1. Typical abortive cases of poliomyelitis were the streptococcal grip type of the spring, were present in frequently the same family as then affected, but in individuals who were not affected at that time. Other individuals of the family gave the more recent history of malaria, sore throats or bronchitis, and showed an eye strabismus or a recent throat or muscle weakness. In some instances, carriers in the family were demonstrable, mostly the nasal type as described in my article on Streptococcal Infection Simulating Diphtheria.

2. Typical cases of the disease as to onset, symptoms and signs were classical pictures of "Influenza." Atypical and suspected cases were like the spring grips save the more frequent irritative pressure signs of fluid on the brain, pons or cord, especially during a short period during and following the extreme humidity.

3. The convalescence of all abortive, mild or suspected cases has been very typically "Influenza or Grippe."

4. Although I have obtained but one spinal fluid in an abortive case showing a fine diplo-streptococcus, the blood picture of leucocytosis and high polymorphonuclear differential count is in accord with such an etiology.

5. The quick reparative response not only in non-crippling apparent paralyses, but those apparently crippled as well, is not in accordance with similar lesions in the sporadic cases of this year or previous years.

6. Of several thousand children coming from New York City and vicinity during the two months following July 10, 1916, in but one family did I find a carrier. That one was in a family who brought a case of poliomyelitis with them. The greater proportion of local cases had family, house or neighborhood immediately or more remotely previous infection to explain the infection of the reported case. This was true in several remote country places where, voluntarily quarantined for four and five weeks, the source of the infection had been unknown.

7. Since the middle of September there has been but one case of poliomyelitis reported, that of an adult infected in a neighboring city. Yet, since that time there have been three typhoids, four scarlet fevers and six diphtherias—all in children of ten and under, where the onset, signs, symptoms and course were in no wise different from the poliomyelitis of the summer, with the exception that there were no paralytic manifestations. One of these so-called typhoids was especially characteristic in the fear of being handled. The family history, the family or house carriers, when found, were streptococcal grips. Among some 300 absentees from school during the past one and one half months, I have seen 42 cases of grip, 3 of whom in one neighborhood showing an infective jaundice as well.

CONCLUSION.

The epidemiology of "Anterior Poliomyelitis Epidemica, 1916," shows this disease to have been an integral part of a streptococcal grip, prevalent in 1915, epidemic in 1916. This grip has been most protean in its manifestations.

REFERENCES.

- ¹ Monthly Bulletin, Department of Health, New Haven, Conn., March, 1915.
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- ³ Streptococcal Infection Simulating Diphtheria, BOSTON MEDICAL AND SURGICAL JOURNAL, June 8, 1916.
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Industrial Health Insurance.

MEDICAL SERVICES AND MEDICAL AND HOSPITAL FEES UNDER WORKMEN'S COMPENSATION.

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THERE is a principle in socio-economics known as the economy of human energy. In its broadest sense this term applies to the science of co-ordinating all the forces of production and distribution in such manner that all forms of waste will be reduced to the very lowest terms possible, and the potential forces, human and material, will be developed with the greatest efficiency. The result to be accomplished is the raising of the sum total of human happiness morally, physically, and economically to as high a degree as possible and in such manner as to make the distribution conform to the best rules of altruistic justice. The principles in this theory touch upon all forms of human activity, but will be generally applied to the entire social organism only through a long process of education, or to a considerable degree, perhaps, through the effect of some great awakening, such as the problems which have been brought to light by the present terrible but educative European war. Already signs are apparent that there has been a quickening of the public conscience to the many chances for improvement in our economic structure, and this in itself is an extremely important step in the right direction.

The subject of industrial injuries is small compared with the entire solution of all national and international problems, but is, however, of vast consequence as one of the interdependent problems of the principle of economizing human energy. Industrial injuries, properly viewed, form part of the cost of production and distribution and are a burden upon the employee, the employer, and all persons combined. A compensation act narrowly viewed has to do with the payment of money to these employees and to the

payment for certain medical expenses which must be taken care of in some manner. This in itself is a big improvement over the old system, but why stop there when there is presented the opportunity for accomplishing results permanent in value?

In dealing with the workmen's compensation act or acts we are dealing with compensation for the injured employee, in which an attempt has been made to eliminