it cannot be sung with the poet, "life is real, life is earnest."

Despite the popular form of exposition, which is really well done, the average mind will hardly feel that psychoanalysis is a "new instrument of precision" for penetrating and interpreting that previously unknowable part of the mind termed the "unconscious."

First Aid Methods.—The necessity for a broad and comprehensive knowledge of first aid principles by the people generally is appreciated to-day as never before. The growth of industry, with the evolution of complex machinery, the development of transportation facilities and the demand for haste in production and delivery, have been attended by a very notable increase of physical accidents and injuries. This increase of industrial accidents has become a very serious problem to business, not alone because of the legal obligations involved, but because of the very evident responsibilities along humane lines that reputable firms have recognized as essentially theirs. Common sense has emphasized the importance, therefore, of giving all injuries appropriate treatment at the earliest possible moment, *first*, to save suffering and control such serious conditions as hemorrhage, etc., and *second*, to reduce to a minimum the consequences of deferred care or neglect. With medical men seldom available for such early treatment, except in large establishments warranting the employment of special medical staffs, the necessity of having a number of employees trained in the principles of first aid treatment has been apparent. From this to training all employees in these principles has been but a step, and the results have been far-reaching in their benefits to all concerned.

Thus have the principles of first aid treatment grown in importance as an essential detail of human education. For some time many of our schools have had regular courses in first aid treatment, recognizing that intelligent training in this direction increased every young man's or young woman's value to society from humane as well as from economic standpoints.

As can be easily understood, the literature on first aid measures and technic is extensive, but of all the manuals, treatises and handbooks that have been issued probably there is none that has enjoyed as great popularity as *Johnson's First Aid Manual* (Johnson and Johnson, New Brunswick, N. J.)

Edited by Fred B. Kilmer, with the collaboration of a staff of no less than sixty-five of the foremost surgeons, physicians and first aid authorities, of wide experience in railway, mining, police and ambulance service, this manual was one of the first works to be issued on the subject. It has passed thru seven editions, and this. the eighth. which has been thoroly revised in keeping with the remarkable progress that has been made in every branch of medicine and surgery, brings the whole subject right up to date.

In its present form, therefore, the manual represents the last word in first aid. with an arrangement of methods and technical details that constitutes a definite standardization of first aid treatment. All the various features of former editions that have made *Johnson's First Aid Manual* the most popular work on the subject have apparently been retained, while the whole book has been improved greatly both in its arrangement and the simplicity of the methods outlined. It is refreshing to note the absence of technical terms, as well as the care taken to avoid overstepping its avowed purpose. The illustrations are well chosen and splendidly executed.

We know of no work on the subject that presents its material in simpler, more comprehensive or more serviceable form. In other words. it gives the information the first aid student requires, and gives it so clearly and succinctly, that a minimum of effort is called for to insure its ready comprehension and mastery.

Johnson's First Aid Manual has always en-

joyed the regard of medical men, because it has never attempted to give instruction in surgery. In high schools, training schools for nurses, and as a text-book for any one wishing to become thoroly grounded in emergency or first aid treatment, there is no work that we have any knowledge of that will prove more acceptable and helpful in every way.

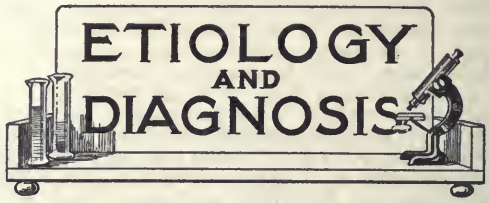
Food Products.—The question of food is one that interests everyone, at the present time, in all parts of the world. The war and the consequent scarcity of food has had the effect of concentrating attention upon the subject, in a way, that has never occurred before. Persons are anxious and eager to learn concerning food values, in order to be able to select nourishing articles of diet within the reach of their incomes. While necessity is a stern teacher, it also teaches thoroly, and whosoever learns in the school of adversity is not likely to forget quickly.

Dr. G. H. S. Bailey, in *The Source, Chemistry and Use of Food Products* (P. Blakiston's Son & Co., Philadelphia, Pa.) discusses the source of the foods and beverages found in the markets of the world, their methods of preparation for the market, how they are packed, preserved and shipped, their composition, nutrient and dietetic value, and their use by people of different countries. Not only are the main points of importance discussed under each heading, but the by-products, which are directly or indirectly made from each material is likewise considered. The chapter on milk and dairy products is of especial excellence. Another chapter which is deserving of close notice is that dealing with berries, garden and miscellaneous fruits. Indeed, all the food products consumed by man are considered adequately and accurately, and especially in respect to their source, chemistry and use.

The book is intended to serve as a text-book for students of foods in our colleges and high schools, and to properly supplement and give more completeness to the ordinary courses on food.

Unquestionably it will fulfill this purpose, and its value is considerably added to by the numerous illustrations which embellish the text.

Blood Transfusion.—The value of blood transfusion in certain conditions has received a great impetus since the war has been in progress. Of course, a better and more accurate knowledge of the subject and its demonstrated usefulness have resulted in radical changes in technic. In *Blood Transfusion Hemorrhage and the Anemias* by Dr. Bertram M. Bernheim (J. B. Lippincott Company, 1917) the most recent means of blood transfusion are set down. The *raison d'etre* of this work was a chapter on blood transfusion, written in 1913 by the author as part of a monograph published in that year on *Surgery of the Vascular System.* This chapter has been revised and added to, until it has attained the proportions of a book of more than two hundred pages. It is a timely and first-class exposition of a method which is largely used and is likely to be more widely employed as its importance is better appreciated.



Observations on the Etiology and Treatment of Seborrheic Eruptions.—Captains Barber and Semon (*British Med. Jour.*, Sept. 7, 19..), noted in a large number of their cases of seborrheic eruption an associated nasal and nasopharyngeal catarrh, which with the frequency of relapses led to the conception of an underlying constitutional dyscrasia as a possible cause of the disease. Darier has pointed out the relation between seborrheic eruptions and "kerose" skin and has indicated the etiologic factors as being sexual development and erroneous diet, in which excessive carbohydrates and stimulants, faulty mastication, and constipation all played a part. The present authors share Darier's view that the bacteria described as specific by Sabouraud and Unna owe their activity and pathologic effects mainly to the soil on which they grow, which in its turn is dependent on the underlying constitutional state of the patient—a view which furnishes an explanation of the frequent relapses suffered. In view of the frequent association of nasal and nasopharyngeal catarrh with the outbreak on the skin, an examination of a number of cases was made by Captain C. Jones-Phillipson, who found that in 59 out of 93 cases posterior rheinscopy revealed a yellowish mucopurulent secretion, of varying amount. Simultaneously a streptococcus of the *faecalis* group (in addition to numerous staphylococci) was recovered from nasal mucosa and skin eruptions. Czerny has shown that certain children present a congenital susceptibility to catarrh as well as to certain nervous disturbances, and to this tendency he has given the name "exudative diathesis," the extreme form of which is known as the status lymphaticus, when secondary changes in the lymphoid tissues of the body have given rise to adenoid vegetations, localized in the cervical glands. The manifestations of this diathesis are provoked by excess of diet, and its subjects are particularly intolerant of carbohydrates and fats. In England Czerny's views have been strongly supported by H. C. Cameron, who has pointed out that children of the exudative diathesis, or status catarrhalis, are subject to an extreme "wateriness" of their tissues which gives them a fictitious appearance of plumpness. Barber and Semon indicate two types of seborrheic individuals, those congeni-

tally predisposed, or who have acquired the tendency in infancy, and those in whom the state has suddenly appeared as the result of active service. Patients in the first group are far more prone to relapse than those of the second type, and prognosis is more favorable in the latter. As a result of their investigations these authors conclude: 1. That there is a constitutional state which may exist from infancy or may appear *de novo* in adults, and which may be termed the status catarrhalis or exudativa (Czerny). Where this condition exists the skin and mucous membranes show an abnormal susceptibility, not only to various bacterial infections, but also to mechanical and chemical irritation. 2. Persons in whom the status catarrhalis is present, either permanently or temporarily, are liable to develop the multitudinous eruptions which have been variously termed seborrheic eczema or dermatitis, true eczema, pustules, boils, and the wrongly termed "impetigo"—really an impetiginized seborrheic eczema. These manifestations, in whole or part, are immediately dependent or associated with the existence of an underlying dyscrasia, to which they have given the name of the status seborrheicus. 3. There is considerable clinical and therapeutic evidence to suggest that all patients with the status seborrheicus are suffering from a relative acidosis. We are of opinion that this condition may have resulted from a diminution of the intake in their food of the fixed bases—the mono- and di-sodium phosphates, and the carbonates, which are normally present in fresh fruits and vegetables, and which are largely responsible for the maintenance of an exact alkaline-acid equilibrium in the blood and tissue fluids. 4. As a practical outcome of these considerations there is abundant clinical evidence of the value of alkalies in the treatment of seborrheic eczema.

Complications of Diabetes.—In the May 4, 1918 issue of *Journal Amer. Med. Ass'n*, Janney speaking of the complications of diabetes says:

Nephritis.—In acidosis cases, slight amounts of albumin and hyaline casts are frequently found in the urine. After the patient becomes sugar free. this condition usually improves. Actual nephritis is not uncommon. In such cases, fasting should be avoided, and the urine should be rendered sugar free by moderate reduction of the carbohydrate and the total calories. Only in uremic cases or in cases in which a blood urea determination proves nitrogen retention to be present should the protein of the diet be unduly curtailed. Nephritis is no contraindication to dietetic diabetic treatment, and improvement of both conditions is the rule with judicious management. Edema of non-nephritic origin is common in diabetic patients on low diets containing much salt. It may also be caused by the taking of large amounts of soda. Limitation of salt, omission of sodium bicarbonate, and sometimes restriction of the liquid intake relieve this condition.

Skin.—Great caution to avoid even the tiniest break in the contiguity of the skin is necessary. Daily bathing and the liberal use of talcum powder are indicated.

Pruritis Vulvae.—This usually clears up as soon as the urine is sugar free, if it is not dependent on some local cause.

Furuncles.—These are frequent in diabetes. The old warning to examine the urine in every case of boils is still sometimes neglected. Aside from surgery, furuncles may be treated locally by a 3 to 5 per cent. ammoniated mercury ointment with white petrolatum. A daily bath should be ordered, followed by a boric acid sponge over the entire body, to prevent extension of the infection.

Diabetic Gangrene.—This condition is the end-result of an occlusive angiitis. Prodromal symptoms include numbness and chilliness of the extremities, and intermittent pains lasting frequently for years. In this condition hot foot-baths, massage, short walks and elevation of the feet while at rest should be prescribed. Moist, hot compresses applied for brief intervals once or twice daily are helpful in relieving pain. The use of salicylates may lead to the appearance of a positive ferric chlorid reaction in the urine, when no acidosis is actually present. If actual gangrene develops a surgeon should be called at once.

Sepsis.—It is sometimes difficult as well as injudicious to free a septic patient of sugar. Restricted diets may be badly borne. Supportive and stimulative measures may be required until improvement permits stricter treatment.

Pregnancy and Diabetes.—A small amount of glucose is not uncommonly found in the urine of pregnant women. In such cases the carbohydrate should be limited and special care be generally employed. Marked clinical symptoms of diabetes had best be regarded by the general practitioner as an indication for an early abortion, tho in expert hands cases are now carried thru successfully to confinement.

A Study of Diphtheria Carriers.—Lewis in the *Medical Record* (May 18, 1918) points out that measles is often followed by diphtheria and refers to results previously obtained by him from a consideration of this factor and reported in the *Interstate Medical Journal* (Vol. XXIX, No. 9). He also gives the results of an investigation conducted into the prevalence of carriers, the majority of whom he believes to be nasal. In October and November of 1917 an increasing number of cases of diphtheria were reported in New Haven. Lewis therefore engaged two nurses to make a survey of all those of school age and also, in districts where cases had occurred, of those not of school age, with a view to finding carriers of the disease. Cultures to the number of 687 were made and 23 carriers not of school age and 34 of school age were discovered, *i. e.*, approximately 2 per cent. of the school population were found to be carriers. In the case of such carriers the author recommends the following treatment: Constant inhalation by means of dropper, nasal swab or atomizer every hour in a 1 per cent. solution of gum camphor and eucalyptol in mineral oil for all individuals over five years of age, and

a one-half per cent. solution in the case of younger individuals. He attributes the efficacy of this treatment partly to its hourly use as contrasted with the frequent practice of using antiseptics only once or twice a day. *Results:* Lewis points out that during the severe epidemic of diphtheria that occurred in 1906, there were 35 deaths in 5 months, and 9 more during the first three months of 1907. The next severe epidemic was the one in 1917, when during a similar period there were only 8 deaths, altho during the early part of the period the frequency of cases was as alarming as at the beginning of the 1906 epidemic. During the first three months of 1918, 5 deaths occurred; that is, during the eight months of 1917-18 there were 13 deaths as against 44 during the same period in 1906-07. Such positive results produced by two months' work, he says, bespeak the rationality of the continuous operation of detectives for finding carriers. In summarizing the results of his work, Lewis says: (1) The continuous search for carriers in controlling diphtheria is an exact sanitary measure of prevention. (2) All individuals with acute catarrhal nasal conditions are potential acute nasal diphtheria carriers; it requires the presence of a chronic carrier, generally also nasal in type. The permanency of the former when made a carrier is dependent on the degree of nasal obstruction. (3) All individuals convalescent from any respiratory disease, however mild, constitute the largest proportion of nasal carriers of diphtheria. Investigation of all such individuals and their isolation, if carriers, is the essential basis of control of diphtheria. (4) In general, cases follow the production of acute nasal carriers by chronic ones. (5) Responsibility for any frequency of the disease is solely that of health authorities.

Diagnosis of Acute Articular Rheumatism.—Acute articular rheumatism is an infectious disease caused by a germ or germs, not yet identified, and characterized by a general constitutional reaction, irregular febrile movements and non-suppurative inflammation of the connective tissue and structures of the joints and the muscles of the heart.

Williams (*Ky. Med. Jour.*, July, 1918) says that in former times it was confounded with gout until Sydenham at the close of the eighteenth century, pointed out the difference in the two affections. It is now universally considered an infectious disease caused by germs, but the old theory is still held by some very acute observers, that it is caused by an excess of lactic acid in the blood.

An excess of lactic acid is almost always present during an attack of acute articular rheumatism, but it is not apparent whether the lactic acid causes the rheumatism or does the rheumatism cause the acid or that the accompanying fever causes both or especially why the joints should be the seat of the trouble.

The neurotrophic theory has had many adherents, well knowing all neurotrophic diseases are of slow origin and cures while rheumatisms are acute and of rapid cures if properly treated while nervous diseases are proverbially slow which destroys nervous theory.

In recent years it has been held and still prevails that rheumatisms are due to toxines in the system rather than bacteria and that the intoxication results from an infected tonsil and in support of which it is known that almost invariably in a case of acute rheumatism it is also found to have a case of acute tonsilitis and it is contended that the lymphoid tissue of the tonsil, by its power of filtration, allows the toxines to pass thru and inhibit the bacteria; this theory scarcely holds in the case of acute gonorrheal rheumatism.

The rapid transfer of the infection from one joint to another suggests a local intoxication rather than an infection.

In rheumatism the blood shows an increase of fibrin, fats and extractive matter, red blood cells much decreased and consequently anemia is pronounced in acute rheumatism.

The excess of fibrin in the blood very materially affects the valves of the heart by accretions, and often is the cause of sudden thrombosis and quick death, when otherwise convalescence was thought to be satisfactory. The complications are known to be most serious to the valves which very rarely regain normal functions. These conditions rarely give pain and less warning but the physician must be on the alert for such complications. These may be embolic attacks due to detachments of vegetations in the internal aspect of the heart.

Diagnostic Teeth.—The teeth are a valuable aid in the diagnosis of certain diseases, notably bone and joint lesions. During the last few years Roberts (*N. Y. Med. Jour.*, Aug. 11, 1918) has seen numerous cases of inherited syphilis which had not been recognized but treated for something else for long periods, altho an inspection of the teeth with an intelligent interpretation of the findings would have given a clue to the true pathology. Unfortunately the majority of medical men have but a limited knowledge of dental anomalies, and aside from the classical Hutchinson teeth know very little about other forms of syphilitic teeth. Absence of dental units is a common form, together with symmetrical erosions of various kinds, anomalies of spacing, white sulci, and a tendency to early decay. An abnormal spacing between the two upper central incisors is so often present in positive cases of syphilis that it should be considered of diagnostic significance when found in doubtful conditions. The well-known Hutchinson teeth are to be considered only one of the many types of deformity by inherited syphilis. The very nature of the disease, most active as it is during period of tooth formation, may produce an infinite variety of abnormal dental shapes and arrangements, the presence of any one of which when associated with disease in other parts of the body should arouse suspicion as to the pathology of the active process where evidence of its non-syphilitic origin is lacking.

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Minimum Wages from the Health Standpoint.—The demand for a minimum wage law is not to be regarded simply as a reaction against economic conditions. The value to the community is to be found not merely in the easing up of economic pressure upon families, but in its probable effect upon the general health and welfare of the workers and their families. Numerous economic projects concededly present a public health aspect which merits due consideration by the medical profession. In many ways, medical organizations possess a conservative attitude on social problems when their knowledge and experience should cause them to be leaders in social progress.

In *Public Health Reports,* November 22, 1918, Sydenstricker, Wheeler and Goldberger, of the United States Public Health Service, offer a most suggestive study on the Relation of Disabling Sickness to Family Income. While their studies were confined to the population of seven cotton-mill villages of South Carolina, it is obvious that their conclusions are generally applicable. As previous studies have pointed out the increased infant morbidity and mortality among families of low income, so family disability has been found to be most marked among those of the lowest family income. For example, when the half monthly family income per adult male unit is less than six dollars, the number of sick persons per thousand was 80; but when the income, similarly calculated, reached ten dollars and over, the number of sick persons was found to be only 14.9 per thousand. The total percentage of days not at work, days lost on account of disability in the two groups mentioned were respectively, 38 per cent. and 21.6 per cent. These figures, in themselves, are strongly suggestive of a relation between frequency and severity of sickness among relatively high and low income groups.

The conclusion was reached that sickness involving inability to work was more or less in inverse ratio to the height of the family income. "A greater proportion of disabling illness of relatively long duration appeared among persons whose family income was below the average than among persons with a more favorable economic status." The accumulating literature of economic studies in relation to morbidity and mortality points out that the more favorable the economic status of the family is, the more reasonably may better health conditions be expected. While low incomes are not *per se* productive of disease, they are indirectly responsible for much illness. The factor of economic status in the analysis of morbidity facts requires greater emphasis in order to establish the health value of a reasonable wage scale.

The Public Always Pays for Needless Illness.—The community or general public pays the cost of unnecessary disease and disability. It is more rational to make the financial allotment in terms of higher wages for the purpose of avoiding higher morbidity rates than to levy an assessment upon the community for the purpose of caring for those who have suffered from the short-sighted policy by succumbing to diseases of a preventable character. The minimum wage law possesses a real significance from the standpoint of public health. It is as obviously true that sickness may be responsible for a low family income as it is that the low income may conduce to sickness. An adequate minimum wage law, however, would tend to break up this vicious circle and safeguard workers from the devitalizing processes which all too frequently follow, or are dependent upon, an inadequate scale of financial rewards for industrial workers.

The coming decade will devote itself to numerous social and economic questions in which the attitude of physicians may play a determining part. It is, therefore, of particular importance that the medical point of view on social and economic problems be developed on the basis of studies, investigations, researches and reports that will present facts as authoritative data upon which scientific conclusions may be founded. One is almost tempted to ask the question, "In how many county medical societies of the country has there been a discussion of the public health value of a minimum wage law?"

Demobilization and Remobilization.—In the *Vocational Summary* for November appears a suggestive article by Dr. John Cummings on "Unmaking a Soldier." The problem of demobilization is not merely a matter of efficient administration. The most vital part of the problem is the reassimilation of soldiers and sailors into civilian life. For many, this may require retraining, vocational readjustment and physical rehabilitation before permanent independence and comfortable assurance of success in civilian enterprises become practicable.

In the process of army mobilization, a weeding-out process occurred which removed from the potential recruits a large proportion of men physically handicapped so as to be unfitted for strenuous military service. These men still constitute a national liability on physical, mental or moral grounds and, in some instances, on all three of them. The accepted recruits have undergone rigorous training, have been hardened, and have made the necessary mental readjustments requisite for life in the army, whether in camp, field or trench. Their powers of self-control have been highly trained so that submission to discipline and unthinking obedience have become nearly automatic. The spirit of the warrior has been inculcated and his body has responded to every demand. The underlying dynamic forces of patriotism, loyalty, chivalry, ideals of liberty, have surged forth into an active expression of national service. Excluding those who have suffered injury and, in consequence, must undergo physical and mental reconstruction, the vast majority of the national army are to be returned to civil life gradually and are to be released from the restraints of military authority. The problem of transforming a civilian into a soldier is now reversed. There is a tremendous obligation to accomplish with safety the return of the soldier to his civilian status.

The transition from factory to trench was slowly accomplished. The transference of activities from trench to factories is to be a more sudden type of undertaking. The making of soldiers has built up a new morale, established a higher degree of physical fitness, and promoted the mental activities of the citizen soldiery. These values are too great to be sacrificed during a period of demobilization. It is of paramount importance, therefore, that in "unmaking the soldier" there be no tendency to unmake the man. The continued development of the physical, mental and moral standards upon which national eyes have been centered must not be retarded; there must be no let-up in the efforts to retain firm muscles, strong nerves and high jubilant spirits. The making of soldiers has been a remarkable lesson in cooperative effort in strengthening national character.

There is a danger, however, that during the process of demobilization the single national interest may be split up in such a manner that the individual soldier may be forced to be completely self-dependent and freed from the supervision of sound judgments of those specifically interested in his welfare. The army means control of the person, of food, clothing, shelter and, within rather indefinite limits, the entire environment. Readjustment in civil life means personal control of conduct and a personal adaptation to the demands of communal needs, consonant with individual interests and emotional requirements.

Reassimilation, however, possesses a connotation of communal absorption, a return to cooperative activity in the social organism, constituted to promote social welfare. There must be no opportunity for depression or discouragement, on the one hand, or lionization and hero worship on the other. Crippled bodies must not be further weakened by minds depressed, or overstimulated to inactivity. Fortunately, the government is not unmindful of its duties towards those who have offered their all to the Nation. During war the essence of power is residual in the ability to wage war. During peace, the soldier possesses inherent values as a citizen, a father and a man. The impetus which has been given to organizations, local, state and national, for the maintenance of the health of soldiers, sailors and marines merits even a fuller expression during the process of their reassimilation. The lessons of accomplishment must not be lost. A greater attention to the physical, mental and moral requirements of the mobilized millions soon to reenter civilian life is imperative. It is equally important that similar forms of machinery be installed for affording the growing generation the fullest opportunity of achieving the physical strength and general social welfare which was not afforded to the army and navy until a national call to arms created a serious necessity. A far-visioned plan is the need of the hour.

The retraining of armies for the sciences and arts of peace carries with it perils equal to those that are encountered during the war if one adopts a point of view that recognizes the potential value of all children as national assets. Our educational institutions have been severely criticized. Their products furnished the crude material from which the national forces were fashioned. Illiteracy, a lack of vocational adaptability, and various other shortcomings were immediately recognized and an earnest effort was made, and most successfully, to offset or correct the numerous deficiencies which became manifest. In

recognizing the errors which have crept into our educational system because of the conservatism and academic point of view of our educators, one perceives various lines along which a newer type of practical education must be established. It is patent that the physical foundations of our school systems must be thoroly reorganized; not in terms of military training, but of physical education.

The medical inspector, the school nurse, the home and school visitor are to be crowned with a new dignity and importance along with the idea of recreational activities and the utilization of gymnasiums, playgrounds, swimming pools, open-air classes, special classes for the blind, the deaf, the tuberculous, those suffering from cardiac diseases, cripples and mental defectives. The entire educational system, particularly in rural communities, must undergo a transformation. The basis of civic health is individual health. Nations are no more vigorous than their populations. Health is closely linked up with a rational educational system.

The idea of the sound mind in a sound body has been appreciated as an abstraction. Numberless communities in the United States are practically self-acknowledged failures as creators of either sound minds or sound bodies. These communities indicate the need of greater national or state stimulation and encouragement in their efforts to bring up a growing generation fit for all national service and for all emergent activities.

An international war has arrived at a peace-making stage, but the war for existence of families and individuals continues unabated. The growing discontent of the masses and the prevailing spirit of liberty calls for a larger patriotic effort to train a worthy citizenry, capable of initiative, independence and cooperative industry. These manifestations of vitality call for guidance and development.

Public health, public contentment, public zeal and public welfare are completely interdependent and based upon certain fundamentals, among the first of which is the fullest development of the physical, mental and moral potentials of the individuals comprising that vast aggregate of humanity, termed the public. Particularly in a democracy, where the people rule, must the people be fit to rule. Fitness involves physical, mental and moral education. The unmaking of a martial soldier should not result in unmaking the man. The making of a civil and industrial soldier must depend upon making the man. Herein is a problem upon the solution of which must depend the future of this democracy.

Organized Social Sanitation.—One of the striking achievements of the war period has been the attack upon venereal diseases. The war program for the protection of morals and morale has been based upon recreation, education and law enforcement, combined with prophylactic stations and the hospital care for the venereally afflicted. The Division of Venereal Diseases, originally organized in the Department of the Surgeon-General of the Army, has been transferred to the United States Public Health Service.

While the widespread ravages of syphilis and gonorrhea have been matters of medical knowledge for years, attempts to counteract the baneful influences responsible for their wide dissemination failed to achieve signal results until the coordinating activi-

ties of the government developed a rational country-wide program. Now that soldiers and sailors are being returned to their native cities and the force of military discipline is no longer potentially effective, it is to be hoped that the vast machinery installed in communities will not be permitted to break up and become useless.

For the first time in the history of the Nation there has been a unification and more or less harmonious interaction of the forces of good against the agencies of evil. The foe of the prostitute has been found in the intelligent cultivated dancing partner, coming from well protected homes and interested in promoting the welfare of the men of the Nation. Alcohol has been fought with recreation, wholesome occupation, singing and musical diversions more successfully than by the regulations banishing alcohol from the extra cantonment zones, or by the forbidding of its sale to men in uniform. Ignorance has been dispelled by lectures, pamphlets, moving pictures and organized efforts to dispel the false mystery of sex lure from the mature adult minds whose right to sex knowledge had been denied under the influence of traditional taboos.

What is to become of the energies of those who have been and still are active in promoting the welfare of soldiers and sailors? Is the lesson only recently tested to be lost? Are the forces and agencies for the preservation of national morale and for the elevation of morals of the community to be permitted to be dissipated and to vanish into thin air? Apparently the cooperating organizations are likely to slip back into their regular channels of work unless some effort is made to retain their cooperative services. Possibly the United States Public Health Service may continue to exercise a certain degree of stimulation and control, if not supervision, of the vast number of war-created agencies so that their functions may be preserved in the interests of public health.

It is patent that the greatest accomplishment of the Commission on Training Camp Activities was aimed at the prevention of venereal diseases. Under the guise of creating a spirit of cheerfulness and loyalty, there resulted a most valuable organization for the protection of the army against alcohol and prostitution and their wonted sequelae of physical disability and military incapacity. The need for a rational scheme of attacking the social evil has by no means ceased with the signing of an armistice. When the wars of men against men will have ceased, the problem of the venereal diseases will still continue to merit attention and to call for serious thought and highly organized community action.

The methods of the Commission on Training Camp Activities point out the importance of social organization in the interests of public health. It is not always necessary for a community to recognize all the benefits to be derived from a unified effort to elevate the standards of living in the community. Higher standards of education are recognizably factors in advancing interests in the community, not merely along literary or industrial lines, but even more significantly in the direction of better personal hygiene and community sanitation. The improvement of the morals of a community and the heightening of its spiritual values are concededly instruments for elevating the public health conscience. The improvement of the morals of a community thru education, occupation and recreation is of greater effectiveness for

increasing the health and wealth potentials than that which can be secured thru mandatory enforcements of law or compulsory treatment in hospitals and clinics.

Public health officials recognize the advantage of public health education thru schools, churches, unions, fraternal organizations, parents' associations and similar groups of individuals and organizations working with a central interest of mutual attraction. A form of social reconstruction appears to be necessary which will keep mobilized the agencies for communal betterment. In a sense, some efforts in this direction were made in various sections of the country during the strenuous, and at times vain, endeavors to combat the influenza. Attempts of this kind to meet emergent conditions evidence some value but would prove entirely inadequate for continuing an attack upon a more or less constant epidemic in those same communities.

The public conscience must be aroused so that there will be willing cooperation when the glamour of war service has departed. Socialized groups must function in the interests of the race—must strive to attain a position of power to safeguard the growing generation from vicious and deadly foes more dangerous than a leaden hail. Society faces peace problems that call for continued action on a war footing.

Venereal diseases are endemic in the United States. In a sense they possess a certain degree of epidemicity. The forces essential to a continued attack upon them have never been so adequately mobilized as during the period of the war. It is now time to take advantage of the present period of reconstruction to capitalize the interests of the community in the soldiers so that the huge machinery for the creation of a higher standard of morals will not be sacrificed. That community which is most successful in retaining and maintaining the cooperation of its constructive agencies and manages to continue the social activities of the helpful groups in the community for the welfare of its young men and young women will accomplish the most in the control of venereal diseases.

The community is responsible for the environment in which health or disease is to flourish. The motivating interest of public health should determine whether vice is to be rampant—accepted and defended as a public utility or necessity. If every civic agency and social-visioned group were solicited to unite to shake off the enervating fetters of commercialized vice, they would rally to the call of authoritative leadership. No single enthusiast, reformer or moralistic association can cope with the shortcomings of society—nor prevent the wastages due to lust, inebriety, and deforming diseases. Communities must be aroused to the enormity of their problem and the seriousness of their obligation and duty.

It is only by community action that the black plagues can be successfully attacked. Society alone can overcome the desolation wrought by the greatest evil of society, as manifest in and thru the venereal diseases and their long, gloomy trail of social derelicts. Social sanity alone can establish and constitute effective sanitation against the venereal plagues.

The Attitude of a Community Toward Infant Mortality an Index of Its Progress.—"The reduction of infant mortality in the United States has not kept pace with

scientific research which is constantly adding to the list of preventable diseases. The immediate task of every community should be to prevent infant deaths from such diseases." This challenge to American efforts is found in *Infant Mortality* (*Bureau Publication 29* of the Children's Bureau of the United States Department of Labor). A field study in Waterbury, Connecticut, based upon the births in one year, reveals conditions practically as they were during prewar years. This seventh city studied by agents of the Children's Bureau affords conclusions corroborative of those arising from the earlier studies.

Birth registration in the United States is far more imperfect than death registration. In 1911 the infant mortality rate was computed at 124 per thousand live births within the death registration area. A later report in 1915 for the smaller section of the country which constituted the birth registration area gave a mortality rate of 100 per thousand live births. While this infant mortality rate marks a great improvement over that found a decade ago, it appears unnecessarily high when compared with the rate for New Zealand, which is now only 51.

Children's year continues and despite the problems which have arisen from the great number of mothers who have entered industry will undoubtedly reveal a considerable reduction of infant mortality when the final figures are totaled. It is of importance, however, to repeat from time to time the essential factors entering into infant mortality. Infant deaths are more frequent among families with inadequate incomes. They must endure various unhealthful conditions as a result of their financial dependence, such as insanitary environment, unhygienic homes and an insufficiency of proper food, clothing and medical attention.

The studies of Waterbury involve 2,144 live born infants, of which 263 died, giving a mortality rate of 122.7. The highest rate was among those of poor and foreign born parentage, and the main causes of death were gastrointestinal diseases, respiratory and epidemic diseases, and pathologic states peculiar to early infancy.

The mortality rate among artificially fed babies was high, but the group of children of native born parents maintained a low infant mortality rate in spite of a high percentage of artificial feeding, begun earlier than was the custom among children of foreign born parents. Artificial feeding, itself, is not to be regarded as the primary element in causing gastrointestinal disturbances, but the hazard is due to ignorance of correct methods of artificial feeding, or inability to procure or safeguard a healthful milk supply. Lack of individual knowledge merits more attention than general campaigns for pasteurization, tho the latter most properly must constitute a type of mass protection for many years to come.

There is further evidence to establish the striking coincidence of poverty and a high mortality rate. For families in which the father earned less than $450 during the year following the birth of the baby, the mortality rate was 153. This rate did not drop below 100 until the paternal earnings exceeded $850. Among the foreign born, only 7.4 per cent. earned $1,050 or more, while among the native born this figure rose to 30.4 per cent. for those earning $1,050 or more. Inasmuch as the families of the native born parents were smaller than those of the foreign born parents, it is obvious that the children of foreign born parents labored under severe financial disadvan-

tages. This combination of ignorance and lack of means constitutes the main elements in the infant mortality rate.

Since practically all the studies of infant mortality arrive at the same conclusion, there is little reason to condone a lack of effort at overcoming the social defects against which the infant mortality rate must be charged. The various steps essential for the control of this wastage of human life are simple, comparatively cheap and technically available the world over. The main problems in prevention involve legislation, education and social reorganization.

Fundamental is the necessity of complete birth registration. Prenatal supervision and suitable obstetrical care must insure skilled medical and nursing care before, during and immediately after childbirth. This phase of the public health program, fortunately, has received considerable impetus during the past few years. Its development must be hastened.

Infant welfare stations, public health nurses, dispensaries, clinics, home nursing, special hospitals and convalescent homes, boarding-out systems, day nurseries and similar agencies are requisite for securing the education of the mother and for protecting the child during the period of time the education is being given. The home—home care, and intelligent motherhood—forms the apex of the pyramid of social endeavor for the prevention of infant mortality. The greatest single obstacle to effective educational work is the illiteracy of the foreign born and the inability to secure properly trained doctors and nurses able to impart the essential knowledge in the language understood by the mother to be educated. Obviously, personal work is required, but even this cost is more than offset by the saving of a single infant's life up to the period of two years of age.

The difficulties of education appear to be secondary when compared with the greater problem of lessening poverty. Undesirable and unhygienic living conditions are not matters of selection and choice. Ignorance may contribute, but can scarcely be regarded as responsible for overcrowded tenements, with room congestion and innumerable boarders in dilapidated disease-breeding tenements which themselves are both a menace and an eyesore. The tendency of mothers to work in order to supplement the family income, or to constitute it, if widowed or deserted, might better be discouraged thru a wise system of mothers' pensions which will enable children to have maternal care until they have arrived at an age when they can become wage earners. Mothers' pensions, in the long run, form a cheap communal beneficence, born of social interest and resulting in a saving of human life and character to the state. Poverty must be antidoted by state efforts until social adjustments relieve the situation.

It is simple to construct paper programs for the relief of ignorance and poverty, but the transformation of the most perfect schemes to actuality depends upon an enthusiastic and supporting public opinion. The eradication of conditions subversive of child health only will become possible when communities are aroused to the infanticidal tendencies they display thru indifference or neglect. The lowering of the infant mortality rate may be taken as an index, not so much of the healthful climatic conditions or the sanitation of food supplies as of the mental attitude of a community towards human life. No work reveals the strength of a community, its

solidarity, its sanitary efficiency, and its public health conscience, so much as the infant mortality rate.

Scurvy.—The perils of an arctic winter are sufficient to test the courage, enthusiasm and scientific interest of the explorer. More to be feared than the rigors of climate in the ice-pack is the possibility of scurvy.

Stefansson (*Journal of the American Medical Association,* November 23,) presents a few facts gleaned from his experience with three cases of scurvy which developed during his 1916-1917 sojourn in Melville Island. His conclusions represent the results of his practical observations and suggest points of value in the prevention of this dietetic scourge. All methods of preservation, canning, pickling, salting and desiccation appear to destroy the strongest anti-scorbutic qualities ordinarily existing in various fresh foods. Cooking appears to lessen, if it does not destroy, the anti-scorbutic value of most foods, altho an abundance of cooked fresh meat may suffice to prevent scurvy, providing the meat is eaten in a condition of rareness. While the idea is not pleasant, meat and fish in a state of putrefaction, slight or well advanced, apparently possesses a prophylactic value almost equivalent to that of fresh flesh.

Cleanliness of body or habitation, ventilation, or exercise play little or no part in the prevention of scurvy. His experience suggests that salt, altho probably not a cause of scurvy, has some direct bearing on the progress of the disease. This point of view is strengthened by the fact that salt meats appear to pre-dispose to scurvy, while a marked desire for salt on the part of scurvy patients slowly diminishes as cure progresses. The men who ate their meat cooked and salted during or after cooking had the most serious cases of scurvy.

Exceptional Cases of Scurvy.—Occasionally, scurvy is found under ordinary conditions of life when a varied diet is being taken, owing to the fact that no fresh foods are permitted in the dietary. The great tendency to the increased consumption of canned, dried, preserved, salted and pickled foods makes it more necessary to draw attention to the inherent hazards of a continued dietary of this character. No condition of disease requires a completely cooked dietary. The status of vitamines is rapidly being determined by chemical and physiologic experiments and the organic basis for the development of deficiency diseases is becoming better understood. The investigations of nutrition as affected by military, naval and civil life have conclusively demonstrated that it is possible to accomplish gigantic tasks in feeding millions of men without lowering their vitality and without denying them the vitamines so essential for their physical fitness. It is only the explorer or prospector, endangered by conditions over which he has no control, who needs be regarded as remotely liable to affliction by scurvy. It is noteworthy, nevertheless, that annually a large number of cases of scurvy are reported, due to a failure to recognize and abide by the fundamental dietetic principles which have demonstrated their effectiveness in preventing scurvy.

Tho classed as a deficiency disease, scurvy must also be categorically placed among the preventable diseases whose continued existence is indicative of weakness

or laxity in our educational processes, or results from conditions of privation and starvation of a most serious character. Scurvy during a polar exploration is a catastrophe for which there may be a slight defense. Scurvy among civilians under normal conditions of living is indefensible on any grounds.

Full-time Dispensaries.—In most sections of the country dispensaries are organized with part-time schedules. In smaller communities dispensary hours may be on one, two, or three days a week. In larger cities, special clinics may be held for two hours on every day of the week with rotating medical attendants. Some large outpatient departments of hospitals duplicate some of the most popular clinics by having morning and afternoon sessions with different staffs. The full-time dispensary plan is slowly gaining adherence and bids fair to be popularized in dispensary reconstruction during the coming year.

In the 1917 report of the city of Chicago Municipal Tuberculosis Sanitarium, Dr. John Dill Robertson, health commissioner of Chicago, details the workings of the Full-Time Dispensary Plan. The sanitarium maintains eight dispensaries, centrally located in various districts of the city. At each of them medical and nursing service is provided for all patients registered by the dispensary and quarantine supervision is offered for all tuberculous patients in the districts including those under the care of private physicians. "The personnel at each of these dispensaries consists of two full-time dispensary physicians, one part-time physician, one head nurse, two nurses for clinic work, one nurse for bedside work, one nurse for social service work, from six to thirteen quarantine officers (depending upon the number of cases registered in dispensary), one clerk and one stenographer."

Before 1916, the dispensaries were open not to exceed nine hours each week, whereas the dispensaries are now open from nine o'clock in the morning until five in the afternoon each weekday, with the exception of Saturday when the hours are from nine until twelve o'clock. There are two evening clinics each week. It is patent that this plan enables the dispensaries to give more individual attention to the patients and prevents the overcrowding of the waiting-rooms, facilitates the prompt attention of patients, and decreases the hazards of contact among those who are awaiting medical care, nursing attention, or social service counsel.

Past experience thruout the country has shown the inadequacy of dispensary clinics, isolated from hospitals, but equally so the futility of attempting to provide hospital beds while neglecting the essential dispensary care requisite for the overwhelming mass of the tuberculous population who do not require hospital care. It is doubtful whether more than one per cent. of the tuberculous population find their way into sanitaria. It is apparent that a more rational system must be devised for caring for the 99 per cent. living at home or boarding, and attempting to carry on their normal occupations.

The protection of the community is more largely dependent upon the education and training in hygiene of the tuberculous victims who live at home than the enforced control of a small group of the population for whom hospital care is merely a shelter during the last stages of the disease. The successful development of tuberculosis

classes indicates the excellent results which are obtained by this method. The experience with home hospitals, which, after all, are merely rational sanitary homes favored by medical guidance and direction, attests the value of this plan for caring for the tuberculous.

In the control of tuberculosis, hospital beds should be made available for those who fail to follow instructions, and, in consequence, are a source of danger to their families, fellow workers, and others with whom they come in daily contact. The forcible hospitalization of such types is certainly within the police power of the health commissioner.

One function of a sanitarium, that hitherto has not been fully appreciated, is its educational value in training individuals suffering with the disease in the art of right living and the methods of protecting himself, his family, and his associates. For this reason, a certain number of beds in the sanitarium should be set aside for the purpose of training the ignorant or unwilling so that they may later be released when no longer an immediate source of danger to the community. The rotation of patients of this character would enable the dissemination of knowledge to a larger group than is possible when the beds are continuously occupied by a few tuberculous sufferers whose condition is not likely to improve for long periods of time. Obviously, this does not hold true for the advanced cases of tuberculosis coming from homes where close quarters cannot be altered, and where living conditions make the opportunities for infection so great as not to be overcome even by rational sanitary care.

If a community is to attack the tuberculosis problem as a rapidly spreading infection it is important to discover, supervise, and direct every victim of tuberculosis in the community. The advocacy of new hospitals for the care of the tuberculous fails to place sufficient stress upon those afflicted, but who are none the less able to live at home and perform certain duties without danger to their families or community.

The steps essential to a full control of the tuberculosis problem involve a survey, a dispensary system and home nursing as well as hospitals, sanitaria and preventoria. The full-time dispensary plan is possible only with a paid staff as provided in Chicago. Some of the physicians are required for full-time, others for part-time, but all receive compensation from the municipality. The amount of money that a single hospital costs as an original investment, together with the budget requisite for yearly upkeep, if appropriated for the perfection of a system with full-time medical officers, nurses, social workers and quarantine officers, would be more than sufficient to pay all the expenses required for the management of ten times the number of tuberculous persons at present supervised in any large administrative unit.

The mere building of hospitals does not provide the solution for the tuberculosis problem. The detection of the sufferers and their education will cause a decline of the morbidity rate more rapidly than the hospitalization of a small group of the victims. The total number of tuberculosis sufferers at present occupying hospital beds is so exceedingly small that one may properly attribute the main part of the decline in the tuberculosis mortality rate to the campaigns for educating the public as to the essential values of sunshine, fresh air, food and cleanliness as factors in the prevention

of tuberculosis. The Chicago plan merits careful consideration, not merely as a dispensary system for the control of tuberculosis but, as a plant for general dispensary reconstruction upon a sound financial and social basis—a full-time dispensary, utilizing paid physicians, nurses and social workers.

"When Earth's last picture is painted
And the tubes are twisted and dried,
When the oldest color has faded
And the youngest critic has died;
Then, faith, we shall rest, and we shall need it
And lie down for an eon or two
Until the Master of all good workmen
Shall set us to work anew."

—Rudyard Kipling.

A Good Prayer.

Almighty God: Teach me that sixty minutes make an hour, sixteen ounces one pound, and one hundred cents one dollar.

Help me to live so that I can lie down at night with a clear conscience without a gun under my pillow, and unhaunted by the faces of those to whom I have brought pain.

Grant, I beseech Thee, that I may earn my meal ticket on the square, and in doing thereof that I may not stick the gaff where it does not belong.

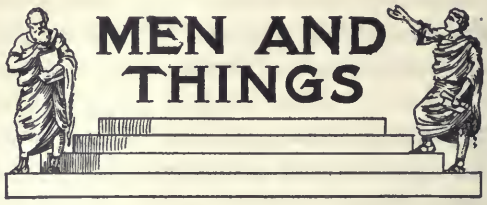
Deafen me to the jingle of tainted money, and the rustle of unholy skirts.

Blind me to the faults of the other fellow, but reveal to me my own.

Guide me so that each night when I look across the dinner table at my wife, who has been a blessing to me, I will have nothing to conceal.

Keep me young enough to laugh with my children, and to lose myself in their play.

And then, when comes the smell of flowers, and the tread of soft steps, and the crushing of the hearse's wheels in the gravel out in front of my place, make the ceremony short, and the epitaph simple: "HERE LIES A MAN."—*From the Meccan.*



Prohibition and Revolution.—At first blush it would seem that there is little connection between revolution and prohibition, and that one would have to go far afield to link them together. Yet wise heads have been nodding in the direction of Russia and intimating that the taking away of the peasant's vodka and the excesses of Bolshevism and the revolution are more closely related as cause and effect than is generally recognized. If the Russian peasant had been allowed to keep his strong drink, his favorite form of excess, the revolution might not have come; or, if it did come, it would have been a much more orderly change. Such is the opinion of the wise ones, and they point to the long struggle in England to deprive the workman of his beer, which ended always in failure. The workman retained his beer, the authorities not daring to deprive him of it, and England's war industry record is as orderly and efficient as any. The obvious conclusion is that drink goes with order and prohibition with disorder; but, tho one resents such a conclusion as grossly exaggerated, there is sufficient truth in the theory to encourage inquiry. Is there any connection between prohibition and unrest?

The marriage of the mind and the body has proved a disappointing mesalliance. It is a failure, as any marriage must be a failure which joins a stubborn, tyrannous, self-willed girl of eighteen to an old man of eighty whose habits have become part and parcel of his daily life. The human body has been in process of development for hundreds of thousands of years; the brain, as a moral factor in human society, has been developing for but a few thousand years. Yet this young upstart has usurped a position in the partnership in which she tyrannizes and dictates to the older partner. This tyranny of the young brain over the old body is the basis of the modern neuroses and mental disorders. It is the reason why tea and coffee have become so essential to us, why drink is such a consolation to some, why

drugs have come into such large use. The conflict between the body, which is by nature immoral, and the mind, which is severely moral, is productive of a condition of strain and nervousness that calls for artificial stimulants or sedatives. The savage does not have to take a cup of coffee in the morning to feel fit for a day's work. The savage has no use for the forgetfulness that comes with drugs, for there are few things which affect him so seriously that he should want to forget them. But the modern man, eternally in conflict with opposing wills, both within himself and everywhere about him, is often moved to seek a brief respite from the strain thru drink. Those who oppose prohibition have this fact in mind, and they maintain that if drink is taken away from the modern man, working under high pressure, the restless energies which he generates during the course of his trying day will surely turn to mischief. These energies must either be lulled or they will expend themselves one way or another.

Before the revolution and before prohibition was enforced in Russia, the peasant lulled his vicious energies with drink. Vodka was the one great and persistent need of his simple nature. He would get drunk often, but rarely would he get ugly. He was a hard worker, and when he relaxed, he relaxed thoroly. But with vodka no longer obtainable, it is easy to imagine how restless he must have become. If this is true of the peasant, it is true also of the industrial worker in the large cities. Their accumulated energies unexpended, their highly nervous state unrelieved, is it not at least possible that the excesses to which they gave themselves up were in a measure a substitute for drink? In this respect there is clearly a significant connection between prohibition and unrest. At this time, when prohibition is so very much in the air, the point is well worth bearing in mind.

Epidemics and Optimism.—Dr. Copeland, Health Commissioner of New York City, has issued several statements reassuring the public and setting at rest any fears they may have of the recrudescence of the influenza epidemic, the recent increase in the number of cases causing uneasiness in many quarters. The burden of Dr. Copeland's statements was to the effect that New York has nothing to fear, that the situation is being kept well in hand, and that the population is adequately safeguarded. At the time of the waning of the epidemic recently, there appeared in these columns what was designed to be a helpful criticism of the conduct of the authorities during the epidemic, and a warning was issued of the great danger of a recrudescence of the disease. The history of the epidemic abroad and its tendency to periodic recurrence was emphasized and the greatest caution was urged upon both the public and the profession. The striking contrast between Dr. Copeland's reassuring attitude and our own seemingly alarmist utterance must have impressed more than one reader, and there is an unintentional challenge in these contrasting approaches to the influenza problem which cannot go by without comment. It is a difference chiefly in psychology, and a difference well worth considering.

It will be recalled that thruout the weeks of the epidemic in New York, Dr. Copeland persisted in his optimism and reassuring statements to such a degree as to provoke questions relative to his competence in some quarters. His attitude aroused considerable criticism in the press and among the public. And yet it would be idle to think that his optimism was merely the evasiveness of a man who underestimates the gravity of a situation. His policy was deliberate and considered; in a word, he made it his purpose to head off the hysteria which was beginning to take hold of the public and which, if once they surrendered to it, would have increased the dangers greatly. Such psychology, by no means unfamiliar to the practitioner, is not without some advantage in many cases; and, if Dr. Copeland's policy is to be criticized, it is the accuracy of his judgment and not the honesty of his purpose which can be attacked. But in the matter of judgment, it cannot be denied that the balance was against him and that his course, tho it may have done a measure of good in sustaining the public morale, did no small amount of harm in encouraging an attitude of complacency and laxity which exposed the public unnecessarily to the dangers of the disease. In view of this, it would seem that Dr. Copeland's reiterated optimism at the present time is exceedingly ill advised. It can only operate

to discourage faith in him and his assurances. It destroys itself by repetition.

Warning the Public.—The other course open, to warn the population of the seriousness of the situation and to urge every precaution upon them, seemed to us the more advisable one. A state of nerves might expose the individual to the attack of the disease, but a state of ignorance and false confidence would certainly do infinitely greater harm. There were innumerable precautions which could be taken to minimize the danger, and these precautions were, wisely enough, emphasized by the Board of Health, but the importance of great care was greatly underestimated by the public, which generally finds faith much more tempting than caution.

The problem of the influenza epidemic is a grave one, and no amount of smug assurance can help to solve it. We had something over 200,000 casualties in nineteen months of war; and we suffered approximately 400,000 deaths from influenza during the few weeks of the epidemic. The figures are startling, they are even alarming. And there is nothing in the history of the disease abroad to give us the assurance that it has been wiped out. In fact, European experience points unmistakably to its threatened recurrence. After a brief respite, it came back in England, in France, and in Germany. The authorities would do well to base their calculations on the assumption that it will come back in this country. To meet this contingency adequately, more is required than frequent statements of assurance and confidence. The public during the epidemic proved lax in its observance of the precautions proposed by the authorities, and its laxity was due to mistaken confidence. This error must not be repeated. If it is necessary to frighten the public to insure observance of the necessary precautions, the public should be frightened. The health authorities should not disguise the seriousness of the situation, and certainly they should not themselves be deceived by their own optimism. During the epidemic, in spite of the lessons European experience had taught, there was a dearth of drugs, of nurses, of organization, of plan. If there is to be a recurrence of the epidemic, it should find the authorities completely prepared for prompt and effective action. Recent newspaper reports have showed a slight increase in the number of influenza cases in New York City. Whether this is a last flare before the blaze goes out, or whether it is a flame which will relight the old fire, it is yet too early to say. But there should be no surprises to officials who have benefited by mistakes of the past. It is to be hoped that they are at this moment busily storing away the proverbial ounce of prevention to avoid the exorbitant cost of a pound of cure.

The Origin of the Epidemic.—The human disposition is the most undependable factor in the human equation. It is the unknown quantity always. It is x in every problem in which the human being is involved. Only a fool or a god will venture to predict which way it will go. It will blanch at the sight of a cut finger, and will remain untouched at the news of a disastrous earthquake. It will shy at a yellow pup in the dark, and will rush dauntlessly at the death-spitting mouths of half a dozen machine guns. It will cringe under the lash of a whip and smile in the face of death. It will raise a hue and a cry at the hugeness of the American casualty lists, when it learns they are to be over 200,000; and it will accept with the most stoical indifference the amazing news that the deaths from the influenza epidemic are twice as great as our total war casualties in about one-eighth the time. This extraordinary indifference on the part of the public is reflected in the press. When the total war casualties were announced, exceeding the expected total by one hundred per cent., there were interviews, editorials, articles, Sunday features and endless amount of literature from day to day published in all the papers. The fact that 400,000 people lost their lives during the epidemic within a few weeks received only the briefest notice, and, aside from a statement or two to the effect that it is the worst plague since the Black Death, very little was said.

This widespread indifference is not a healthy sign. There is still much lively disputing as to who were the instigators of the war and what their punishment is to be. Nothing could be sounder as a sign of social health than such persistent disputing. It keeps alive the memory of a hideous crime and pursues the guilty ones with un-

relenting threats of dire retribution. But why does the huge problem of the epidemic sink into significance beside the huge problem of the war? The casualties of the epidemic, if it is not speedily wiped out, are sure to exceed the casualties of the war—in this country they have already exceeded them, almost doubled them. Why does not the public ask, "Who started the epidemic?" Certainly in this country we should ask that question, and ask it until we have an answer. The epidemic was not born here, as it was in Europe, of conditions which were unavoidable even if they could have been foreseen. The epidemic was brought here from abroad in spite of the obstacle of three thousand miles of ocean to traverse—ordinarily an effective enough barrage against the invasion of any disease. Why was it allowed to come in? This is a question that cannot be asked often or insistently enough, for in the answer to it we may find the solution to the whole baffling problem of the epidemic. It is not a matter merely of establishing the guilt of any one; it is a matter of establishing the origin, perhaps the means of transmission of the bacillus of influenza. And yet on this subject there has been too little said or written.

The Necessity for Quarantine.—It is the belief of Dr. Woods Hutchinson that returning troops landing at Boston carried the disease to Camp Devens, whence it spread thruout the country. There are facts which would seem to indicate that Dr. Hutchinson's belief may be correct. The extreme severity of the epidemic at Camp Devens, the appearance of the first cases in the Boston district and their rapid spread westward, would seem to bear out such a theory. If Dr. Hutchinson is right, then the public is at once amply supplied with data of the grossest kind of negligence on the part of the authorities, who were aware of conditions in Europe and should have been better prepared. But the matter of responsibility is not the one that requires most emphasis just now. In a recent issue, we observed that the real test of our health authorities, who admittedly had no claims to glory in the way they met the epidemic when it first appeared, would come if it should break out again. Mistakes are serious and inexcusable when they are repeated, and one is apt to be generous with remiss officials if at least they draw the correct conclusions from their errors. Have the health authorities made capital out of their mistakes? In one respect one may say emphatically that they have not. One thing is certain beyond peradventure: that the current epidemic of influenza is as highly contagious and as dangerous as smallpox or scarlet fever. In the case of smallpox and scarlet fever the rules of isolation and quarantine are severely observed. At the first sign of the appearance of these diseases in a community, not a moment is lost. The authorities at once take measures to protect the rest of the community. There is no sentimentality about the hardship that may be be imposed on the innocent.

But in the influenza epidemic no such commendable energy has anywhere been evident. There has been talk of isolation and quarantine, but even to the most casual observer it is obvious that there has been no systematic or effective observance of such regulations—if any regulations exist at all. The situation is a very serious one, and, in the face of such a grave state of affairs, one is appalled at the indifference of the public. Why is it not asking questions? Why is it not demanding better protection? Is it too busy with the problems of the Peace Conference and the fate of the map of Europe to interest itself in its own immediate fate? The situation is rapidly becoming intolerable, and, if we appear to be immoderate and harsh in our criticism, it is only in the hope that we may arouse a phlegmatic public to a livelier interest in its own welfare, and to stir those in authority to a keener sense of their great responsibility.

Death of Dr. Bissell.—It is with the keenest sorrow that we record the death of Dr. Joseph B. Bissell, one of the best known surgeons of New York City. Everybody knew "Joe" Bissell and a better friend or a truer colleague never practiced medicine. His skill as a surgeon was universally recognized and his diagnostic ability was highly esteemed. Dr. Bissell, who was a major in the M. R. C., contracted influenzal pneumonia and died at Mt. Sinai hospital on December 1st. He was born at Lakeville, Conn., on September 3, 1859 and graduated from the Scientific Department of Yale University in 1879. His medical degree was ob-

tained from the Medical Department of Columbia University in 1883. He studied in Vienna and Munich and in 1886 was appointed instructor in surgery at the New York Polyclinic School and Hospital. In 1889 he became instructor in surgery at the New York Post-Graduate School and Hospital and in 1895 he became surgeon to St. Vincent's Hospital. At the time of his death, he was clinical professor of surgery at the University and Bellevue Hospital Medical College, visiting surgeon to the Bellevue and many other hospitals. He was elected president of the American Radium Society last June. Early in the war, he was invited by the British authorities to demonstrate the use of radium in the treatment of septic sinuses and for that purpose went to England. Dr. Bissell was a fine type of man, a splendid surgeon, and a strong and forceful writer. He made many valuable contributions to medicine, some of which have appeared in the pages of AMERICAN MEDICINE.

Doctors and the Paper Famine.—Genius is sometimes not so much a matter of ingenuity as of memory. There are times when it is more profitable to remember than it is to innovate. Certainly the present paper crisis is a case in point. Some of the wisest heads in the world have been engaged (and fruitlessly) in trying to solve the serious problem of the paper famine, and none of them has yet succeeded—not because their genius has failed them but because their memory has. For, if their memories were not at fault, they would recall with no great trouble a similar crisis a few years ago—a crisis which was adequately surmounted by a most simple and effective course. The average man of middle age can have no trouble in recalling the serious paper famine that existed in Europe during the seventh century. In the year 640 A. D. Egypt was conquered by the Saracens and the paper supply of the then world was consequently cut off, as it came almost entirely from the papyrus bark, which grew only in Egypt. The situation was a desperate one, but it was promptly solved. All the papyrus records were requisitioned, the writing was erased, and the sheets were used once more to perpetuate the genius of the new age. The old was destroyed that the new might be born. The young genius of the seventh century scaled Parnassus over the skeletons of his dead predecessors.

At Columbia University, as at many American universities, the students at the close of the second year celebrate what they call the "Sophomore Triumph." At this festival a huge bonfire is built and on this they pile the calculus and higher mathematics text-books which they abhor and which they no longer require; and, while the hated books burn, they dance about the blaze and sing a song of hate—a triumphant song. The joy of such wanton destructiveness is a joy which only the most educated classes are privileged to feel. But to the medical student this joy has generally been denied. In so many cases his student days were days of poverty; he bought his books, those hated books, at the price of many a meal foregone, and he could never gather the courage to burn them. So he has had to carry his hate in his heart. Lives there the doctor with soul so dead that he cannot go to his book-case and in a moment single out at least a dozen worn volumes of ancient medical lore, volumes which revive memories of nights of cruel study, of painfully acquired learning only to be forgotten the day after the "exams"—volumes on which he will joyfully expend the accumulated grudge and hatred of years? This villainous "anatomy"—it cheated him of a country club dance on which he had set his heart. That beastly "histology"—it meant a New Year celebration foregone. Those other dry-as-dust tomes—how many week-end parties they cost! Books so dearly bought must remain precious to the heart of every man, but the hour for the doctor's great revenge has struck—a revenge which he can satisfy under cover of the highest motives. There is a dearth of paper. The world is waiting for the New Word. The message of the new age must be written, but there is no paper on which to write it. The conscientious doctor reflects a moment, his heroism aroused, self-sacrifice in his heart. He recalls the episode of the seventh century, the custom of the Sophomore Triumphs. He enters his library, goes to his book-cases, takes up a volume here and there, piles them neatly and ties them, and with a crocodile tear in the corner of his eye, bravely he offers this noble sacrifice—the sacrifice of these wonderfully hated volumes—to the Future!

CLINICAL OBSERVATIONS ON THE PRESENT PANDEMIC OF INFLUENZA.[1]

BY

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On Nov. 16th, 1918 the Bureau of Census issued a bulletin on the loss of life due to the present pandemic of influenza. This report, which covers the period from Sept. 8th, 1918 to Nov. 9th, 1918 for 46 cities having a combined population of 23,000,000, showed that the mortality from influenza and pneumonia was 82,306. It was estimated that during a similar period of time the number of deaths in the same cities would have been about 4,000, leaving approximately 78,000 as the number of deaths chargeable to the epidemic. As this report represented only about one-fourth of the population of the United States, it is easy to see how great the total number of deaths for the entire country from this epidemic must have been. In New York alone the official report gives 130,606 as the number of cases of influenza for the epidemic with 20,203 deaths from influenza and pneumonia. And New York's morbidity was only 50 per thousand, while Boston's was 101; Baltimore's 149, Washington's 109 and Philadelphia's 158. Contrast these figures with the total casualties in the American Expeditionary Forces which have been estimated at 256,000, with a probable loss of life from all causes at between 55,000 and 60,000!

Such an epidemic is surely well worthy of study, and such a mortality justifies the many discussions which are now taking place in the various medical societies. Another reason for these discussions is the only too well grounded fear that another visitation is to be expected within two or three months, if what has already happened in Europe is to be repeated in this country.

After the last pandemic of 1889-1890, we thought that our knowledge of influenza was complete and the elaborate collective reports and monographs which were published in the early 90's of the last century assured us of this. The discovery of Pfeiffer's bacillus in 1893 was thought by too many to be final and added to the sense of satisfaction that at least this was one of the diseases which was thoroly understood in all its features. Today we know better for we now realize that our knowledge of this disease is still far from complete and that many debatable points still exist. It is to be hoped that much information will be obtained from the splendid work which

[1] Read before the Harlem Medical Society, Dec. 4th, 1918.

is being done at the various camps in this and other countries where the medical men have most ample fields for observation and the study of the disease in all its features. It is from this quarter that light will be shed on the problem and some of the work which has already been published leads us to believe that this hope will not be a futile one. To us who are in civilian practice this will be impossible and all of our work will be more or less fragmentary because we have suffered from such a shortage of medical men in hospital and private practice and because even the care of the sick has not been adequate, much less has there been opportunity for intensive study. As was well said of the last pandemic by Goodhart, "The mortality of influenza was so large that much information might have been expected under this head; but indeed our knowledge has not been greatly extended. In all sudden epidemics of this kind the disease is so distributed and the outbreaks are so overwhelming from the number that are attacked that it is impossible to turn aside from the living to the dead."

That the variations which occur in the same disease on different occasions of its epidemic prevalence are very great has long been known; even Sydenham was so forcibly struck by this fact that he stated that he had to work out for himself a fresh knowledge for an appropriate plan of treatment in various epidemics. Those of us with hospital practice know that this is true of all infectious diseases. Thus every year there is a difference in the type of typhoid fever; in one year there is more hemorrhage; in another year there are more perforations; in still another year roseolae are more abundant, etc. It is an interesting fact that we should have these variations in the same disease as it shows itself at various times. In influenza, however, one symptom is always constant and prominent; pneumonia has always been associated with this disease even in the very earliest reports of the epidemic. Thus, Bockel in 1580, Sydenham in 1675, Arbuthnot in 1783 and Huxham in 1737 referred to pneumonia as being the leading feature. In spite of the fact that pneumonia has always played such a preponderant role, the pneumonia of the present epidemic is very different from the lung involvements which occurred in the epidemic of 1889-1890. There are many other features of difference between the present epidemic and that of 1889-1890 which deserve notice. This year there is a remarkable sameness of the cases; the one thing that varies is the severity of the symptoms but the types and pictures are few in number. In the pandemic of 1889, there was the utmost variety. Another striking feature is the remarkable cyanosis which is so pronounced in the severe cases of the present epidemic even at a very early stage of the disease. Another point is the age incidence. In 1889, all ages were involved; it was not limited so much as at present to early adult life. Still other differences are ear involvements of the past epidemic, when otitis, mastoiditis and sinus diseases were extremely common. Neuritic manifestations and psychoses were quite frequent. Nephritis was very common in 1889; this year the type is much milder and routine examination shows as a rule only mild febrile changes and there is much less albuminuria than was seen in 1889. At that time too, abscess of the lung and bronchiectasis were common; of these I have seen in this epidemic very little, but in this respect it is too early to say that these may not be observed in the future.

Last of all, I would like to call attention to the remarkable statistics which I chanced

to find some time ago in Leichtenstern's monograph on influenza in Nothnagel's Encyclopedia, 1896, p. 110, Vol. IV, Part I. This refers to the frequency of pneumonia in the Prussian army in the pandemic of 1889-1890. There were only 534 cases of pneumonia among 55,263 cases of influenza in the entire army (one per cent.) and only 175 cases of pleurisy (0.3 per cent.). Compare this with the present epidemic in the United States army camps in this country with ten per cent. incidence of pneumonia and a mortality of thirty per cent. No better material could have been chosen to make a comparison between the two epidemics and no better evidence could have been produced to show how unlike the two epidemics are in their symptomatology and mortality rates.

Let us now consider some of the clinical features. One of the chief points of interest is its occurrence in young adults between the ages of eighteen and thirty-six years of age, the decade between twenty and thirty being the period of greatest frequency. At the onset of the pandemic very few children and adults beyond the age of forty were attacked. As the disease became more prevalent the number of children attacked increased, but the severity of the disease in them was much less marked than in young adults. The older adults have remained comparatively free. The oldest patient whom I have seen was 75 years old and she developed the disease after nursing some members of her family. It was a typical bronchopneumonia of moderate severity, from which she happily recovered. The patients, however, whom I have observed beyond the age of 40 have been moderately few in number. I am convinced that many of the cases of influenza which have been reported in older people were not true influenza. There is a natural tendency to attribute every case of acute pulmonary disease which occurs at the present time to influenza; but it must be remembered that we always have had respiratory diseases at all seasons of the year.

This incidence of influenza among young adults is strikingly unlike that of the pandemic of 1889 and 1890, when all ages were attacked alike. The malignancy was most marked in older adults and the aged. That the older persons should be spared in the present pandemic is readily understood, for they have acquired immunity either by having had the disease in the pandemic of 1889 and 1890, or thru natural immunity; but why the children should be more immune this year and have the disease in a milder form, is very difficult to understand.

Another point of great interest is the distinction in social grades. In the better class of people as a rule are seen only milder types of the disease, and even these are relatively few in number, whereas nearly all the severe cases which I have seen have been in my hospital service or in consultation; they have occurred in the lower middle classes or in the poor—people who have been living in crowded places or have traveled in the subways and crowded street cars. On account of this congestion they have been brought into close contact with those suffering from the disease or have acquired it while nursing sick members of the family.

Still another point which deserves notice is the fact that in the present epidemic robust individuals were attacked far more frequently than weaklings. In the vast majority of patients the physical condition was excellent, a fact which is corroborated by the enormous number of cases which occurred in the camps where the soldiers were

all in splendid physical condition and where the sanitary surroundings were ideal.

There are three types of onset. The first begins with a mild onset of muscular pains, headache, coryza and moderate fever. This condition lasts two or three days, and the patient is well. With some this marks the termination of the disturbance, but there is a large number in this group who, after being apparently well for four or five days, experience a sudden change; there is a feeling of chilliness and marked prostration, and suddenly the patient becomes severely ill with symptoms of typical bronchopneumonia. The prognosis is serious in this type.

The second group begins with moderately severe symptoms of influenza, prostration, moderate fever and slow pulse. These patients are sick for two or three days; then there is a sudden crisis and they are well. Among a certain proportion of these cases, however, after this lysis on the third day, the temperature suddenly rises to 104°, and the patients become acutely ill with the bronchopneumonic group of symptoms. They are sick for eight or ten days, when they have the usual lysis. They do very much better than those who have a milder onset and develop acute symptoms afterward.

The third group comprises the foudroyant or fulminating cases. These patients are taken acutely and violently ill at once, with high fever of 106° or more, great prostration, cyanosis, rapid pulse and respiration, followed by death in thirty-six or forty-eight hours. There are few signs in the chest except the characteristic sticky rales at the base of the lungs. The heart action is good and the heart sounds are normal, in striking contrast to the intense cyanosis. A low muttering delirium soon develops which rapidly changes to coma. Acute attacks of pulmonary edema also develop in spite of the excellent circulatory condition and death occurs in one of these attacks of pulmonary edema.

In regard to the symptomatology, I shall confine myself to the individual symptoms; the general picture is too well known to require any detailed description.

I would refer first to the asthenia which is such a striking feature of this disease. Even in the mild cases it is present to some degree. It is much more pronounced in the severe types, and its intensity is a good index of the severity of the toxemia. Indeed, I know of no sign which gives a better index to the condition of the patient and the prognosis than the asthenia. The first glance at the patient will give one more information as to his condition than the most detailed physical examination could reveal. Any patient whose illness is ushered in with severe asthenia will undoubtedly have a stormy course.

The asthenia has two important therapeutic relations: One is to avoid the free use of depressing coal tar drugs, the second is an indication for the free use of alcohol. I consider whiskey or brandy in full doses an important part of the treatment. In these days when prohibition has even invaded the hospital wards and when the younger generation of physicians is ignorant of the value of alcohol in toxemias, it may not be amiss to lay stress on the great benefit which may be obtained from it in the treatment of these patients.

Cyanosis is another symptom which deserves special notice as characteristic of the present epidemic. It is possible that it may have been present in the epidemic of 1889, but its presence was then attributed to the very free use of the coal tar drugs which had then just come into vogue and which

were used in large doses at that time. I recall now that cyanosis was quite common, but no special stress was laid upon its value as a symptom, as its presence was always attributed to the coal tars and the fact that these patients died as a rule was also attributed to the drugs, and not to the disease. That this inference may have been wrong we know now, when these drugs are being used so sparingly and in much smaller doses.

The cyanosis is so striking that it cannot escape notice. It is most marked on the lips, less so in the finger tips and toes. It is exactly like that seen in cases of methemoglobinemia. It must be caused by some reducing action on the hemoglobin and the explanation of this phenomenon may lead to the discovery of the real cause of influenza. What makes this cyanosis still more striking is its existence in spite of the excellent condition of the heart and circulation and the absence of anything in the lungs to explain its presence. When cyanosis occurs early in the disease it is an almost fatal prognostic. When it appears later, after the pneumonia has developed, it makes the prognosis grave. Oxygen should be given early and freely in order to combat this methemoglobinemia, and to forestall the inevitable pulmonary edema. Unfortunately the fatal result cannot be prevented by its use.

Chills are conspicuously absent. There is only a chilliness which frequently ushers in the disease. It also occurs during the course of the disease when there is a recrudescence of the fever or an additional involvement of the lungs.

The height of the fever varies with the type of onset. It is a more or less continuous fever around 104°, which usually lasts eight or ten days in the moderately severe cases. There is a curious drop in the temperature on the third day. In the milder cases this marks the end of the disease; but in a large number of patients the temperature suddenly rises to 104° or 105°, at which height it remains with daily oscillations of a degree until the eighth or tenth day, when lysis begins; in two days the temperature becomes normal. At times the temperature assumes a distinctly remittent type, but these cases are not common. In the severe types there is a steplike rise of the fever to 106° or higher. When this occurs the prognosis is very poor.

Concerning the duration of the fever, it is impossible to make definite statements, as it may be persistent for two weeks or even more in patients in whom there are successive involvements of different areas of the lung. In the presence of a low blood count, a persistent fever should be attributed to the pneumonia; where there is a leucocytosis, complications should be expected.

After the patient has recovered, low grades of fever, especially after exertion, not infrequently occur for which no explanation can be found. Their clinical significance is as yet uncertain. Thus far, one is justified in believing that they have little clinical significance, but the possibility of post-influenzal tuberculosis should always be borne in mind.

The pulse is slow—about 80 to 90. No matter what the temperature is, there will be a slow pulse of rather large volume, often dicrotic, and reminding one of a typical typhoid fever pulse. It is a wonder to me that any physician should give digitalis in the early stages of this disease. The heart is already under the influence of a powerful vagal inhibitor and the use of digitalis in the early stages is contraindi-

cated. In passing, I might venture to say that the more I see of the epidemic, the more sceptical I have become as to the value of digitalis in the treatment of this disease, for only too often the disease runs its melancholy course in spite of the patients being so fully and freely digitalized. An increase of the pulse rate to 120 with a tendency to go upward, accompanied by a rise in temperature, is an ominous prognostic combination.

The blood pressure remains good and constant, the range being 110 to 120 systolic and 60 diastolic, and one has nothing to complain of in the action of the heart, in spite of the asthenia.

It is well to know that the blood pressure may be good, even when the patients are doing poorly. I believe that death in influenza is due much more frequently to the result of the toxic action on the medullary centers rather than as a result of myocardial changes, for the post-mortem reports all agree that the changes in the heart muscles do not warrant the assumption that they are the fatal factors. Another point which seems to corroborate this is the fact that the early and free use of digitalis does not prevent the fatal outcome. I have not observed a single case in which endocarditis or pericarditis developed. Dilatation of the heart is uncommon even in the presence of marked cyanosis. Another corroboration of this is the observation that all the influenza patients with valvular diseases whom I have seen have borne the disease surprisingly well and the cardiac condition has not been aggravated by the occurrence of the influenza.

The respiration is usually slow and around twenty to twenty-four. It is to be noted that the respiratory rate may bear no exact relation to the pulmonary condition. Thus there may be a rate of twenty-four to thirty with extensive pneumonic changes in the lungs. On the other hand, the respiration may be forty or more, with few physical signs in the lungs. I may refer to a most striking example of this in a young woman whose respiration persisted between 60 and 72 for three days without cyanosis and with only a mild bronchopneumonia. In spite of this very rapid breathing, the patient was lying on her back and not sitting up, as one would have expected. After persisting at this rate for three days, the respiratory rate gradually fell to 30 and the patient recovered. Long ago, Graves called attention to this peculiarity when he described a dyspnea which is not to be explained by any stethoscopic signs. I wish to emphasize the ominous significance of a respiratory rate of forty or more, whether there are physical signs in the lungs or not; it denotes a profound toxemia.

Coughing is an early and persistent symptom which is often very distressing. It frequently occurs when there are few pulmonary signs. The cough is due more to the intense congestion of the trachea and pharynx rather than to the pulmonary condition. A glance into the deeply red glazed throat will give us an index as to the condition of the larynx and trachea. One of the surprising features of the post-mortem examinations is the more or less intense tracheitis; indeed, tracheal ulcers are very frequent. In diagnosis and treatment it is well to bear in mind that the influenzal cough may have these various points of origin.

The sputum is not very abundant. It is usually mucopurulent and is often blood-stained and frothy. It is unlike the sticky, tenacious sputum of ordinary lobar pneumonia. In the fulminating cases with acute

pulmonary edema it may be very abundant.

Nose bleeding is a very common early symptom; so too, is vomiting. The latter is often very distressing. Jaundice of a mild type is occasionally observed; it is probably due to a mild cholangitis, or gastroduodenitis. Another symptom referable to the abdomen is pain. At times, this may be so severe that acute abdominal conditions may be suspected. In the case of a child recently admitted to Mt. Sinai Hospital, the abdominal pain was so severe and cramplike and the rigidity of the abdomen was so great that in the presence of fever and the absence of other symptoms and physical signs, a diagnosis of acute appendicitis was made. As nothing was found at the operation the true diagnosis of influenza became apparent. I have seen a number of patients in my own service in whom the main symptom was intense abdominal pain which was especially referred to the epigastrium. Some observers have reported hemorrhages into the recti muscles, to which they would attribute the occurrence of these severe abdominal pains.

It is worth noting that in former epidemics various skin eruptions were much more common. These included erythemata, roseola, scarlatiniform and measle rashes, urticaria and facial erysipelas. Herpes has occurred as frequently as in 25% of the cases. In the present epidemic the skin shows remarkably few manifestations. I have seen only two cases of roseola. Another point to be noted is the absence of herpes; I have observed it in but three patients who had pulmonary involvement, and I am sure there was a pneumococcus admixture in these cases. Febrile erythema is quite uncommon.

Another significant feature is the absence of the coal tar drug rashes which were seen so frequently in the pandemic of 1889-1890. This represents a great advance in the therapeutics of today. Cutaneous emphysema has been reported by a few observers. It is a generalized emphysema occurring about the chest, neck, face and arms. It is due to rupture of air vesicles, an accident, the occurrence of which can readily be understood when we recall the frequency with which dilatation of the air vesicles of the lungs has been reported by many pathologists.

The ears and sinuses seem to be almost immue in this pandemic. I have seen no case with sinus involvement or mastoid disease, and I have observed only three patients with otitis. The otitis was of a mild type, which yielded to a simple paracentesis; and yet all these cases were fatal. In army practice, I have been informed, ear complications have been more frequent, but the fact remains that this pandemic has been singularly free from these complications. This is in striking contrast to the pandemic of 1889-1890, when these complications were exceedingly common.

The spleen is rarely palpable. Phlebitis occurred three times; in one case it involved both saphenous veins during convalescence, and was ushered in by a fever of 103°. It may be worth while to think of this possibility in obscure rises of temperature during convalescence. In the other patients there was no fever.

The urine has the characteristic feature of any acute infection, but this pandemic has a milder type of nephritis than was observed in 1889-1890, when the urinary changes were often very marked.

Dysuria has been observed very often in this epidemic. It would be a matter of interest to know why this difficulty of urination should occur so frequently. I know of

no other epidemic of this or any other infectious disease in which this symptom has been of such common occurrence.

The blood picture is very characteristic; there is always, even in the severe cases, a leucopenia. The average counts are from 4,000 to 6,000 with sixty per cent. polynuclears and thirty to thirty-five per cent. lymphocytes. High counts usually denote the existence of some complication.

Much has been said of acidosis in influenza and the alkalies have been highly recommended in the treatment of the disease. As yet little has been offered in the way of clinical evidence to prove these statements, and the reputed benefits which are supposed to follow the free use of alkalies; if these statements are true, they must depend upon other factors than an acidosis.

In women, menstruation has been made much more profuse or it has reappeared ahead of time. Women who have passed the climacteric have had metrorrhagia. A far more serious incident has been the effect of influenza on pregnant women. For a pregnant woman to become infected with even a moderately severe influenza has been almost equivalent to a death sentence. Of the 29 pregnant women with influenza whom I have seen in consultation, 24 have died. Of the five who recovered, three developed influenza shortly after labor. Of course in judging figures like these, it should be borne in mind that I have seen only the severe class of cases. A number of communications have been published by physicians in which they report that every pregnant woman under their observation has died. Abortions have almost invariably occurred or, if the woman was near the end of her term, the appearance of labor has been accelerated. This phenomenon is probably due either to hemorrhages in the fetal sac or it may be the effect of influenza toxins on the fetus. Whatever the cause may be, we today know little more than did the older writers who like Pasquier, in 1410 reported that "nearly all pregnant women went into labor before their term"; or Short, who in 1517 stated that "abortions and deaths in child-bed women were common." Peu also briefly stated in 1694 that "many abortions occurred and they were also extreme metrorrhagias, inducing great inanition."

The pulmonary symptoms are the last topic to which I shall refer. They are the most important of all and in this epidemic they have been the cause of the greatest number of deaths, for the influenza of this year has been almost a pneumonic plague. In his interesting report of the pathologic features on the present epidemic, Symmers has forcibly drawn attention to some of the striking similarities of the lungs which are so commonly found now with those which are characteristic of the lungs of the bubonic plague. I have already mentioned the fact that even the earliest writers have emphasized the importance of pneumonia as being one of the most important symptoms of the disease; yet, in none of the epidemics which have been reported has pneumonia been so severe and disastrous.

In this epidemic *every severe case of influenza has bronchopneumonia.* It is an error, however, to say that pneumonia exists in every case of influenza as some recent writers would maintain. To them the characteristic sticky rale is always a sign of bronchopneumonia. Nothing could be more erroneous, for the sticky rale is due to a bronchiolitis and nothing more. Patients with sticky rales are candidates for pneumonia; pneumonia may develop where they exist, but something more than sticky

rales must be present before a diagnosis of bronchopneumonia is warranted. The earliest changes which justify such a diagnosis are the sticky rales, plus localized broncho-vesicular breathing and slight changes in the whispering bronchial voice. Later on, slight changes in the percussion note can be elicited. When the areas are larger and have coalesced the breathing becomes more bronchial and the whispering bronchial voice is more pronounced. The percussion note becomes duller, but it is often Skodaic or has a peculiar wooden tympany or a flatness which is due to the presence of aerated areas between the patches of consolidation. Not infrequently, where larger areas become involved, areas of diminished breath sounds will be found before the true signs of consolidation appear. This is a sign which is usually neglected because most physicians do not look for it and hence do not appreciate its importance and value. The changes in the vocal fremitus are inconstant, depending on the freedom of the aeration of the involved area.

In all examinations of the chest in influenza, and it is equally important in all examinations of the lungs, it is most essential that the patient be made to cough during the examination, because by securing the aeration of the bases of the lungs, by the removal of bronchial secretions, one can detect physical signs of consolidation which would otherwise escape detection. While it is remarkable how rapidly large areas of consolidation will appear in influenzal lungs, yet indications of these areas can usually be detected before-hand, if careful physical examinations are made.

The portions of the lungs which are most frequently involved are the bases, less often, the roots of the lung in the interscapular spaces. The apices are seldom attacked and then only as an extension of the process. Hence, the bases of the lungs and the interscapular regions should be the parts first examined and not the last, as is so frequently done.

The X-ray examinations of the chest have always confirmed the demonstrated signs of consolidation. They usually show that the lesion is much more extensive than the physical signs have indicated. Sometimes areas have been found in the X-ray plates where the physical signs do not indicate them; but this has been a very exceptional occurrence in influenzal pneumonia for careful examination will usually demonstrate even small areas of consolidation. Exception must be made for the rather exceptional cases where sticky rales do not appear and where the process has been central rather than peripheral. In these cases comparatively large areas of consolidation may appear suddenly.

The resolution of the consolidated areas is very variable; in many cases it is rapid and complete; in others, it is extremely slow. That resolution should so often be delayed is readily explained when one recalls that the amount of interstitial changes in the lung in influenzal pneumonia is unusually great. This has been demonstrated by many pathologists, and it is very apparent in the X-ray plates in patients with delayed resolution. These small areas of consolidation stand out very prominently, and the possibility of their persistence must be borne in mind in cases where a first influenzal tuberculosis is suspected. Sticky rales often persist at the bases of the lungs for a long time after convalescence has been established. I believe too much stress has been laid by many physicians upon their persistence.

In passing, I might state that I have tried to hasten the delayed resolution by the use of X-ray treatments. The results so far obtained do not justify any opinion upon the value of this plan of treatment. It does seem, however, to have some beneficial effect.

In this epidemic, the pleura has remained singularly free from involvement, and here again this epidemic is strikingly unlike the epidemic of 1889 where pleural effusion and empyemata were frequently observed. Nearly all observers are agreed as to this and the clinical reports have been corroborated by the pathologic findings. In some camps a fairly large number of effusions have been reported, but this is so exceptional that one should be reserved in his judgment before accepting these reports.

At the beginning of the epidemic there were almost no pleural effusions; they were observed more often towards the end of it. The effusion may be serous, sero-purulent or purulent. In nearly all the empyemata at Mt. Sinai Hospital, pneumococci were found in the pus. This would lead one to believe that when empyemata occur they are the result of mixed infections rather than due to a pure influenzal process.

I know of no more difficult diagnostic problem than the correct diagnosis of these pleural effusions in influenza. Errors have been so frequent that a correct diagnosis is more often a matter of chance rather than the result of a correct interpretation of physical signs. That this should be so is readily understood when we recall that the effusion is always associated with a consolidated lung and hence the ordinary diagnostic signs of effusion cannot be depended upon. These consolidated areas are poorly aerated and atelectasis is by no means uncommon. The flatness may be due to the consolidation; the fremitus is usually absent in influenzal pneumonia, likewise the voice and breathing sounds in influenzal pneumonia are very variable. Where displacement of the heart occurs the diagnosis is easy.

Aspirations are not always satisfactory as the amount of effusion may be very small. X-ray examinations have been equally unsatisfactory for when the physical signs left one in doubt and the X-ray report indicated fluid, the aspirating needle only too often failed to confirm this.

Abscess of the lung has been very infrequent. I observed only two instances of it. Both of these patients are progressing favorably, but of course it is too early to predict what the outcome will be.

I have by no means exhausted all the various clinical features of this disease, as it has manifested itself in this epidemic, for the time at my disposal will preclude any such attempt. Neither will I attempt to say anything about the sequelae, as it is yet too early to say what these will be. To one probable sequel, tuberculosis, I would draw special attention. The experience in the last epidemic of 1889 should not be forgotten. Many old foci were lighted up; acute tubercular pneumonia was not infrequent. I have already observed one such case. One should therefore always be on one's guard for the possibility of the development of tuberculosis after influenza. It may also not be amiss to emphasize the warning that one should be especially careful in the prognosis in any case of influenza which occurs in a person who has had tuberculosis. Such patients bear the disease very badly, for all the patients of this class whom I have seen, with one exception, have succumbed.

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NOTES ON THE DEFINITE MANAGEMENT OF PNEUMONIA AS CARRIED OUT IN THE SERVICE OF PROF. S. SOLIS COHEN.[1]

BY

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The use of quinine in the treatment of pneumonia is very old. As systematized in late years by Dr. S. Solis Cohen who has employed this drug since 1904, the treatment has been greatly modified especially by the conjoined use of pressor agents (cocain or pituitrin) and digitalis. He does not term it the quinine treatment, however, but the *definite management*. I will quote on this point from his address before the New York Association of Physicians in January, 1916, as reprinted from the *New York Medical Journal* for June 3, 1916:

"But I wish to use the term definite management and to iterate and re-iterate this term until all possibility of mistake disappears, in order to guard against the more important error involved in giving to this plan of treatment the name of any drug or of any measure of nursing tactics. It is not *quinine treatment* nor the *bacterin treatment*, nor the *fresh air treatment* nor the *oxygen treatment* nor *cocain*, nor *pituitrin treatment*. It is the utilization of all these and still other tactical measures as needed—not in haphazard fashion, but thru their incorporation into a definite strategical plan. Thus its measures embrace, when needed, all that is good in the expectant plan or available in the way of specific treatment; but with certain definite additions managed in a definite way."

In the first report issued by Dr. S. Solis Cohen of the laboratory studies which he has been making or which have been made under his direction by Drs. Kolmer, Heist, Steinfeld, Weiss and others[1] he gives the following historical resumé: "Since this clinical testimony is largely ignored or forgotten, a few illustrative quotations from teachers of international repute as well as from a county practitioner of large experience are worth making note of: 'Administered at the critical moment' says Bartholow (1876), 'a commencing fibrinous pneumonia may be suppressed by a full dose (20 to 40 grains). Its power in this respect is much increased by combination with morphia. If the time has passed for the use of quinia, in this way, it is employed with advantage in small doses (2 to 4 grains) given frequently.' Solis Cohen repeatedly heard J. M. DaCosta state in the course of that master's lecture on the practice of medicine (1880) that full doses of quinine, administered shortly after the initial chill, will often arrest the development of acute lobar pneumonia. 'It is difficult to prove this fact,' DaCosta would continue, 'because one has no means of showing that what is absent was on its way—yet it is true. The fact that pneumonia sometimes aborts spontaneously, or runs a very short course, does not negative this view. The real difficulty is that one rarely sees his patient soon enough.' Perhaps the most emphatic of modern champions of the use of quinine is Juergensen (1871) who wrote:

" 'For children I use a grain and a half (0.1 grm.) for every year up to five years of age and after this period, from seven to fifteen grains (0.5 to 1 grm.) according to circumstances. The quantities may be exceeded without doing any harm. When the fever is intense, seventy-five grains (5 grm.) may be given to a strong adult and fifteen grains to a child under one year, always in one dose. I have repeatedly used both these amounts. I have acquired my

[1] Read before the West Branch of the Philadelphia County Medical Society, March 19, 1918.

[1] *Journ. Infectious Diseases*, Vol. 20, No. 3, Mar. 4, 1917.

experience by gradually increasing my doses and I have never seen harm done; in fact, it is my firm belief that these are not the extreme limits as to quantity—I know that many will be alarmed at such large doses. My teacher is experience. Only fools resist facts. . . . . The heart is the guide. . . . . Whoever examines the pulse walks safely; whoever fails to do it easily stumbles. I have never noticed any harm done by quinine. The pulse falls at the same time with the temperature but remains full and strong or is improved in character if it had previously been weak. The discomfort on the part of the patient is generally not much greater than from small doses and disappears rapidly.'"

O. T. Schultz of Mt. Vernon, Ind., a small country town in the confluence of the Ohio and Wabash Rivers, states that his "practice lies largely in the bottom of these rivers and among farmers more or less exposed to the vicissitudes of a country that is being opened up and brought under cultivation. From May, 1875 to May, 1886, he had under observation 238 cases of croupous pneumonia, not malarial, few of which presented the sthenic type. Under treatment with quinine, supplemented by by zinc phosphide and by camphor and digitalis when necessary, the mortality was 6.5%." He explains that he means by a "typhoid pneumonia" a croupous pneumonia that in an enfeebled constitution runs an adynamic course and makes the following poignant comment:

"How quinine accomplishes good results . . . has not yet been determined. I opine that it is not by its fever-lowering property for I have seen the general condition . . . . . improved even when no impression was made on the temperature . . . . . Our 'typhoid' pneumonia is very *fatal* and quinine in large antipyretic doses may not reduce the morning temperature at all and yet . . . . . influence for good the course of the disease. There seems to be inherent in quinine, when given in large doses, a specific power of so influencing disease attended with great and rapid tissue metamorphosis and retention of the waste products of such tissue changes in the system, that these diseases take on a more favorable course and come to a more happy issue under its use."

F. P. Henry, in discussing the reports made by Cohen in 1911 to the Association of American Physicians, stated that following Aufrecht and Petzoldt, he had resorted to the subcutaneous use of quinine salts in his cases of pneumonia since early in 1902.

"I have never published a report of my cases in detail," he added, "but in a paper in the *Philadelphia Medical Journal,* 1903, I referred to this method of treatment, mentioned my employment of it, and heartily endorsed it. I corroborate all that Dr. Cohen says in its favor. I have not used the large doses which he employs. They did not seem to me to be necessary and this may be because the preparation which I employ—the hydrochlor sulphate—is richer in quinine than the double salts of quinine and urea."

G. A. Gibson of Edinburgh writes:

"In cases showing severe toxemia and great leucocytosis, much may be done by the employment of quinine. In several instances of this kind—in which the patients had even reached a stage of profound coma, with complete relaxation of sphincters, and every evidence of imminent danger—the hypodermic use of quinine has produced the most remarkable effect. The best preparation for this purpose is the acid hydrochloride, which is extremely soluble and which may be administered hypodermically in doses of two grains every two hours, or every hour. No more gratifying results have ever occurred in my own hands than from this method of treatment."

And a few months before his death, in a letter to Dr. Cohen, he wrote that by the latter's reports he had been encouraged to use quinine more boldly, especially when it was guarded by cocain or a posterior pituitary preparation as recommended, and that he believed he had saved the life of "a dear friend eighty years old in that way."

The laboratory studies alluded to have thus far proved the following facts: that all

the cinchona derivatives show a specific bacteriotropism toward the pneumococcus in all its varieties; in other words that they tend to kill this germ in a very definite manner in weak dilutions, and further, that this germicidal action is much greater than these quinine solutions possess against other germs; or than phenol, corrosive sublimate and other antiseptic drugs exhibit toward the pneumococcus. In this regard the most active of the cinchona compounds is a drug prepared by Morgenroth, synthetically and named by him optochin, a coined Greek word meaning "the best quinine." Chemically it is ethyl hydrocuprein, while quinine may be defined a dehydrated methyl hydrocuprein. This latter is not the strict chemical terminology but it tends to show the close relationship between the two drugs. A solution of optochin hydrochloride containing 1 part in 1,000,000 to 1 part in 2,000,000 will destroy the pneumococcus. The natural quinine salts are not so active. Quinine dihydrobromide has a germicide power against the pneumococcus of 1:100,000 to 1:200,000; quinine hydrobromide a power of 1:50,000 to 1:80,000; quinine bisulphate the same; quinine and urea hydrochloride from 1:20,000 to 1:40,000. These figures represent solutions in water in test tube experiments. In solutions in serum it was discovered that the activity of ethyl hydrocuprein was reduced to ⅕ of its former germicidal value and sometimes to 1/10; while quinine hydrobromide and quinine dihydrobromide were twice as powerful in serum as in water, thus almost wiping out the difference between them and optochin. The germicidal power of quinine and urea hydrochloride was only slightly decreased in serum, but its great advantage and that which won for it a place in the definite treatment as at first instituted is its ready solubility for use as injection into vein or muscle. Ten grains will dissolve in 10 minims of hot water and is used as a rule in 25 to 50 per cent. solution freshly made as it decomposes readily unless sealed in sterile ampoules. The usual dose, 15 grains (1 grm.), is dissolved in a syringeful of hot boiled water and *injected into the muscle,* the skin should first be painted with tincture of iodine, of course, and care exercised not to drop any of the quinine solution on the skin before or after the injection and the puncture should be sealed with collodion. These precautions are necessary in order to prevent necrosis and abscess, which might otherwise occur.

The solution may also be prepared for intravenous use by dissolving the required dose of the drug in 25 to 100 c. c. of sterile salt solution (0.85 per cent.). Tap water can be employed but fresh distilled water is best. If desired this can be rendered alkaline by adopting a suggestion of Mr. Charles Weiss who has been conducting some experiments for Dr. Solis Cohen at the McManes Laboratory, namely, to utilize the neutrality-maintaining property of solutions of mono- and di-sodium phosphates in distilled water. This is the method employed by some manufacturers in the making of ampoules containing 1 gram of quinine and urea hydrochloride in 5 mils of solution. These solutions can be injected directly into the muscle or vein or may be diluted to any required strength by the addition of physiologic saline or *freshly distilled water.*[1]

While intravenous injection is the most active way of giving drugs, good results are

[1] Intravenous injections made by any of these methods are quite safe, provided the usual aseptic and antiseptic precautions are observed. In a few cases a decided reaction has occurred but in most cases there is no more disturbance than when the drugs are given by skin or mouth.

obtained by the intramuscular and oral routes, tho less promptly and less certainly. A good plan is to give an intravenous or intramuscular injection of 10 to 25 grains (0.6 to 1.5 grm.) at the beginning of the attack and then keep up the effect by oral administration, when the employment of syringes is not convenient.

At the Jefferson Hospital, Dr. Solis Cohen has been observing the effects of quinine dihydrobromide by the mouth, giving 15 to 25 grains for the first dose and then 10 to 15 grains every 3 hours and the results thus far have been quite good; 13 recoveries in 15 cases so treated. One of the deaths was of a man 50 years old brought into the hospital as a case of uremia, being a subject of chronic nephritis and was discovered to have pneumonia while in the ward. Recovery in this case was hardly to be expected, death being caused by uremia. Excluding this death, there is a mortality of 7 per cent. in this short series treated orally with quinine dihydrobromide. Further experience may not prove so favorable. To be accurate in mortality reports nowadays, the type of pneumococcus should be stated but this has not been possible in many cases. Insofar as it has been obtained, the results are as follows: In type I cases in which serum gives 90 to 95 per cent. recoveries, the definite management proves as favorable. In type II cases in which serum gives about 60 per cent. of recoveries, the definite management obtains 80 per cent. In type III cases, neither serum nor the definite management gives a very large percentage of recoveries, 50 per cent. being a good result. These are not as common as types I and II fortunately. Type IV varies so much, some of the cases being very virulent while others are quite mild, that scarcely any definite figures can be quoted, but 100 per cent. of recoveries in the mild cases and from 60 to 70 per cent. in virulent cases can be obtained. If the patients are alcoholic, or are derelicts of poverty and dissipation and often, in addition, veritable "pathologic museums," as in the cases at the Philadelphia Hospital, favorable results are not expected. Less than a 50 per cent. mortality in the large run of cases there is considered good, but during the employment of the "definite management" over a period of 12 years the mortality was only 30 per cent. The general mortality over a period of 14 years without reference to type and including the pathologically bad cases of the Philadelphia Hospital is about 25 per cent. The mortality, exclusive of the Philadelphia Hospital cases, but including the patients at the Jewish and Jefferson Hospitals, and also without reference to type, is somewhat less than 15 per cent. If selection is made of the more favorable class of cases, *i. e.,* patients under 50 years of age seen before the third day and under favorable circumstances, but including all types, the mortality is less than 5 per cent.

Three cardinal points are used to guide the treatment: (1) The temperature; (2) The relation between pulse frequency and the systolic blood pressure; (3) The relation between respiratory rate and the diastolic blood pressure. All these points, however, are arbitrary.

1. *Temperature.* The treatment is not designed to be antipyretic as it was in the hands of Juergensen. The object is not to reduce temperature, that is an incident. The reduction does, however, show that the patient is under the influence of the drug and the question is how far it is wise to let that influence go. Arbitrarily the limit of 102 degrees is fixed; quinine is given

every 3 hours until that figure is reached, then stopped until the temperature shows a tendency to rise and repeated as needed. Cinchonism does not occur with the quinine salts. Amaurosis may occur when optochin is employed; therefore quinine, altho less active germicidally, is to be preferred. Optochin is also more dangerous because it is more apt to cause cardiac paralysis. It has been used quite extensively at the Rockefeller Institute, but the results there have not been as good as Dr. Cohen's with quinine. Optochin and serum together give better results in type I cases than does serum alone. This is also true of quinine and serum. Indeed the very best treatment available consists of a combination of serum and a cinchona derivative.

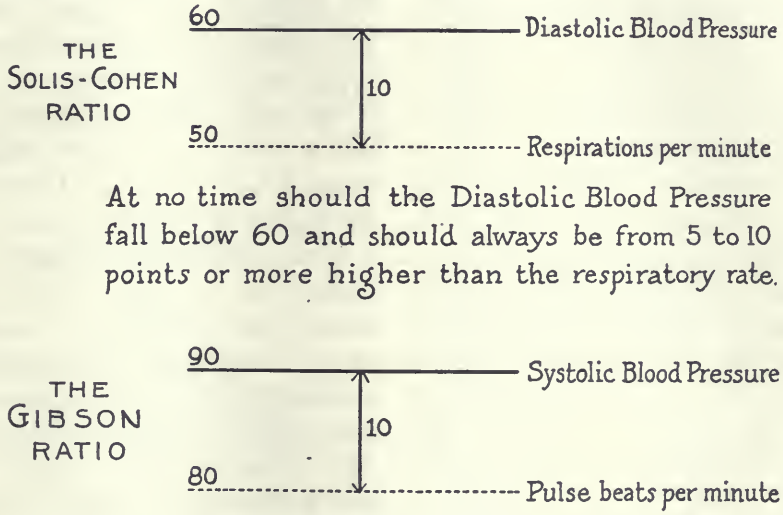

Chart illustrating five points in prognosis, as well as indications for treatment along the lines of "definite management."

2. *Pulse—systolic pressure ratio.* Gibson of Edinburgh pointed out, and Hare of Philadelphia confirmed the prognostic value of this ratio. When the pulse rate in beats per minute equals or exceeds systolic pressure in millimeters of mercury there is danger. When the systolic pressure exceeds the pulse rate, the prognosis is so far favorable. To maintain this ratio Dr. Cohen uses ½ grain cocain hydrochloride hypodermically or 1 c. c. (mil.) of pituitrin intramuscularly and repeats this every three hours so long as the pressure curve is below or less than 5 points above the pulse curve. Pituitrin has the additional advantage of tending to prevent paralytic distention of stomach or bowels and he uses this now almost entirely.

3. *Diastolic pressure and respiration.* Dr. Solis Cohen found a prognostic relationship to exist between these two, similar to that pointed out by Gibson between the pulse and systolic pressure. Dr. Cohen takes this ratio as an indication of the heart force, with relaxed arteries and so whenever the diastolic pressure tends to fall

within 10 points of the respiration rate, gives digitalis every third hour, preferably an active preparation like digalen, 20 minims hypodermically. Tincture digitalis by mouth, 10 to 30 minims can be used afterward to keep up the effect. It is well to give the first dose of digalen hypodermically at the beginning of treatment and thus be prepared, since digitalis is a slowly acting drug and would often prove useless if not given until absolutely needed. One dose a day is enough for this prophylactic treatment, but if indicated, it can be employed every 2 to 4 hours. Other preparations of digitalis may be administered, the point being to use *enough,* and to use it *promptly.* Other indications are treated as follows: when pulmonary edema threatens, blood is taken from a vein if possible, this being more efficacious than wet cupping and disturbs the patient less. Many lives are thus saved especially in cases of cardiac disease prior to the pneumonia. Venesection may become necessary suddenly or its necessity may be foreseen in time to do it leisurely. Usually it will be required, if at all, between the third and sixth days. Its aim, of course, is to relieve the distended right heart and overfilled veins. The *urine* must be made and kept alkaline and no less than 2000 mils, better 3000 mils, should be voided daily—that is 2 to 3 quarts or from 64 to 96 ounces. For this purpose 6 to 8 ounces of water containing 5 grains of sodium phosphate, 5 grains of sodium chloride and 10 to 20 grains of sodium bicarbonate with or without lemon juice for flavor and effervescence are given hourly during the day time. The patient, by the way, is not to be disturbed for this or any other purpose between 9 P. M. and 6 A. M. except in case of an emergency. Ammonium chloride may be substituted for the sodium chloride when preferred. If the patient will not drink this alkaline saline beverage as it is called, plain or mineral water may be given and the alkaline saline administered in capsules, or liquor potassii, sodii citratis or Basham's mixture may be prescribed.

We try to keep the urine up in quantity, alkaline or neutral in reaction as an index that the blood is alkaline or neutral and to supply chlorides. If necessary or more convenient, and especially in delirious patients, small saline infusions are given instead of the other measures, somewhat after the method of F. P. Henry, once or twice daily under the skin or into the rectum. If hypodermoclysis is employed, the solution is run under very slight pressure elevation and very slowly—from 100 to 250 c. c. in about 20 to 25 minutes. Larger quantities and rapid flow encourage pulmonary edema. It is scarcely necessary to emphasize the importance of keeping up free and slightly watery bowel movements. A danger especially guarded against is dilatation of the stomach, which may be recognized by hiccough or may be unrecognized unless carefully looked for. Dr. Solis Cohen insists that daily or more frequent percussion for stomach tympany is more important than percussion or auscultation for physical signs in the lungs, for it is not wise to wait for tympanites evident to the eyes. Lavage of the stomach with hot saline solution, repeated as necessary; injection of 1 mil of pituitrin hourly for at least 3 doses; or pituitrin alternating with eserin salicylate (2 doses of each) will generally overcome the condition and save many lives. The same treatment is useful in intestinal distention. Open air or at least fresh air, good nursing and proper feeding are included in the "definite management." Also

camphor, strychnine, atropine, spartein, oxygen are employed for special indications, but they are not needed frequently. Expectorants are not necessary. Opiates are used only exceptionally to produce needed sleep in cases admitted late—cases admitted early do not as a rule require "sleeping potions." The great and manifest effect of the treatment is the increased comfort, or rather the absence of distress of the patient. One does not suppose he is in a pneumonia ward. This is true even when the patient is feeble and the virulence of the attack so great that recovery does not occur. Suffering is prevented. It is also noted that fever subsides by lysis and not by crisis, thus avoiding one of the dangers, as Fenwick has shown that the majority of deaths occur in the period of critical or pseudo critical collapse.

MAKING MEN.

BY

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"Ever since the world began,
It has been an easy thing,
Just to make a man a king,
Hard to make a king a man."

In the October number, AMERICAN MEDICINE has a twelve and a half double column page article, in which its author argues or assumes a certain doctrine of eugenics, and which expresses some good ideas. The two texts with which it closes, one from Goldsmith, and one from Ecclesiastes are excellent and worth oft quoting:

"Ill fares the land, to hastening ills a prey,
Where wealth accumulates, and men decay."

"Whatsoever thine hand findeth to do, do it with thy might; for there is no work, nor device, nor knowledge, nor wisdom, in the grave [Hebrew, *Sheol*] whither thou goest,"

What is said, too, in regard to excessive number of children, especially "in the warrens of the poor," is also excellent; and our good friend, Mr. Roosevelt, might profitably read it, and more in that line.

But the idea that the returning soldiers are the only men fit to perpetuate their kind looks to me erroneous. To judge the unknown from the known, in my little town are two classes—not to mention more—the most worthful, and the least worthful, generally so recognized thruout their lives. The selective draft has left a good number of the very best, and taken some of the unfit, the ne'er-do-wells. Most of these latter will soon return, and, according to the article under consideration, ought to be kept for breeding purposes, while the others, not drafted but serving at home, whose families have long been the bone and sinew, the mind and morals of the place, should be damaged and turned off into a back pasture somewhere.

The Germans are cited in illustration of the value of this method of breeding humans; yet later their inhuman character and savagery are referred to, and yet again the following words, perhaps true, occur in the piece: "The Zulus are a noble race compared with the savage Huns. The Zulus are a race which should be perpetuated, while the Germans have shown themselves unfit for a civilized world." Why then the wish to copy their breeding methods? The piece disbelieves in the propriety of preserving the feeble and the otherwise unfortunate, saying, "The cry now-a-days is for more hospitals, more sanatoriums." But can the strong, themselves be saved from sinking into this same spirit of German savagery, if they will not care for helplessness and pain, but pierce it with the dagger of hate? This care, wrought into hospitals and sanatoria and into any deeds of self-giving for reclaiming from agony and death their never-ending army of victims, makes

men, and not savages of us. Appeal is made to nature, but nature's answer is: "Helpfulness, or death and ruin of the race." Nature bids the mother give the strength of her arm, the beauty and color of her cheek, for the weakness that cries in the cradle. And if she heed it not, our race is doomed. Only so can humanity be preserved. Without care for weakness, this earth must be given up to the beasts. Without concern for weakness, even the beast life must cease to save its young, and so perish from the earth, leaving it alone to vegetable life.

The very ravens put a sentinel, one of their number, in a tree to wait, that it may watch, while they eat. The leader of a herd of horses or bisons risks his life for the herd when cornered in attack. And it is this spirit in the soldier which we really wish to recognize and praise when, on his return, we honor him with loud acclaim, or quiet love and reverence. This self-giving spirit is what makes the brave and worthy soldier, in contrast with the self-seeking savage, which the German of today is seen to be. The less there is of living for self to make ourselves the inheritors of the earth, and the more we do and give to bring might out of weakness, the better shall we be worth the place we occupy in the world, and the more unlike German savagery, with its "world conquest or downfall," shall we be.

Hospitals and asylums were the products of religions; the former of Buddhism, the latter of Mohammedanism.

The theory herein doubted would, logically, require the state to kill the sick, the insane and the old, and to keep the brutal Kaiser and his kind because of their fine physiques. The article in question assumes as its doctrine of eugenics that the best men are made after the manner of making the best animals. Buddha and Confucius are two great names of antiquity, with vast followings to this day. Did either of them have a father at all like or almost equal to the son? Was the father of Socrates or of Plato a philosopher? Were Shakespeare and Robert Burns the sons of poets? One, the greatest poet of the world, the other, the greatest of Scotland, and each of them knowing philosophy better than all the philosophers. Did Tycho Brahe, the great Dane, Copernicus, the great Pole, and Sir Isaac Newton "at the head of the human intellect" derive their astronomical powers from fathers bred for that purpose? All were poor enough. Immanual Kant, Germany's greatest philosopher—of Scottish descent—was the son of a saddler, and was feeble in health. The theory that the ailing are worthless is disputed by the lives of Harriet Martineau and George Eliot, the two greatest literary women of their century, and by the lives of Darwin and Herbert Spencer, greatest in science and philosophy, perhaps of all time past, none of them robust. Were Benjamin Franklin or Abraham Lincoln bred for greatness, in their respective fields?

Did any of these great men ever have a great son?

Environment also has it work. But for the accident of war, who would have heard of Grant? But for slavery would Lincoln have been known as great?

The theory that men are best bred on the principles of the barn-yard should be proven and not assumed. The article questioned refers us to Friesian cows, as examples. The methods good among cattle have their limits among mankind. Human heredity is but poorly understood. The poet is probably in part a kind of accidental product. The small idealism of the father and of the mother

may be doubled sometimes in the offspring, producing a poet, and at other times not so. And so of other faculties. But the fact remains that rarely has a great man a great son, and that out of the very soil of humanity, greatness arises to confound our carefully wrought theories. But all about us we may see greatness, potential, and beauty, poetry, art, loveliness, which may be brought forth for the world, if ever the sunshine and the showers of favorable environment kiss them and weep them into power.

BIRTH CONTROL AND THE GERMAN WAR.

BY

THEODORE SCHROEDER,

New York City.

I am not going to claim that German birth control would have prevented the world war. However, it will appear that the encouragement of large families was one important factor in bringing on the war, and that an approach to overpopulation made it acceptable to the masses. What is more important, perhaps, is to understand the dominant attitude of the German mind upon the problem of birth control and then to see the relation of that mental attitude to the problem of militarism and to the militarists' ambition to dominate the world. If once we acquire a clear comprehension of that type of mind in Germany, it may even help us to understand also a few of our own countrymen, with similar impulses.

Once having a thoro understanding of that attitude, we may also understand how a change therein (a reconditioning of the desires and mental processes) would produce such a revaluation of our "moral" values that perhaps we will be made to think that freedom for birth control and a permanent peace might best come together.

What I wish to do is to portray what I believe to be the dominant German state of mind, by exhibiting how it unavoidably linked and promoted both large families and war, as an expression or manifestation of a lust for power that is functioning at a low cultural level. Let me call this the feudal attitude of mind and try to describe its behavior. Perhaps if our people become definitely conscious of its characteristics and meaning we will be more conscious in an effort to outgrow it and in avoiding its influence in the future.

THE FEUDAL MIND.

For the feudal lord and under the feudal law, the serfs were considered a part of the real estate and transferred with it. In the thoughts and feelings of the feudal lord the serf was quite effectively dissociated from the rest of the human family. One can imagine the mental state which quite unavoidably reacts toward serfs as one does toward domestic animals. Both were valuable largely in proportion to their reproductive efficiency. Frederick the Great in 1741 expressed this attitude in these words: "I look upon men as a herd of deer in the zoological gardens of a great lord; their only duty is to propagate and fill the park."[1]

This attitude is not a characteristic of the German feudal mind alone but of all feudal-minded persons. In France, Napoleon was one of these feudal-minded persons who

[1] Bebel, "Woman under Socialism," p. 25, citing Kautsky's "*Ueber den Einfius der Volksvermehrung auf den Vortschritt der Gesellshaft.*"

needed "food for cannon." When the brilliant Madame de Stael asked him, "Who is the greatest woman?" Napoleon answered: "She who has borne her husband the greatest number of children." In other words, the performance of other and distinctly human social service is not thought of as a function of woman any more than as a function of domestic animals. A career of service may supplement prolific motherhood, but by the feudal-minded ones cannot be accepted as a substitute for fecundity.[1]

The same attitude of mind found expression in England as late as 1794. Mr. Arthur Young was resisting the claim of democrats for the reform of the British Parliament and was opposing a proposed dominance of England by the House of Commons. It is a characteristic of all feudal-minded persons that they live in the past and look back for ancient precedents, rather than to intellectual evolutionary processes which produce new precedents. Thus Mr. Young justified his position by referring back to the time of Edward I and Edward II when he says none had representation in parliament but "land possessors holding by military tenure; all beneath were of no more account, in great national assemblies, than the cows, sheep and hogs of the kingdom."[2] We all see a few such feudal-minded persons even in our own time and in our own country. Most of the readers can at once name a man in the United States who is conspicuous for his boisterous support of militarism and equally prominent in opposition to birth control. He is also eminent for the vehemence of his opposition to all power not vested in himself. This hatred is only equalled by the facility with which his "practical" tendencies induce subservience to other masterful men when it can be made the means of increasing the consciousness of power in himself. These are perfectly good manifestations of medieval cultural development, such as dominates in Germany more than in most modern nations.

[1] *Ibid.* T. Roosevelt has also expressed this thought.

[2] John Cartwright, "The Commonwealth in Danger," p. XLVI (1795), citing Young's Travels in the years 1787, 1788, 1789, p. 238 [Edition 1794?].

MODERN GERMAN ATTITUDE.

Sometimes a physical inferiority in youth, a defective organ, or an emotional conflict, prompts individuals to be overstrenuous in seeking compensation for their inferiority thru phantasies of grandeur, or by some extraordinary exertion to impose themselves upon the world by other and relatively overdeveloped faculties. Sometimes this compensation is secured by becoming a mere common scold. Often it is by this means that some feeling of inferiority produces such intensity of compensatory desire, that we make *our* scheme of life a "moral" duty to be imposed upon others, if possible, as a means of reassuring ourselves that we are not inferiors. Our wish may acquire for us the importance of a divine command. Thus we may come to act as tho we felt ourselves the agent of God for imposing His will, or rather *our* divine will upon the world. This summarizes, too, briefly and inadequately the psychology of the Kaiser and of his noisiest competitors residing in these United States. It may explain for the genetic psychologists the importance which they respectively attach both to large families and to militarism. By these identifications of the self with the great human forces of reproduction and wholesale destruction, they protect

themselves against some feelings of inadequacy, which are hidden from most persons not yet familiar with the psychogenetic approach to the understanding of humans.[1]

In its more morbid condition, I found this mental state illustrated in an insane mulatto. To escape his feeling of inferiority, he desired personally to go to the battlefields of Europe, and he thought that, with a couple of revolvers, he could kill off all the men in Europe. He said that afterwards, as the sole surviving male, he would repopulate the earth. Here we see the fantastic extreme of that general mental attitude which would control the destiny of the world by using the "moral law" and penal code for controlling its birthrate, and then control its death rate by war. So do such persons seek to approach or imitate omnipotence. Thus do our impulses behave when they are functioning near the evolutionary level of the savage, or near to those who have a morbid desire to play the role of omnipotence over life and death.

Now let us trace the operations of this feudal-mindedness among the Germans to its ultimate influence in producing the present world war.

STATE GRANDEUR AND FECUNDITY.

This policy of blind devotional obedience to the mating instinct was encouraged in Germany so long as it was carried on within the civil status of legalized marriage. Beyond that it is displeasing because, when progeny is the product of unconventional union, it denies to the feudal mind that consciousness of power to control which it craves and which is so pleasing to the governing classes of Germany. The feudal-minded person seldom thinks in terms of his own psychology. Hence his feelings against birth control are always justified in the name of his God, his morality or even pious submission to a supposed biologic necessity as a *sacred* means to national vigor and greatness, that being an object of reverence. All that means an increase in those feelings of exaltation upon which are built all morbid delusions of grandeur. In that state of relative undevelopment it seems impossible to think in terms of racial culture and service. So all must be viewed from the standpoint of national prowess. That is the farthest reach of their undeveloped feelings and imagination. "The interests of the State," declared Prof. A. Schlossman, "require an increased population, tax-payers, soldiers, workers—the more, the better for the State." From the viewpoint of the feelings and from the economic standpoint, the State is practically identical with the interest of the privileged classes, and such of their victims as have an emotional identification with them. Professor Schlossman expresses their typical attitude.

Emperor Wilhelm announced in 1909 that he was willing to be the godfather to the eighth child in every German family. He was brutally frank as to his reasons. The newspapers publishing the imperial order announced at the time that "the Emperor hopes by this means to assist to bring about an increase of the German birthrate, which plays an important part in the strengthening of German military power. Recent years have shown signs of a diminution in the percentage of births, a circumstance which not only the Emperor, but many eminent statesmen besides, regards as a grave national danger." We will now trace the results of this feudalistic attitude of mind upon the industrial situation.

It is an agreeable occupation of many of the fortunate classes, especially of Germany, to maintain this vicious circle; artifi-

[1] See: Adler—The Neurotic Constitution.

cially accelerate reproduction; then comes industrial unrest, which in turn compels entry upon aggressive policies of colonization and conquest, in order to make room for the increased population and furnish enlarged opportunity for exploitation. Then accelerate once more the reproduction in order to make more efficient the necessary colonization and conquest. Once this policy is definitely entered upon, any decrease in the birthrate seems to portend possible loss of political and economic might for the privileged few. To practice or advocate birth control is, therefore, proclaimed both blasphemous and treasonable. It also means the loss of stimulus for the phantasies of grandeur with which the exploited classes compensate themselves for their misfortune. Acute overpopulation tends to produce revolution and democratization, unless relieved by colonial expansion and conquest. So the successful opposition to birth control stands as a bulwark of the privileged classes and military-minded everywhere. The disinherited can secure compensation thru glorifying themselves by a childish pride in the size of their family or of their country, or even measure their own exaltation according to the economic, political or military grandeur of their exploiters. Again they retrieve themselves by a brutal exploitation of the still more backward ones or even their own progeny. Thus always do slaves find compensation for their ill fortune by cultivating a consciousness of superiority relative to some one who in fact or phantasy is still more degraded. It is probably this desire for compensation that makes the slaves of German autocracy eager to enter upon wars of conquest.

So they accepted the argument that the workers must reproduce to provide soldiers for the defense of the fatherland and of colonial markets, while the fortunate classes must provide officers and leaders. This constant increase in population raises the tension at home and increases the need for further expansion. Thus the vicious circle is maintained largely because the German aristocracy willed it and because the exploited population at large is not yet sufficiently awake to appreciate the importance of consciously directed parenthood as a more intelligent mode of solving the problem of local overpopulation and of wars for territorial or commercial expansion.

OVERPOPULATION IN GERMANY.

Intelligent observers in close touch with social conditions in Germany had come to believe that, under existing economic conditions, the German Empire had probably reached about the limit of its density for a home population, if the sixty-five millions of inhabitants are to maintain themselves in accord with modern standards of living. Already a considerable portion of its population had been impelled to emigrate. Former emigration was much more formidable, probably because in the past it contained elements other than the economic inducement. It has steadily decreased during the past twenty years, also because American economic opportunities were lessening by the disappearance of government lands.

Before a public meeting in Berlin, a speaker is reported to have said that the trouble with Germany is a matter of too many lawyers, too many doctors, a plethora of engineers, sculptors, painters, singers and an ever increasing horde of intellectuals of all sorts in university graduates for whose talents the home land offers no opportunity of unfoldment. Poor trade, keen competition and a gradual rise in the standards of

living combine to make overgrowth in numbers a serious menace.

In the industrial field, conditions were equally unsatisfactory. Following a rapid growth in manufacture, mining and industry which opened numerous pathways for the people at home, emigration was curbed until a point of near-saturation was reached. However, during the following years, unemployment among the trade union members reached ten per cent. and threatened to increase, in spite of general talk about "unprecedented prosperity." In 1913 the Social Democratic Congress found it necessary to suggest drastic measures for the relief of unemployment. These conditions were largely the effect of specially encouraged reproduction that was unnecessarily prolific and which, in its social relations, is of the kind that hinders, rather than accelerates, cultural evolution.

GERMAN EMIGRATION.

One of the factors which contributed towards the aggravation of the economic situation in Germany and made the increase in population a serious problem is the dwindling of emigration overseas. The rapid commercial and industrial development of Germany for a time gave opportunity for employment at home to thousands who in former years would have been forced to migrate to other countries. But co-extensive with this commercial and industrial development went also the rapid spread of higher education, with the result that in a couple of decennials a whole army of well trained professional men appeared who could no longer find employment at home. Every avenue in the Fatherland became over-full with promising young men of excellent preparation, and of good promise, compelled to remain idle unless an opening could be found for them elsewhere.

It is interesting to note in this connection the figures relating to German emigration. Between 1881-1890, it amounted to an average of 136,000, which fell to 87,000 in 1893. In 1894, emigration showed a further drop to 40,000. For the last few years, the average has been as follows: 1901-05, 29,308 annually. In 1906-10, 26,449; in 1911, 22,595; in 1912, 18,445; in 1913, 25,775.

The marked decrease in emigration seems paradoxical when contrasted with the growing problem of unemployment in Germany. At its meeting in September, 1913, the Social Democratic Party called upon the Empire and the States of the Confederation, as well as the local communes, to do something to lessen the demoralizing unemployment. Among other plans for relief, it was suggested that those out of work should be exempted from taxation so far as possible.

GERMAN COLONIAL EXPANSION.

The relations between the rapidly growing population of Germany and the policy of expansion of its Government are clearly recognized by many statesmen in Germany and elsewhere. G. Rumelin, one of Germany's astute politicians, spoke prophetically when he declared before the war that, "if Germany continues yearly to add 800,000 to 900,000 souls to her population, she must inevitably seek an overseas expansion of her territory, which England more especially cannot admit. And, in that case, in a not too distant future, Germany's increased population must lead to an *overflowing of our boundaries.*"[1]

Two foremost German national economists such as Prof. Stengel and Dr. G. A.

[1] Quoted by Max Marcuse, Sexual Probleme, 1911.

Erdmann, members of the Reichstag, have always maintained frankly that Germany's enormous growth of population—over 800,000 annually—is the reason for the country's colonial policy. But for this policy, a great part of German industry would be unstable and might collapse at any time, a calamity which would threaten with ruin the very foundations of the privileged classes of the Empire.

Because of the rapid increase in population, Germany was inevitably bound to maintain the policy of expansion. When Dr. Erdmann wrote: "Germany is faced with an all-compelling 'must,'" he looked upon this growth in population as the very mainspring for the imperative which he invoked, and he added with keen insight: "Those who speak of the 'colonial adventures' of our Government merely show their narrowness of vision, for *the time might come when Germany would have to pour out rivers of blood for the possession of a strip of land claimed by another State.*"[1]

With the colonial policy must go a strong navy to support and maintain it. In 1900, a number of political economists of foremost rank collaborated in the production of a large work which was intended to awaken the conscience of Germany to a keen realization of the hopeless situation in which Germany would be placed without a strong navy to back up the strong colonial policy which it had followed since that memorable day, August 7, 1884, when Germany announced to the world that it had taken over Angra Pequena, in South West Africa, by an agreement with the Hamburg Commercial House which had previously owned it.

In the same year, the Reichstag, in the face of strenuous opposition on the part of Socialists and other radicals, voted the appropriations which meant the building of a large navy and the establishment upon a practical foundation of that new policy which the Kaiser had expressed in his famous remark, "Germany's future lies upon the water."[1]

The argument for the maintenance of colonial expansion and for the naval policy which was to prove so disastrous to the world at large, as well as to Germany in 1914, were based largely on the needs of Germany's surplus of population. The needs of the new Germany, the Germany of the great Westphalian coal fields, of the teeming industries on the banks of the Ruhr, rendered world-famous by Krupp's iron works, the Germany of commercial Berlin and industrial Silesia, with a total yearly addition of 800,000 souls for whom there was no room in agriculture, all impelled toward colonial expansion and the prerequisite of a large army and navy. In order to make room for them in industry and commerce, the products of factories and mines which could not find a market in Germany had to be carried to new regions. This meant commercial houses and teeming business; but it also emphasized over again the need of colonies, "a place in the sun"; and this in turn pointed once again to the need of a powerful navy as a protection for trade and colonies, a matter of life and death to the Empire itself. And then again, all this meant the need for more babies to make more soldiers and sailors, and so on around the circle once more.

The workmen of Germany were appealed

[1] See: G. A. Erdmann, *Nun Aber Weiter*, 1900.

[1] See: G. Schmoller, M. Sering, A. Wagner, *Handels—und Machtpolitik*, 1900; Baron von Falkenegg, *Was wird aus unseren Kolonien?* 1903; P. Meinhardt, *Kann Deutschland Weltpolitik treiben?* 1903; Dr. Schaefer, *Die Bedeutung der Seemacht*, 1900; Dr. Vosberg-Bekow, *Der Grundgedanke der deutschen Kolonialpolitik*, 1903.

to on the basis of their apparent economic interests as a class; exports meant brisk trade, flourishing industry, employment and "the full dinner pail"; stop exports and factories will have to shut down; this will mean loss of wages, suffering, destitution, starvation. The feudal-minded ones can satisfy their lust for power only if there are more babies who will later be exploited at home, and fight for a monopoly over the exploitation of the more backward peoples. Germany can maintain its place as a power of first rank only if it makes room for the yearly addition to its population; and, to the highest degree, only on the basis that emigrated Germans would remain Germans and not be absorbed by other nationalities. The vanity of being identified with a commercially and economically great nation must be satisfied at any cost.

As early as 1882, the *Deutscher-Kolonial-Verein* was founded, with branches in different towns in Germany, having for its purpose the maintenance of colonial aspirations along nationalistic lines. Briefly, German capital and German labor *ueber Alles!* Thus did German laborers find a delusional compensation for submitting to autocratic exploitation at home.

Bernhardi, the oracle of the new Germany, clearly recognized that the call for colonies is generated by Germany's rapid increase in population and made his appeals to the nation frankly on that basis: "Strong, healthy and flourishing nations show increasing figures of population," he states in his famous "Germany and the Next War." "They need, from a certain moment onward, a constant expansion of their boundaries; they must have new territory in order to make room for their surplus population. But, as nearly every part of the globe is inhabited as a rule, new territory can be obtained only at the expense of the occupants —that is to say, by conquest, which thus becomes a law of necessity."

This is one of the chief reasons why Bernhardi considers war "first and foremost a biologic necessity, a regulator in the life of mankind which cannot be dispensed with." Evidently he is blind to the fact that there are other more efficacious means for relieving the tension and distress due to overpopulation, namely, the voluntary, intelligent regulation of parenthood. But that could not satisfy anyone's adolescent lust for power, such as is always operating in feudal minds.

Bernhardi's remedy for overpopulation is expansion at the expense of weaker or less prepared races and he finds an analogy for this in the struggle for existence which takes place thruout nature. His intelligence and his primitive lust for power suggest to him no better way of meeting the issue than that provided by the jungle. "This struggle is regulated and controlled by biologic laws and by the interplay of opposing forces," declares Bernhardi. "In the vegetable and animal world, this process is worked out in unconscious tragedy." The feudal mind always thinks of the biologic struggle for existence as something which inevitably must be compelled to function on the level of the unconscious automatism of the domestic herd. That the exploited classes can find in cooperation and intelligent family limitation a substitute for the conflicts of violence is to the feudal mind an incomprehensible proposition. It is incomprehensible, because they are unwilling, emotionally unable, to accept the accelerated democratization which can thus be brought about. The intelligent action of a great crowd democratically trained would deprive our feudal-minded privileged persons of the

chief foundation for their delusional feelings of superiority.

CHILDISH VANITY AND OVERPOPULATION.

Everywhere the feudal-minded ones act upon substantially the same impulse. Everywhere they impel and, to a large extent, tho by indirection, they compel, prolific breeding among the less intelligent persons. These latter are also the victims of the prevailing religious, political, economic and industrial systems and superstitions. The feudalistic ones proclaim fecundity as a religious duty to God, and a moral duty to the State. By psychologic tricks, a vanity of the unfortunate classes is encouraged so as to make even the fools believe, or at least feel that they, too, have a place in the sun. All this becomes efficient chiefly because it serves a childish pride; because it is a mask or a gloss for the lusts of the flesh, and a childish lust for power. In the unconscious, this impulse is dominant because it induces apotheosis for sensualism unrestrained. Shaw reminds us that similar trickery makes us glorify marriage when the real impulse is for a maximum of temptation with a maximum opportunity; and he might have added, with a minimum of risk.

By the uniform activities and lingering dominance of the feudal mind, we have remained in a state of development in which we compete, like the stockraiser, for an international and intercredal supremacy in and thru breeding. First we must breed prolifically for God, Church, King and Country. Having thereby produced a condition of overcrowding, then for the sake of God, Church, King or Country, as well as for the crowded and submerged ones, there is an obvious necessity for expansion. Now for God, Church, King or Country, we prepare for the conquest and the subjugation of more primitive peoples. With these opportunities becoming exhausted, we must enter upon a further competition in reproduction, in order that we may be successful in the competition among expansionists and for domination of our highly evolved neighbors.

So ultimately comes a world war in which the feudal-minded of every nation are equally sure that they are fighting for civilization itself, which means too often their own feudal supremacy, the gratification of their own immature lust for power. They intellectualize it as a fight for national life, and of course it has also that aspect. The feudalists are perhaps right in a sense they do not comprehend. With overpopulation, the slow but eternal process toward a democratization of welfare at home would sooner or later destroy their privileges, unless the disprivileged have their attention diverted to a "destiny in the sun," beyond the national boundary. The European peoples have sought release from the stress of overpopulation by a foreign quest to supply a compensating yet relatively small privilege for the disprivileged at home, rather than to find a remedy in the further democratization of welfare at home. With us Americans, this pressure has not yet been great enough to induce like action. As yet, we have had no very urgent need for territorial expansion. Our turn is coming, and is coming soon, if only we will heed our own feudal-minded ones and will breed fast enough. But, without being aggressors in this sense, we are yet unavoidably drawn into the vortex of a world war inaugurated by the feudal-minded of other nations and unconsciously promoted to a small degree by our own feudal-minded ones by education for feudal-mindedness and for prolific breeding in our own people.

How long shall we continue this international competition among the feudal-minded for ever enlarging privileges and exploitation? For ever more prolific breeding? For ever more expansion, made necessary by unintelligent fecundity, inevitably tending toward the next war? Will this war make it generally clear that there is a stage of evolution wherein intelligence can be utilized to secure better international adjustment and cooperation, so there will be everywhere an elimination of dominance by the feudal-minded? Are we now preparing to repudiate their religious and moral sanctification of unnecessary and yet more prolific breeding, of still more extensive and intensive competition in exploitation, the efficiency whereof requires even more destructive wars? Are we ready to focalize our energies upon the service of culture and the democratization of welfare? The peace conference will answer.

PEACE CONFERENCE AND FREE SPEECH.

The coming peace conference may or may not be dominated by the feudal-minded ones. It may even include the unconscious feudalistic elements in the most democratic of countries. These feudal-minded ones in the peace conference will all have practiced reproductive limitations in their own families. If true to the feudal-minded type, they will also have discouraged birth control among the unfortunate victims of their exploitation. The feudalist peace commissioners will not wish to see their own feudal-mindedness as the fundamental factor in bringing on the present war. They will not wish to see that continuing and intensified competition in breeding and in exploitation must bring on another war, in spite of peace agreements. They will wish to ignore the fact that, in the face of our intense struggle for the physical necessities of existence, even peace agreements may again become a "mere scrap of paper." The next world war may possibly be one in which the disadvantaged of all nations will fight the feudal-minded of all nations. Something quite near to such an invitation has already come from Russia. Shall we hasten such a conflict by continuing to preach the sacredness of fecundity and of war? Or shall intelligent restraint of the feudalistic compulsion help us toward a more perfect and peaceful adjustment with the processes that make for the democratization of welfare, with and by intelligent family limitation as one means?

If the coming peace conference is not to be dominated by the feudal-minded ones, it might take cognizance of artificially encouraged overpopulation as a condition of the next war. It might provide for restraint upon the feudal-minded of *every* nation by having the Internation provide that no nation shall put any restraint upon the intelligence that makes for family limitation. It might also put international limitations on the fruits and means of exploitation, so as to minimize feudalistic temptation, and to eliminate all artificial and local encouragement of trade wars. These are but competitive methods in exploitation as a means to a satisfaction for the feudal-minded of all economic classes. If President Wilson "puts that over," then this will have been a war for democracy in the very biggest and best sense. It may be the beginning of an internationally guaranteed "free speech," one that shall really mean *free* speech. Democratization can go its way unhampered only at the sacrifice of feudal-mindedness, and approaches to an absolute free speech are both the efficient means and final end of the process.

AN INTERESTING CASE OF GASTRO-INTESTINAL NEUROSIS.

BY

JOSEPH A. SWEENEY, M. D.,
Louisville, Kentucky.

G. B., a male, aged forty-five years, of blonde type, was referred to me November 28, 1916. The patient is a farmer by occupation; weight one hundred and thirty-ine and a half pounds; height five feet, six and a half inches. He has been married nineteen years, one child living nine years old; one died at age of four months. Wife has had no miscarriages.

Condition in life fairly good; temperament choleric. Had all the diseases of childhood excepting scarlet fever and diphtheria. Habits: moderate pipe-tobacco smoker; drinks three cups of coffee with cream and sugar daily. Weighed five years ago one hundred and sixty-eight pounds. Has since lost twenty-eight and a half pounds, principally during the last year.

The patient has been confined to the house (most of the time in bed) for the past ten months. He was unable to plant his 1916 crops, and worried considerably about finances and health. He is nervous and irritable, depressed and melancholic; restless, sighing, yawning, stretching; twitching and jerking of the muscles; lack of self-confidence and mental concentration; abulia and lapses of memory. Spots on the body on which there is muscular twitching. Complains of "all-gone" feeling; cold hands and feet, which are clammy and moist. Small pieces of food lodge in his throat, causing tickling; complains of "lump" in throat; lump (post-sternally) appears about an hour *post cibum* and remains an hour or so thereafter. Occasional spasm of the glottis; hunger pains, gas pains; stiffness and soreness of the muscles and sinews; hoarseness and tickling in throat. Buccal and faucial dryness, lips dry and parched; herpes labialis. Aching in lower limbs and back; patient feels tired and languid. Sense of smell almost nil, that of taste modified—sometimes bitter, occasionally sweet, sticky, stale, etc. Drinks little water. No pain on pressure, abdominal ballooning; no nausea or vomiting. Patient says he feels weak, and the least physical effort tires him. No appetite, no belching nor regurgitation; formerly had heartburn, but no waterbrash; has very little thirst. Passes large amount of very offensive flatus. Has a dull headache most of the time with aching thru the eyes. He sleeps badly, it is difficult for him to get to sleep, and is easily awakened; arises in the morning unrefreshed feeling as fatigued as when he retired. Numbness in thighs, arms, forearms, hands and shoulders; cramping in plantar areas of both feet. Burning and frequent micturition, has to void several times each night. Gives a negative venereal history. Has worn lenses for two years, and states that same serve him properly. No lung disease, no icterus, no "rheumatism," no diarrhea. Has had hemorrhoids for twenty years; constipated for past year. No history of typhoid fever nor malaria. Family history good; one brother has "digestive trouble." Alvine evacuations every second day, otherwise he takes a laxative; stools hard and soft formed, good color; small cylinders size of little finger, good length, slightly flatly moulded, sometimes ribbon-like. Occasionally passes some blood mixed with jelly-like mucus. No pain on defecation, rectum empties slowly; explosion with the act, flatus with stools. No tenia. Stools unfinished, act incomplete.

Physical examination: Expression of face and eyes bright; color of eyes brown-gray. Complexion sallow, skin dry and scaly; muddy-yellow congested sclerae; the conjunctivae also congested. Condition of teeth, examination showed evidence of pyorrhea especially involving lower incisors; gums unhealthy in appearance. Lips medium thick, good color; breath fetid or rather putrid in odor. Tongue small and wedge-shaped; medium thin, firm. slightly indentated on sides anteriorily; clean and good color. Hands short and thick, fingers short and medium thick, fairly well shaped; nails showed good condition and color; hair dry and coarse. Pupillary reflex normal, faucial minus, patellar minus, Babinski's negative. Dermographia positive plus. Temperature 99.2° F. at half past one in the afternoon. Pulse 76, full, soft and regular. Body fairly well nourished; chest broad, deep and short. Lungs normal, heart sounds normal, apex beat 5 cm. below and on line with nipple, normal in size. *Habitus* normal. Abdomen broad and short; abdominal muscle tone lax. No tumors, no swelling, small

amount of tympany over epigastrium; no hernia; fundus of stomach normal, pylorus not felt. Cecum in pelvis, lax, empty. Colon ascendens lax and empty, transverse, descendens and pelvic not felt. Liver, gallbladder and spleen normal. Ren-dextra and ren-sinister *in situ*. Spine normal, no sensitive spots. Abdominal pulsation not marked, aorta soft. Anus tight and deep; rectum large and empty. Internal hemorrhoids and tags; sigmoid red and catarrhal in appearance. Genitals normal; prostate middle lobe hard and slightly nodular. Enlarged anterior cervical gland. Blood pressure 110-70-40.

Gastric findings: Gave patient six stewed prunes eleven and a half hours before taking test meal; Ewald's test breakfast consisting of 70 gm. water-roll and 400 c.c. water. Ate meal in eight minutes. Expressed sixty-four minutes after beginning of meal; easily but slowly expressed; amount 125 c.c.; rests 45 gm., fluffy and light brown color; filtrate 80 c.c., cloudy and light yellow color; few flakes of heavy mucus floating on specimen of stomach contents. T. A. 102 (.37%), F. Hcl. 75 (.27%), lactic none. Blood, visible, none; occult (benzidin test) moderately positive. Without withdrawing tube practiced gastric lavage with three liters plain water at 103° F. bringing out a small amount of heavy mucus with test breakfast food rests incorporated therewith, and about 20 c.c. of free test meal food rests.

Urinalysis: Twenty-four hour specimen, fifty-six ounces; specific gravity 1015, color amber, clear; no albumin, no nucleo-albumin, no sugar. Indican No. 4 (arbitrary color-scale 0 to 10; 0 being none and 10 being saturation). Phosphates .16%, chlorides .5%, sulphate .1%; no bile, no mucus; urea 1.61%; reaction moderately acid, diazo-reaction negative. Few pus cells, no crystals, no amorphous urates, few vesical cells and hyaline casts.

Fecal analysis: Meat free diet stool. No parasites, no helminthin eggs; negative to benzidin test for occult blood.

Blood examination: Hemoglobin 110%; color index .77. Reds 6.406,000; whites 7.-000; proportion of whites to reds 1-910. Macrocytes few, microcytes few; microblasts none, normoblasts none, megaloblasts none; poikilocytes none, polychromatophiles none; large lymphocytes none, baseophiles none; parasites none. *Interpretation:* slight polycythemia, with a relative leucopenia.

The patient was examined by Dr. Sam Brown Hays who reports vision about normal for his age. He has night blindness and a pale optic nerve. Ears, nose and throat normal.

Dr. Burgard found that five teeth gave no response to electric test for pulp vitality, the X-ray check revealing root end infection in three molars. A bicuspid showed no root end pathology by X-ray examination, but since it would not respond to the electric test it was opened and gangrenous pulp discovered. The mouth was reported rather free of pyorrheic infection; the gums were superficially inflamed. Two carious cavities were found.

Treatment: The patient was turned over to the dentist with instructions to send him to me in due course. This done I put him on an antacid prescription with a highly nutritious diet, and had him report to me once weekly until March, 1917, when his busy season opened. The patient has gained fourteen pounds, and is practically free from symptoms. He has worked every day, sometimes in the rain, and reports that he is now able to meet all the requirements of a work hand on the farm; in fact, he is in better physical condition than he has been in twelve years.

PROBLEMS OF THE RURAL MOTHER IN INFANT FEEDING.

BY

ALAN BROWN, M. B.,

Toronto, Canada.

A review of the bulletins written for mothers on the care of infants would give one the impression that they were not intended for use outside the city limits. In this literature the two points most emphasized are the value of breast feeding *versus* bottle feeding, and the use of certified milk properly modified and kept on ice.

My observations and experience have been

that breast feeding *versus* bottle feeding is not one of the vital problems of infant feeding for the rural mothers, as undoubtedly it is in the cities, for approximately 70 to 90 per cent. of rural women nurse their infants for at least six months. Also properly modified cow's milk kept on ice until feeding is out of the question for the great majority of them, for it is only the exceptional farm house that can provide ice.

It would be interesting to examine the factors which determine the larger percentage of breast feeding in the country than in the city, but chief among them are: 1. The work of the mother is largely in the home, hence she is available for regular periods of nursing. 2. If the country mother leaves home she has to go so far that she takes the baby with her. 3. The country woman lives a less artificial and more simple natural life than is possible for the woman in the city. 4. Bottle feeding is not suggested to her by the example of her neighbors. 5. There is no obliging doctor around the corner who is willing for her to assume the responsibility of artificially feeding the baby. For these and perhaps other reasons the great majority of babies in the country are breast fed, but this breast feeding is not always successful. Complicating factors are: 1. There is likelihood of weariness of the mother from overwork or from getting up too soon after delivery. 2. Injudicious diet of the mother. 3. Lack of fresh air and proper exercise. 4. Lack of proper mental stimulus and freedom from worry. 5. Irregular intervals and improper methods of nursing frequently followed by the so-called three months' colic or other forms of indigestion and often taken as an indication that the milk is not agreeing with the baby. 6. Failure to weigh the baby or weighing only at very irregular intervals. 7. Nursing the baby after the first birthday, sometimes until the second. All these problems are very easily solved and it will be only a question of time, at the present rate of dissemination of information regarding the feeding and care of infants, when the necessity for proper nursing methods will be matters of common knowledge.

It is the problem of bottle feeding and feeding of the child after the first year that presents the most serious difficulties in rural infant feeding. These problems might be grouped under three headings: 1. Infant food other than milk. 2. Milk and its care. 3. Table food after the first year. In the better rural communities the problem of infant food may be solved by keeping one or two cows for the express purpose. In many other districts patent or ready prepared foods are in great favor. The foods most frequently used are those advertised in the lay press. The comparatively high price of these foods, the alluring advertisements, the full directions for preparing them, the lack of proper information as to their lower vitamine content as compared with cows' milk, the father and mother desiring the best for their baby, together with their lack of facilities and knowledge of the technic for feeding cows' milk are all factors in promoting the use of patent foods in rural districts. But if cows' milk is decided upon for bottle feeding, immediately certain dangers arise such as unhealthy cattle, improper handling of the milk and utensils, lack of proper methods of cooling, and lastly the lack of knowledge regarding its modification. The health of cattle, especially as to freedom from tuberculosis is not one of the serious problems of infant feeding, as it is in the city. Dairy cows are tested for tuberculosis when milk is to be sold in the cities having milk inspection

ordinances. There is no general provision for testing cattle in rural districts when milk is used for home purposes. However, experience goes to show that it is a rare thing to discover a cow suffering from tuberculosis when only one or two cows are kept on one farm and these kept most of the time in the open pasture.

Proper handling of milk can be summed up in the statement that a "clean man can produce clean milk anywhere." Clean milk is not a problem of fine dairy farms and elaborate equipment, altho these may be a great convenience, but the essentials may be carried out anywhere. These are proper care and cleanliness of cows, stables, milkers, pails, cans, the removing of the milk at once from the barn to be strained, tested and separated, its quick cooling and provisions for keeping cool in properly sterilized vessels.

With a satisfactory milk supply and provision for keeping it so assured, the next problem is the proper modification and formula for each individual baby. For the rural infant this is likely to be a matter of no small concern.

It is a fact that the average practitioner who graduated anywhere from five to twenty-five years ago did not receive much instruction in the feeding and care of normal infants, particularly in respect to modern methods. The doctor's function was considered then, as it is all too frequently now, to diagnose and to prescribe for illness. The medical student of those days did not see normal babies in the clinics or in practice, and he had no opportunity for observing and feeding them at various stages of their development. Hence, unless the practitioner has had experience with a family of his own or has had children under his immediate care, and unless he has taken frequent post-graduate work or has been a close student of current medical literature, he is not an expert in writing formulae for bottle-fed babies and will have difficulty in outlining diets for young children. In extreme cases some physicians have been reduced to the expedience of ordering condensed milk and instructing the mother to read the labels on the cans.

But granted that there is available in a rural district a man adequately equipped to give instruction in the feeding of infants and children, we are confronted with a yet larger problem.

The public has been educated to go to the doctor and pay him for medicine and not for advice. Also it takes time to teach a mother how to prepare modified milk properly, and the average busy doctor hasn't the time. If he took the time, in all probability, he would not be paid or thanked for it. Therefore, in the average community it is easier and quicker and is the means of a better, immediate income for the doctor to send the baby some medicine for the colic or for the diarrhea than it is to go with care into the cause of these ailments. Some wise country doctors keep on hand some harmless colored sugar pills to give for the dollar and give good advice gratuitously. Frequently, it happens that the country mother is too far away to send for a physician for an apparently trivial ailment, something she expects will be better or all right in a few days, or she feels that having him come so far is more than she can afford, consequently she is strongly tempted to experiment with home remedies. In some communities, particularly among the foreign born people a mistaken sense of thrift or ignorance of our customs prevents them from sending for a doctor until the family and the neighbors have done their

best, or the worst as the case may be, and the child is near death. There are certain districts where this practice is so prevalent that when a doctor is called in to attend one of the children, he goes expecting nothing else than that he will have to write a death certificate.

The rural mother lacks the opportunity for the frequent consultation with public health nurses, teachers, physicians, in the clinics or infant welfare station which do so much toward simplifying the city mother's problems of infant feeding. Hence, apart from her relatives and neighbors, the only available source of this sort of information for her is the magazines, which in the past few years have taken up the care of children as part of their regular activities. Some of these articles of advice have been written by space writers and consequently are of doubtful value. But for the most part and especially in the first-class magazines, these infants and children's departments are conducted by physicians and specialists, and these publications have performed a wonderful service for the rural mothers.

Leaving the problems of breast and bottle feeding, the rural mother also finds special problems in the feeding of infants after the first year. Ordinarily she does not know how to take her baby from the breast or bottle and put him safely on solid food; consequently she experiments with tastes of this and that, with the usual result. There is likely to be a scarcity of fresh fruit and green vegetables and a much too plentiful supply of fresh and salt pork. This makes it difficult to obtain proper materials for a correctly balanced diet. Outside of food and its preparation, there are a number of other problems which bear directly on rural feeding. Among these are:

1. Lack of facilities for the proper disposal of garbage and sewage. 2. Insanitary toilets. 3. Dirty barnyards and pig pens. 4. Rats, flies and other disease breeding pests. 5. Pollution of the water supply. 6. Lack of conveniences in the farm home and difficulty of obtaining domestic help. 7. Lack of opportunities for consultation.

Perhaps the most serious of these problems is the lack of means for the disposal of garbage and waste with all its attendant evils. The insanitary slop barrel, the dirty pig pens and barnyards, and the unscreened, filthy toilets are a prolific source of rats and flies with their possibilities of pollution of food supplies. The average rural toilet, which not infrequently is a miniature cesspool, also may be responsible for the contamination of the water supply of the family or that of the neighbors.

The difficulty of obtaining domestic help and the lack of modern conveniences are vital problems for the rural mother. An overworked mother cannot supply the proper amount or quality of milk for her infant, neither can she take the necessary care and precautions with the baby's bottle when she is exhausted from long hours or too heavy work. The lack of modern conveniences, especially a furnace and a properly equipped nursery, means that in the average farm house the mother must keep her young children with her in the kitchen. Hence they are exposed to overheating from the kitchen stove both in summer and in winter; they are exposed to draughts and cold floors; to steam from washing and cooking; and they are placed within easy reach of sundry bits of indigestible food and stray articles which may be surreptitiously swallowed.

423 Avenue Road.

Sympathy is the safeguard of the human soul against selfishness.—Carlyle.

LONDON LETTER

(From our Regular Correspondent.)

THE MEDICAL SERVICE OF THE ROYAL AIR FORCE.

Parliament will be prorogued and the country will be in the throes of a general election before this letter reaches you and the business of the country will be sadly interrupted. Among other questions which ought to have been settled in this right way but which bids fair to be left unsettled or to be started with no guarantee of a sound scientific future is the question of the conditions of service of the Royal Air Force doctors. When the Royal Air Force became a definite branch of the military and naval establishments of the country, instead of being an annex of the Navy and Army it was decided that the special circumstances of the force called for a special pattern of medical service arranged to meet those circumstances. A strong medical Advisory Committee was appointed, and this committee, upon which representatives of the Navy and Army Medical Services and some eminent civil or lay men of science sat, issued a forcible report recommending a new scheme of conditions for the Royal Air Force Medical Service in which many of the drawbacks known to exist in the military and naval services were carefully provided against. Mere administrative ability was not to have the *pas* always of scientific distinction; men who had proved themselves capable of good work in scientific directions were not to lose all chance of promotion by remaining in that work instead of accepting administrative jobs; scientific posts were to be allotted to men who had showed individual aptitude for the posts; and *as a general principle also higher situations could be obtained thru selection for merit.* The scheme was published with the official blessing of both the Navy and Army, and the conditions were welcomed by the medical profession as promising something finer from the scientific point of view than any government department had ever brought itself to offer. And then, for some quite unexplained reason, the Air Board found itself unable to get a director-general who would adopt the scheme that had received such ubiquitous blessing. The Parliamentary Secretary to the Board, upon frequent interrogation in the House of Commons, has only been able to say that the post of director-general is being offered to a distinguished officer who promises that he will "be guided by the principles" of the report. The officer in question is undoubtedly a man of high reputation and proved capacity, but the scheme is undoubtedly one of high and proved merit. Why should the scheme of the report, the work of cooperative thought, give way to the discretion on one man however thoughtful? American medical men have done admirable scientific work at home and in France to clear up the physical, psychologic and moral problems present to the medical mind when selecting flying men; and they will appreciate how necessary it is that the aviator should receive not only the best medical attention after he has chosen his *metier*, but should be rigidly tested before he is allowed to fly, *i. e.*, to fly as a member of any government corps, civil or military, where duties must be discharged under trying conditions as well as under favorable ones. ("Joy flights" and private enterprises are not in question.) If a Medical Air Service were only wanted for military purposes, these matters would not now be so vital, the war having in all probability come definitely to a close and only peace terms remaining for settlement. But it must be remembered that during and because of the stress of four years war, the possibilities of aviation have developed beyond all expectation, and those possibilities will now be available in peace and in many civil directions. All the need for careful selection of a personnel for flying during war remains, in order that similar precautions may be taken in the forming of, for example, an Aerial Post Corps. If such a corps is to start with proper chances of immediate success, the men who fly should be protected against all risks offered by physical or temperamental defaults. That is to say that a highly equipped Medical Air Service will be wanted in peace as in war, and that no scheme for serving it should be scraped or whittled down. British medical men, who feel strongly on this subject, hope much that their American *confrères* will take a strong scientific line, if this should be required, in their own country and furnish our authorities with a good example. An opportunity is here offered for just that mutual understanding in peace of those who fought side by side to victory, which may prove to be one of the prime fruits of that victory. If we in this country do not see the right medical course let AMERICAN MEDICINE indicate it.

DEMOBILIZATION AND THE SPREAD OF VENEREAL DISEASE.

It has been notoriously the unfortunate experience of the past that the demobilization of armies has been attended by the spread of venereal disease among the civilian populations. It is perfectly natural that there should be present at such a time as the cessation of war great inducements to sexual intercourse, regular or irregular. There is wide resumption of marital relations; there is a large number of marriages of the young; and there is, of course, considerable number of so-called illegal unions, generally of a very temporary nature. Demobilized troops have been placed with regard to venereal disease, at one and the same time, in extremely good and extremely bad conditions for infection; and accident as much as temperament dictates the incidence of venereal diseases

among them. Segregated from the natural outlet of passion, a certain proportion of the men are able to remain chaste, and a certain proportion are not so able. This latter class are exposed in bulk to common sources of infection and accident determines in such a population whether the chances of infection are rampantly present or fortunately absent. And obviously a small group of diseased women can infect a considerable number of soldiers. Also a small group of diseased soldiers while infecting only a few women may prove, thru those women, the origin of a gonorrheal epidemic.

In a war of such duration as the one now concluded, a large proportion of officers and men have obtained leave; many of course have not been so fortunate as to be able to return home. These periods of leave have been characterized, again in accordance with the temperament of the individual and the environment in which he finds himself, by vast opportunities for license and of its concomitant dangers, and the British Government has at last been stirred by a debate, which took place in the House of Lords at the end of November, to consider strong measures of precaution to be taken when the troops return in some bulk to civil life. Lord Sydenham, Chairman of the National Council for Combating Venereal Disease, on that occasion solemnly warned the Government that, if such measures were not taken quickly, there would be serious results to the whole population extending over many years, adding that the necessary legislation had not been taken in time and that the only effective measure as yet on the statute book, namely, an act dealing with quack remedies, was of no practical use. Lord Muir Mackenzie, who had presided over a committee which took evidence on all these points, complained that his committee was belated in appointment, so that no chance had been given for introducing a bill embodying any recommendations which it might make; but he urged that the next Parliament would take up the matter in the light of the information that was now available. The probability is that nothing practical will be done for some weeks, as Parliament will be immediately prorogued to make way for a general election in the middle of December, while the new members will not assemble till January; but the feeling among medical men is that, while political machinery has disappeared from Westminster, the permanent Departments of Government are not rendered inactive thereby, but on the contrary, obtain a freer hand.' The Local Government Board will be expected to be aware of the dangers which must arise from the release of a large number of infected men and to be ready with arrangements for meeting the evil. Lord Sydenham's Council have published recommendations which should be carefully considered by the Board and by all other departments concerned. One of these goes to the root of the matter, for it suggests that no sailors or soldiers should be discharged while in an infective state; they incurred the disease in the service of the country and it is the business of the country to return them to society in as fit a condition as possible. The sense of this recommendation is obvious. The Navy and the Army have got the men in disciplinary clutch. They can effectively control them. They can watch their improvement, stage by stage, until they are fairly safe members of society, and they can compel the measures necessary to these ends. For the rest, many treatment centers have been established in England and Wales at which infected citizens, whether belonging or not to the Forces, can obtain treatment in sympathetic circumstances at the hands of specialists; while at these centers the presence of the general practitioners in the neighborhood is invited—we might almost say urged—so that doctors everywhere can familiarize themselves with technics of treatment which have evolved from comparatively modern medical science. Here is at once a direction in which the cure of the infected and the prevention of infection can both be greatly strengthened. These centers require immediate multiplication. Many Army doctors have now specialized in the treatment of venereal diseases and their services should be used in connection with the establishment at as many provincial hospitals as possible of centers for the treatment of venereal disease. Otherwise there will be a terrible pathologic bill to pay.

THE MEDICAL RESEARCH COMMITTEE.

The Medical Research Committee, originally set up as a sort of by-industry of the National Insurance Commission for England and Wales, came into active being at the moment almost when the German Kaiser decided to rule the earth by promoting war. The Committee, it may be remembered, was financed by a quota of the funds raised under the National Health Insurance Act of 1911, but it did not materialize until the autumn of 1914. Its services as a scientific bureau were immediately and unreservedly placed at the disposal of the War Office, and from that time forward its energies have been whole-heartedly devoted to winning the war. Such sub-committees as the following, formed under its egis, show well how variously the present committee has started a practical course, and what a wealth of exact and wide learning has been pressed into assistance:—

Surgical Shock and Allied Conditions.

To undertake the coordination of inquiries into surgical shock and allied conditions, with a view to the better correlation of laboratory and clinical observations.

Professor W. M. Bayliss (chairman), Professor F. A. Bainbridge, Professor W. B. Cannon (Harvard), Colonel T. R. Elliott, Dr. John Fraser, Colonel H. M. W. Gray, Dr. P. P. Laidlaw, Professor A. N. Richards, Ph. D. (Pennsylvania), Professor C. S. Sherrington, Professor E. H. Starling, Major-General Cuthbert Wallace, Dr. H. H. Dale (secretary). (With corresponding members in France, Italy and America.)

Anaerobic Bacteria and Infections.

With a view to the better coordination of in-

quiries into the characters of anaerobic organisms, with special reference to the bacteriology of anaerobic wound infections, the Medical Research Committee invited the following to serve as a Special Investigation Committee for this purpose.

Professor William Bullock (chairman), Dr. W. E. Bullock, Captain S. R. Douglas, Dr. Herbert Henry, Dr. James McIntosh, Dr. R. A. O'Brien, Miss Muriel Robertson, M. A. (secretary), Dr. C. G. L. Wolf. (With corresponding members in France.)

Accessory Food Factors ("Vitamines").

Appointed by the Medical Research Committee jointly with the Lister Institute of Preventive Medicine to consider and advise upon the best means for advancing and coordinating the various lines of inquiry into the modes of action of the factors in metabolism which are independent of the provision of energy.

Professor F. Gowland Hopkins (chairman), Miss Harriette Chick, D. Sc. (secretary), Dr. J. C. Drummond, Professor Arthur Harden, Dr. E. Mellanby. (With corresponding members with the Forces in the East and in America.)

Air Medical Investigation.

The Medical Administrative Committee of the Air Ministry in consultation with the Medical Research Committee, and with the concurrence of the Air Council, appointed the following Committee:—(*a*) To prepare reports for submission to them with a view to their distribution to those concerned. (*b*) To make suggestions for further coordinated medical investigations that may seem desirable. (c) To advise them generally in respect of the scientific medical aspects of aeronautics.

Dr. Henry Head (chairman), Sir Walter M. Fletcher, Dr. Major Greenwood, Dr. Leonard Hill, Dr. W. H. R. Rivers, Professor C. S. Sherrington, Professor C. E. Spearman, Colonel Martin Flack (secretary), the Secretary, Medical Administrative Committee (*ex-officio*). Corresponding members in France: Major J. L. Birley, Captain C. H. D. Corbett, Lieutenant-Colonel G. Dreyer, Mr. Sydney Scott.

A report from the Food Committee of the Royal Society and a committee instituted by our present scientific society to assist generally (and not medically) in the military activities of the country, has just been issued dealing with the cause and prevention of scurvy, and illustrates in a remarkable way the value of team-work in the settling of scientific and pathologic problems. The Committee of the Royal Society has availed itself of the work done by that sub-committee of the Medical Research Committee in charge of the investigation of accessory food factors, so that practical results are obtained without overlapping. The work done by Dr. Harriette Chick for the Medical Research Committee has been adopted by the Food Committee of the Royal Society and issued under the double authority will be accepted as the last word upon the cause and prevention of scurvy. The gist of the official statement in regard to scurvy is (1) that germinated peas, beans and lentils should form part of the daily ration in communities whose conditions are scorbutic in tendency; (2) that vegetables should be cooked for as short a time as possible and never stewed, so that the antiscorbutic vitamines may be retained in their activity; and (3)—the most arresting piece of advice—that lemon juice, not lime juice is the real antiscorbutic. Orange juice is as good as lemon juice, but lime juice is valueless.

Rational Organotherapy

Thyroid Extract and Heart Block.—The experience which Aub and Stern (*Archives of Internal Medicine,* Jan., 1918) report with administration of thyroid extract points to the fact that thyroid does not increase the heart beat by direct action on the muscle but thru the nerve pathways. The extract was administered in increasing doses until at the end of three or four months over 2,000 grains had been administered. The dosage had reached as high as 28 grains a day. There had been as a result an increase of 47 per cent. above normal in the basal metabolism, which fell again to normal twelve days after withdrawal of the extract. There was also a rapid auricular rate of 120 but no ventricular change. The auricular rate had returned to normal by the nineteenth day after treatment was stopped. Body weight after withdrawal increased over eight pounds. The respiratory quotient and the blood sugar remained unchanged.

Organotherapy in Repair of Wounds.—Voronoff and Bostwick (*Press médicale,* Sept. 9, 1918) claim that they have been able to induce healing of extensive and deep wounds in a few days, by applying locally the pulp of sex glands procured by castrating young animals. The cells of these glands, thru the secretion they contain and which is absorbed by the wound, exert an intense accelerating action on the process of granulation. The organ found most effectual in these experiments would, *a priori,* have been considered that most suitable, owing to its especial vital energy. Animals deprived of these organs are known to accumulate fat

at the expense of their muscles and to become apathetic and passive. In the wounds treated with this material, its use often had to be discontinued after a few days in order not to exceed the results sought and cause projection of new tissue beyond the level of the wound cavity by reason of a too intense development of granulations. With the aid of this treatment its sponsors hope to spare the wounded long months of suffering and considerably shorten their stay in hospitals. This method is being tried at Carrel's hospital.

Hormones in the Climacteric.—The work of Seitz, Wintz, and Fingerhut has led them to believe, says an editorial writer in the *Lancet* (Nov. 23, 1918), that ovarian extract is only potent in so far as it contains certain chemical bodies present in the corpus luteum. Two of these have been isolated, luteolipoid and lipamin, both of which have a specific influence on menstruation, the one acting as a hemostatic, the other encouraging the flow of blood. The firm of "Ciba," in Basle, has put preparations of both of these drugs on the market in tablet form—"sistomensin" containing luteolipoid and "agomensin" containing lipamin. In the *Correspond.-bl. f. Schw. Aerzte* for Oct. 26th, Dr. O. Burckhardt-Socin, of Basle, records his experience of sistomensin in five severe cases of climacteric disturbance—flushing, palpitation, sweats—and in two cases of excessive loss at the onset of menstruation in young girls. In each case the symptoms were rapidly relieved, and success in these led the author to try the drug in a case of bleeding fibroid which he would otherwise have sterilized with X-rays. Bleeding and pain were both rapidly relieved, and Dr. Burckhardt-Socin recommends a trial of the hormone to his colleagues in similar cases. If further experience should prove the truth of these observations this method of treatment may prove of great value. It is important, however, to remember that there are many authorities who maintain that the internal secretion of the ovary is manufactured not only by the corpus luteum but also by the atretic Graafian follicle cells which have a structure identical with that of the lutein cells. For this reason it would appear probable that preparations made from the whole ovary are more likely to give constant results than those made only from the corpora lutea. As we are quite ignorant whether the secretion of the ovary acts directly on the organism or acts by balancing or influencing the secretion of other internal glands, any conclusions drawn from clinical experience possess many possibilities of error. A further serious drawback hitherto has been our ignorance of the chemical nature of the secretion of the ovary. If the bodies now isolated can be shown to have a fixed composition, and the results obtained are found to be constant, a very definite addition will have been made to our knowledge. It is interesting to note that some gynecologists are in favor of ovarian extract from which the corpus luteum has been entirely excluded. Indeed one of the difficulties in admitting the action claimed for the corpus luteum extract lies in determining in what degree of development the corpus luteum is at any given time, as it is impossible to tell by inspection whether a corpus luteum is in process of formation or of involution and disintegration. Many observers, in treating the symptoms of vasomotor disturbances, following the removal of the uterus, have been struck by the conflicting results obtained in different cases by the administration of corpus luteum extract, a result which may be explained by the antagonism of the two substances now isolated if one or other happens to be in excess. We hope that other practitioners who have an opportunity of using these preparations will publish their results, so that further light may be thrown upon this interesting method of treatment.

Physical Therapy

Under the Editorial Direction of Albert C. Geyser, M. D., New York.

Muscle Testing by Condenser Discharges.—Until very recently, practically the only currents available for nerve and muscle testing were the galvanic and the faradic currents. The medical profession have been well aware of the fact that neither of these two currents were scien-

tifically correct, but they have been the best we had and by making due allowance for their insurmountable weaknesses we have managed to get a great deal of valuable information from their employment.

A muscular contraction can only be secured upon the opening or the breaking of an electric current passed thru a nerve or muscle. The galvanic current is a chemical current, so that during all of the time of its passage thru tissue under examination a chemical change takes place in that tissue. At the positive pole the electro-negative ions, oxygen, chlorine and the acids accumulate, while at the negative pole, the electro-positive ions, hydrogen and the alkalies will be found as the result of the different polar action of the current. Between the two poles we have the result of electrolysis, decomposition of tissues by the passage of an electric current thru them, the interpolar effect. From these two unavoidable effects, chemical changes have taken place in the tissues which have interfered with scientific results.

The use of the faradic current was a marked step in advance in electro-diagnosis. The faradic current, as we know, is the result of a discharge from a secondary coil which has been charged by induction caused by the passage of an electric current thru a primary winding. In this, as in the galvanic current, muscular response occurs only at the make and the break of the current. The faradic current is constantly interrupted by the magnetically operated vibrator. This vibrator is capable of being tuned down to the middle key of C on the piano which equals about 256 interruptions per second. A lower rate is not obtainable with the rapid vibrator. It follows, therefore, that even tho the make and break on the interrupting handle may be only as frequent as one-tenth of a second, the nerve will, nevertheless, receive during that time no less than twenty-five interruptions. Such rapid interruptions cause a tetanic condition of the muscle and a tiring out of the nerve from the accumulation of fatigue poisons.

Theoretically the current from a static machine would be the ideal in so far as obtaining a single discharge and the avoidance of all chemical effects upon the tissues. The drawbacks encountered by the use of the static machine, however, are many. The machine itself is cumbersome, and not always reliable; it takes up much valuable floor space, it is necessary to employ an electric motor to operate it and it is of necessity expensive. These objections, however, could be overcome but the current from a static machine even after having been passed thru condensers is a high-potential one, much higher even than the faradic current. This high voltage or tension causes the current to jump thru a considerable air gap, so that when the examining electrode is brought into close proximity with the patient, a discharge occurs at a time when least wanted. If the examining electrode is

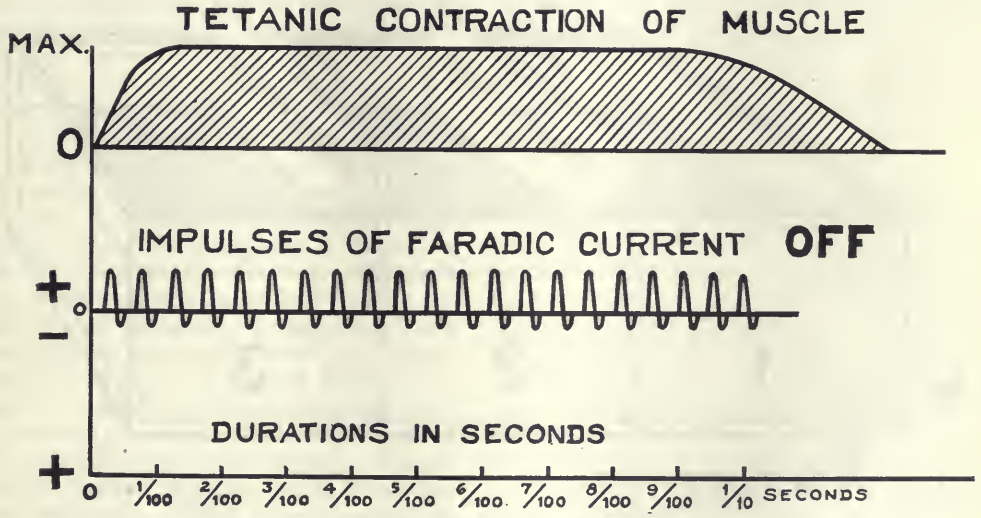


FIG. 1. Showing effect of faradic current.

brought into direct contact with the tissues. the spark jumping is thereby avoided, but the high voltage makes the discharge very disagreeable if not actually too painful for practical use.

Necessity is the Mother of Invention.—From the foregoing we realize that what is really needed for scientific nerve and muscle testing is a current of just sufficient voltage for proper penetration and no more, and it must be free from all chemical action upon the tissues. Such an apparatus must be scientifically calibrated to insure correct reading; it must not be cumbersome, if possible it should be portable, and above all it must be fool-proof.

of the glass jar itself. When two capacities are thus separated from each other by a dielectric or non-conductor, we have created a perfect condenser. When such a condenser is electrically charged, we speak of it as containing so and so many farads. A farad is a unit of electrical measurement; it tells us that a certain condenser, of a certain previously determined size, contains a certain, well defined amount of an electric charge. A microfarad is a one thousandth part of a farad, the measurement employed in nerve testing.

An apparatus for condenser discharges is composed of several individual condensers, each representing a capacity of a fraction of a microfarad.

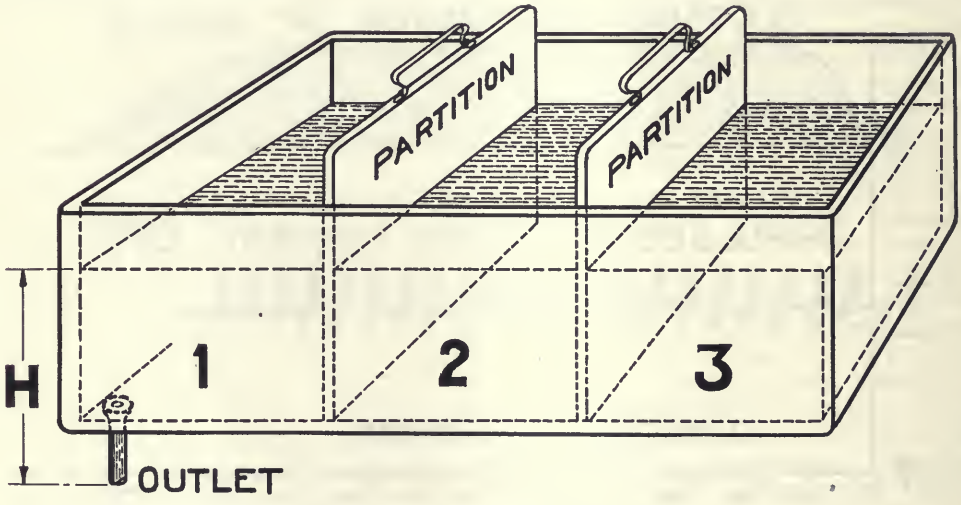


FIG. 2. Illustrating condenser discharge.

Early during the war the U. S. Government Medical Department recognized the fact that owing to the probable large number of nerve and muscle injuries consequent upon military action, an apparatus filling the above description would be almost indispensable at the front.

Accordingly an apparatus was devised which has, it is claimed, met every need.

Condensers.—A condenser, electrically speaking, is a capacity for holding or temporarily storing an electric charge. The simplest form of a condenser is a Leyden jar. The tinfoil surrounding the outside of the jar is separated from the tinfoil, salt water or other substance capable of being charged on the inside, by the walls

To understand the underlying principle, let us suppose a tank of water, three feet long and one foot high. Let this tank be divided into three separate compartments, so that each compartment has an inside measurement of one cubic foot. Each of the separate partitions is so constructed that it may be withdrawn, so that two or all three compartments may thereby be thrown into one. (Fig. 2.)

At the end of compartment No. 1, we place a certain sized opening, so that when the water flows out a certain time is consumed in the emptying of this one compartment. Assuming that the water in all of the compartments is of the same level and the discharge opening remains the same and only one at the one end of the tank, then,

if two or all three compartments have been thrown into one, by having the partitions removed, two or three times as much time will be consumed in the emptying of the connected compartments.

A condenser apparatus is constructed so that each condenser, like the cubic foot of tank space, represents a certain electric capacity, measured in fractions of a microfarad.

Each condenser requires a certain amount of time for its discharge; two, three or more condensers placed in series require two, three or more times as much time for a discharge as one condenser.

The testing apparatus is carefully charged with a constant voltage of 100 volts; each condenser, therefore, having been properly computed as to surface area, must contain a certain, never varying, amount of a charge; each charge requires, thru a definite resistance, a certain time for its discharge. Since the apparatus is correctly standardized, it follows that the only factor that can cause a variation is the medium thru which the discharge takes place. This medium or external resistance is the nerve or muscle about to be examined. A normal motor nerve, within a certain limit, responds by a muscular contraction each time an electric current is caused to traverse that nerve. From the normal formula we know that it takes a stronger stimulus when the galvanic or faradic current is passed from the periphery to the center, than, as the normal motor impulses, from the center to the periphery. With a condenser discharge, where the charge is a fixed one, the same formula is established. If a certain fraction of a microfarad causes a muscular contraction with a descending current, then it will take twice the amount to cause a similar contraction with an ascending current. Twice the amount of microfarads takes twice as long to discharge, hence its effect is twice as long on the nerve thru which it is discharging.

In testing a nerve with a condenser discharge, we have only the discharge in either a descending or an ascending direction.

Since all of the factors remain constant, excepting the condition of the nerve, it follows that when the amount of time necessary for a nerve, in a certain individual, to respond has been established, any variations in either direction indicate a changed condition in the individual's nerve or muscle.

Let us suppose that we are dealing with a traumatic injury to the right biceps muscle. Upon testing the left musculo-cutaneous nerve we find that we produce a certain contraction with a certain fraction of microfarads of the descending discharge. Upon reversing the polarity, about twice as much is required to produce a similar contraction; this would establish, for that individual, the normal amount. If, now, we place the electrodes in similar positions upon the right or injured nerve and we find that four, five or more times the microfarad discharges are necessary to produce a similar contraction, we can know exactly the proportion of the injured nerves' response to the uninjured. In this particular case it would be as one to four, five or more. If, in the course of time, the ratio should change for the worse or the better, the prognosis would be effected correspondingly.

Nerve Testing Condenser Apparatus.—We recognize two kinds of nerve reactions *viz.*, qualitative and quantitative. The qualitative changes are observed principally by the examiner. Either the muscle does not contract at all or the contraction, instead of being lightning-like, is sluggish or worm-like. In every qualitative examination the personal equation, not only of the examiner but also of the patient, plays a considerable part. It is therefore not exact. Nevertheless it is a guide and by allowing the proper amount of discount, it is not entirely without value.

To arrive at a more exact appreciation of the condition of the nerve we have recourse to the qualitative test. With the use of the galvanic and the faradic currents this was accomplished in a rather crude manner. By the exercise of a great deal of patience the quantitative changes in a nerve could be approximately measured when using the galvanic current. Since each faradic coil differed, frequently the various coils of the same maker vary in their physiologic effects, it was impossible to arrive at anything which was of scientific value. This does not mean that the faradic or the galvanic currents were useless; on the contrary, any physician, familiar with his own particular current, could obtain valuable information for himself, but as far as record-

ing the same as a guide for others with different instruments, it was worthless.

The condenser testing apparatus obviates all of this. The current strength or the time of its discharge can never vary from that which was intended. The instrument is uniformly and scientifically calibrated and these calibrations can be tested at any time to insure uniformity of results. Each condenser is of a certain well defined capacity. Such a condenser discharge lends itself for the scientific nerve testing and the recording of the results. A nerve tested with this condenser discharge would give a certain reaction which could be recorded, then any other physician in any part of the world could test that same nerve with a similar apparatus and the results would be identical. Such an apparatus is the approach to the scientific, the results recorded are of future value, because without the element of personal equation, they can be reproduced. According to the changes noticed, the prognosis of the case may be established.

The chief parts of a condenser apparatus are a certain number of scientifically measured and graded condensers. In the apparatus here described, there are 12 such condensers arranged in such a manner that 399 variations can be produced. The weakest condenser discharge obtainable would be from a single condenser, beginning at the left end of the scale. The first condenser has a capacity of .01 microfarad. To discharge that same capacity .01 microfarad of current requires a certain length of time. A nerve may be in a condition where the time allowance for the discharge of .01 microfarad is much too short for its appreciation, consequently there would be no reaction. By the addition of one or more condensers the discharge time would be correspondingly lengthened and the nerve would sooner or later have time for current appreciation and a muscular contraction would be the result.

The various condensers are properly gaged and their individual capacities are within 5% of the following values:

4	at	0.01 M. F.	0.04
1	at	0.05 "	0.05
4	at	0.1 "	0.4
1	at	0.5 "	0.5
1	at	1.0 "	1.0
1	at	2.0 "	2.0
12			3.99

Each condenser is individually connected to a switch lever marked with the condenser capacity and the twelve levers are so arranged electrically that each condenser can be used alone or in any additive combination.

Since it is possible to select from .01 of a microfarad up to 3.99 microfarads, it follows that there are provided in this apparatus 399 combinations or 399 separate nerve tests which may be applied.

To operate the apparatus, it is necessary to provide an electric current from outside sources. The 110-120 direct electric light current is most convenient. A rheostat or regulator within the apparatus allows the electric light current to be cut down to just 100 volts. The proper voltage, 100 volts, is then indicated on the volt meter. This rate is invariable; all of the condensers must be charged with a 100 volt current, no more and no less.

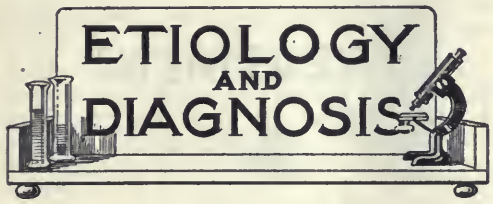
When the electrodes have been placed in position and the charging current of 100 volts is indicated on the volt meter, everything is ready for the selection of the number of microfarads necessary for the production of a muscular contraction.

An electric current travels at the rate of 200,000 miles per second. A single push button makes a sliding contact with the condensers selected and instantaneously breaks the circuit, allowing the previously selected number of microfarads to be discharged thru the nerve which is being tested. When the push button is released in its upward movement, the condensers are again charged, ready for another discharge. By this arrangement, the mechanical operation of the push button, the speed with which this is performed is not a factor in the results. Personal equation is therefore omitted. When a muscular contraction has been secured, the number of microfarads is read off and by reversing the current to an ascending one, the normal formula will either be proven to be present or absent.

In localities where only the alternating current of commerce is available, a small motor generator must be employed which converts the alternating into the direct current of voltage desired. It must be remembered that for an accurate diagnosis it is important to see to it that the voltage, with which the condenser is charged, is exactly 100 volts.

The formula ruling the quantity of electricity stored in a condenser is CV^2, C being the condenser capacity in microfarads and V^2 the voltage squared. It will be appreciated that even a slight variation of the voltage would cause a large difference of the charge in the condensers and a totally different reaction on the nerves of the patient.

The initial voltage of 100 has been arbitrarily chosen merely for convenience as it is easy to reproduce this voltage anywhere.



Etiology of Epidemic Acute Poliomyelitis.—The following facts, as stated in a recent report, determined since Rosenow's (*Jour. Lancet*, Nov. 1, 1918) studies on poliomyelitis were begun, indicate that the pleomorphic streptococcus or the coccus found in such large numbers in the throat and tonsils and in smaller numbers in the nervous system have an etiologic relationship to poliomyelitis.

It is constantly present in the diseased tissues, from which it can be cultivated even many months after glycerolation. On injections of cultures into young rabbits and guinea-pigs it localizes specifically in the nervous system, and produces flaccid paralysis and changes in brain and cord which resemble those in poliomyelitis in man. From the brain and cord of these animals the organism can be isolated; and the disease again produced. The organism has been rendered filtrable. By means of the same methods the identical organism has been isolated constantly from the brain and cord of monkeys paralyzed with fresh, glycerolated and filtered virus. The serums of persons and monkeys having recovered from poliomyelitis agglutinate specifically the more sensitive strains both from human and monkey poliomyelitis. Injections of the recently isolated aerobic cultures into monkeys render them refractory to virus. The aerobic form of the organism from human and monkey poliomyelitis produces antibodies in the serum of horses, in a large amount common for both, cross-agglutinating these strains specifically in high dilution. The serum of a horse immunized with freshly isolated strains from monkeys protected monkeys relatively against intracerebral inoculation of virus and had pronounced curative effects in the treatment of human poliomyelitis. Early intravenous injections were followed by almost immediate cessation of symptoms in a large series of cases.

The results of Flexner and Noguchi, so far as the cultivation of a small filtrable organism and its demonstration in the tissues in poliomyelitis are concerned, have been corroborated, but the results of our experiments indicate that this is the anerobic and, according to Amoss' results, a non-antigenic form of the organism, which, under aerobic cultivation, clearly belongs to the streptococcic group of microorganisms. Both forms have been constantly demonstrated side by side in the tissues of poliomyelitis. Flaccid paralysis come on soon after injection has been produced in monkeys with characteristic, altho not typical, changes in the cord with aerobic cultures, but the classic picture as obtained with virus in this species has not been secured. It may be suggested, however, on the basis of results already obtained, that this is due to the development of antibodies, since the organism in the aerobic form has marked antigenic powers.

Syphilis of the Bladder.—Vesical lesions can exist alone with no other evidence of syphilis and Cole (*Urologic and Cutaneous Review*, Aug., 1918) states that the differential diagnosis between papillomata and gummata is very difficult to make with the cystoscope, as is also the differentiation of syphilitic and tuberculous ulcers. It is said that the syphilitic ulcers are very often found higher up in the bladder than the tuberculous ulcers. The clinical picture of syphilitic bladder and that found in acute and chronic cystitis or chronic vesiculitis and prostatitis is so similar that differentiation by clinical symptoms alone is impossible.

The diagnosis is made from the following symptoms and facts:

First. Pain, hemorrhage, pyuria.

Second. Character of vesical lesions.

Third. Slight changes in the urine, absence of microorganisms.

Fourth. Relative state of health to bladder symptoms.

Fifth. History.

Sixth. Corroborating lesions.

Seventh. Wassermann reaction.

Eighth. Therapeutic test.

Bladder Lesions.—The most common lesion of bladder syphilis, either in the second or tertiary stage, is the ulcer.

Conclusions.—1. Syphilis of the bladder is much more common than formerly suspected and is frequently overlooked.

2. That while the "roseola" is pathognomonic, the several pathologic lesions, especially ulcers of the bladder without bacteriologic findings, should be viewed with suspicion.

3. That cystoscopy is one of the most valuable adjuncts in diagnosis.

4. That the possibility of an infected bladder and syphilis, with an improvement of bladder symptoms following treatment of the syphilis, is to be thought of.

5. That the result of treatment is the most positive evidence in diagnosis.

6. Suspected and treated, the prognosis in bladder syphilis is good.

Tic Douloureux.—Ball in *Minnesota Medicine*, March, 1918, says we hear much about the terrible pain of tic douloureux and this is true; the pain is usually very severe and sometimes terrific, but it would be a mistake to get the idea that this is always so. It may be mild in the beginning and vary in intensity in different attacks or even in the same attack. Its distinguishing features, however, remain the same, —a sudden, darting, jabbing pain, often accompanied by a twitching of the facial muscles complete in itself with a free interval, and then another pain and so on. Sometimes in these severe attacks these jabs may be continuous, giving the patient no rest day or night. At other times, hours, days, weeks and months may elapse between the paroxysms. In the commencement of the disease it may be difficult to differentiate it from the symptomatic pains so often occurring in this region, but as a rule the characteristics of the pain, together with the presence of the "trigger zones" or hyperesthetic areas from which the pains are started, make the diagnosis easy.

In conclusion, attention is again called to the neuropathic and endogenous origin of tic douloureux, to its association with migraine, and also to its distinct entity, for as Patrick says: "It is not migraine, not sinus disease nor any symptomatic pain around the head or face," but a disease *sui generis*. If we hold fast to this conception we will save ourselves many times from humiliation before the eyes of our patients and in addition lay another fagot on the altar of medical efficiency.

Etiology and Treatment of Enuresis.—According to Grover (*Jour. A. M. A.*, August 24, 1918) enuresis is a condition that is never a disease entity, but is merely a symptom of an underlying, general neuromuscular fatigue. The fatigue is chronic and the patients are all of the overactive, nervous type. There is often an element of marked mental strain from too prolonged school work. The treatment is exclusively dietetic and hygienic. All food between meals is forbidden, even bread and butter and milk, and the following foods are excluded from the diet: Soups, coffee, tea, cocoa; sweet, salty and highly seasoned food; ice cream, candy, cakes and pastry; jellies, jams, etc.; condiments, bananas and raw applies. To simplify the digestive work at night, meat, eggs and vegetables are forbidden at supper. The diet consists of milk, butter, eggs, meat, fish, breadstuffs, cooked cereals, macaroni, vegetables, oranges, stewed fruits and simple, unsweetened desserts. No fluids are given after 4 p. m.; the child must be in bed by 7 p. m., and no active play is allowed after 4 p. m. If very nervous, school is temporarily prohibited and a nap required every afternoon. Moving pictures, music lessons and evening study are prohibited. Absolutely regular hours are established for urination at night, namely, 7 and 10 p. m. and 6 a. m.; and in some cases with small bladders, 2 a. m. for a while. The day wetters are made to urinate at regular times by the clock, the intervals being lengthened to increase the capacity of the bladder until a satisfactory régime is established. Rewards are offered for following the directions. The results of such treatment are surprisingly good as shown by the fact that nineteen per cent. of the patients did not wet again after their first visit, twenty-three per cent. did not wet once after the first few weeks or months, thirty-one per cent. were reduced to a maximum of wetting once a week and only twelve per cent. were not benefited at all.

Chlorazene Dressings for Carbuncle After Excision.—Reeves in *American Journal of Clinical Medicine*, March, 1918, reports a case in which, after excising the affected area freely, the pockets were swabbed out as thoroly as was possible with tincture of iodine diluted with an equal volume of alcohol. Unable to stop the spread of the infection by this method and the patient becoming septic and his condition growing worse, it was decided to excise the carbuncle; and this was carried out under ether anesthesia. After the operation was finished, there was a crater extending almost from ear to ear and from 2 inches up under the hair down for at least 7 inches—in fact, large enough to have covered an ordinary pie-plate. Owing to the condition of the patient and the extent of the diseased tissue, not all of it could be removed. After the crater had been packed, the patient was put to bed.

Subsequent treatment consisted in dressing the wound twice a day with a solution of chlorazene 1-2 per cent. strength and saturating the under dressings with it every two hours. Besides, where the sloughs were deepest, the dry chlorazene was powdered directly upon the wound once a day. The wound became clean without the appearance of any odor and at that time presented a clean, granulating surface, without discharge worth speaking of. Twenty-six skin grafts were made, all taken from his arms. Only one of these failed to grow. The same dressing was continued. The patient's appetite came back, his temperature dropped to normal and he was dismissed from the hospital. The enormous crater filled out and there was much less scar-tissue than any one who saw the conditions had expected.

The only other treatment administered was 20 mils (c. c.) of mixed-infection phylacogen, in addition to supportive treatment and plenty of nourishing food.

The Antiseptic Treatment of Wounds in Civil Practice.—It is not possible for surgery to pass thru the hitherto unparalleled experiences of this war without having left upon itself an indelible impression. Probably no other phase will be so profoundly affected as that of the control of infection. Naturally one thinks immediately of the new principles involved in the Carrel-Dakin technic. One begins to wonder how civil practice will be affected.

A beginning is seen in the communication of Hartwell (*Annals of Surgery*, 1918). Cases were treated according to the orthodox method at Bellevue Hospital. Similarly to the military wounds these could be classified as those within the first six to ten hours—contaminated cases; cases after this interval designated as infected cases; cases after twenty-four hours—in the stage of established suppuration.

In summarizing, the opinion is expressed that the experience has demonstrated the practicability and advantage of the Carrel-Dakin method in civil hospitals. "In those civil hospitals where a traumatic service is not an important part of the hospital work, it is doubtful whether the inauguration of this treatment will meet with great success, for the reason that the call for its use will not be frequent enough to make it an established routine. Without this, it probably would be no more effectively applied than is any other special form of treatment which is only occasionally demanded in a general hospital service and if ineffectively applied it cannot be expected that satisfactory results will follow."

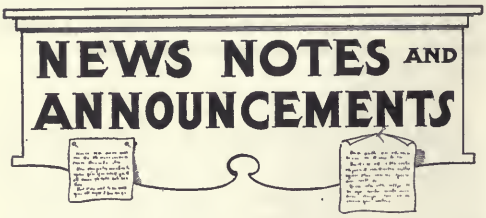
Postanal Dimples.—In the region over the sacrum, coccyx or in the skin back of the anus there occur infoldings of the skin which are congenital in origin as a result of imperfections of fetal development. Drueck (*Med. Herald*, Oct., 1918) asserts that these skin pockets vary in depth from a shallow cleft in the skin to a sinus two inches long and extending usually toward the anus. These recesses are very difficult to keep clean and become filled with epithelial debris and dirt which cause chronic irritation and infection and finally abscess. When seen at this stage and it is rarely found earlier, it may be mistaken for a rectal sinus. If suppuration has existed for considerable time a complete fistula may exist.

Treatment—The postanal dimple is not amenable to the treatment by incision and curettage as performed for external complete rectal fistula, because the postanal dimple is lined with squamous epithelium (normal skin) and not with a pyogenic membrane. Sebaceous glands and hair follicles descend into the wall and must be removed to effect a cure.

Complete excision is the only satisfactory treatment and may be performed under local anesthesia. As a careful complete dissection is necessary, a complete circle of anesthetic wheals must be made around the operative field, first in the integument then in the deeper structures and finally well under the part to be removed. An elliptical incision is then made around the sinus. The encircled mass is then grasped with toothed forceps and lifted out of its bed as the incision is carried underneath. Every particle of the infolded epithelium must be removed or a fistula will result. The wound may be closed with deep sutures passing well under the cut surfaces or it may be allowed to granulate as best suits the individual case.

Treatment of "Essential" Facial Neuralgia by Local Alcoholization.—The only effectual treatment of this disease is the destruction of the branches of the nerve, "local neurolysis," by chemical substances, particularly alcohol. Sicard (*Boston Med. and Surg. Jour.*, Sept. 19, 1918) uses alcohol, varying in strength from seventy to ninety-five per cent. and injects not over 1.5 c. c., under local anesthesia produced by novocaine or stovocaine, into the nerve in the foramina where it can be reached. Some of these foramina are superficial, the supraorbital and infraorbital; the opening of the inferior dental canal at the spine of Spix is medium; the foramen ovale and foramen rotundum are deep. He prefers to make the deep injections four or five days after the others, but sometimes makes all five injections at the same sitting. Care must be taken not to inject the alcohol into a bloodvessel, as this may cause a gangrenous necrosis of the area supplied by the blood. The results are said to be remarkable, tho relapses are apt to take place in from twelve to eighteen months. Certain conditions are indispensable to success. The first of these is that the case be one of the so-called essential variety and the following points are given in differentiation: 1. Whenever the pain in facial neuralgia persists continuously with no distinct intervals of relief it is not a case of essential neuralgia. 2. Cases of facial neuralgia which, not having been already treated surgically or by local injections, are accompanied by cutaneous or mucous anesthesia, are not cases of essential neuralgia. 3. When facial neuralgia, previous to any intervention, presents associated signs of stimulation or paralysis of other cranial nerves, such, for instance, as trismus, diplopia, facial paralysis, lingual hemiatrophy, etc., it is not case of so-called essential facial neuralgia. 4. A case of facial neuralgia which *ab initio*, involves the three branches of the trifacial, is not a case of essential facial neuralgia. In these cases we are dealing with secondary facial neuralgia of either exocranial or endocranial origin, *e. g.*, syphilis, tuberculosis, cancer, abscess, sinusitis, etc. In these the injection of alcohol, far from affording relief, may, on the contrary, aggravate matters. Nor is it of service in neuralgia following herpes zoster of the trifacial, for this is not a peripheral lesion. The second important condition is that every effort must be exerted to reach the nerve branches responsible for the pain. Cutaneous or mucous anesthesia of the area innervated by the injected nerve is the only

evidence that can be obtained of a successful injection. This should supervene directly after the injection and is accompanied by a sensation of induration and swelling, in reality nonexistent. These disturbances of sensation are very varied and peculiar.



Narcotic Drug Commissioner Appointed.—Governor Whitman has announced the appointment of Frank Richardson, of Cambridge, N. Y., as commissioner of narcotic drug control. The commission was created by the 1918 legislature.

American Physicians Elected to Honorary Membership in French Medical Society.—The Société médicale des Hôpitaux de Paris at a recent meeting elected the following American physicians as honorary members of the society: Dr. Beverly Robinson, of New York; Dr. William S. Thayer, of Baltimore; Dr. Alexander Lambert, of New York; Dr. Simon Flexner, of the Rockefeller Institute for Medical Research, New York; Professor Morton Prince, of Tufts Medical College, Boston; Dr. James T. Case, chief of the radiologic service of the American Army in France. At the same time five British physicians were elected to honorary membership, as follows: Sir Bertrand Dawson, Sir Almroth Wright, Sir William Leishman, Sir Thomas Barlow and Sir Dyce Duckworth.

Two Journals in One Month.—A few weeks ago we received an announcement from the *Medical Review of Reviews*, advising us that they had just purchased the *Buffalo Medical Journal*, which was to be consolidated with their own publication in January.

We are just in receipt of another announcement from the *Medical Review of Reviews*, advising that they have also purchased *The Southern Practitioner*, which will also be consolidated with the *Review* next month.

This is the fourth journal which the *Medical Review of Reviews* has purchased and consolidated under its present management and certainly speaks well for the continued success of this publication.

The *Medical Review of Reviews* announces that it hopes to purchase still other medical journals and will pay cash for any that are for sale.

Parental Terrors.

At evening, when we heat the milk for which our darling cries,
We watch her put it swiftly down with fond and loving eyes.
And then we go to bed, but not to sleep a single wink,
Ah, no! we lie awake till morn and think and think and think.

Suppose the cow who gave the milk was suffering from mumps!
Suppose the farmer had forgot to sterilize his pumps!
Suppose—ah, dreadful is the thought that grips like iron bands!
Suppose the hired man had scorned to manicure his hands!

Suppose the grass had grown too rank; suppose the creek was green;
Suppose the dairy was not washed that morning, white and clean!
These are the fears that fill with woe life's variegated page
When baby's had a drink of milk of unknown parentage.

—George Fitch, *Peoria Herald Transcript.*

You Are Only You.

When the long, hard day has vanished and you seek your waiting bed,
Try to live the dead hours over ere the pillow soothes your head.
Try to find some explanation for each thoughtless thing you've done;
Try to make some reparation for the trouble you've begun
After all the petty gossip that you scattered thru the day,
Think of how you knocked your neighbor, going calmly on his way.
Drag the unkind slings and arrows down from Memory's dusty shelf—
Then stand up before the mirror and begin to knock yourself.

Do not stand there smug and smirking, do not smooth your tousled hair!
Shake your fist at your reflection! Give yourself an icy glare!
Don't resolve that you are handsome when you ought to know you're not;
Rather tell the faithful mirror that it flatters you a lot.
Make wry faces by the dozen; try a cold, contemptuous sneer—
Such as you have tried on others. Give yourself a mocking leer.
Then the mirror will remind you, as all honest mirrors do,
That you're not one man in thousands—that you're only LITTLE YOU!

—William F. Kirk.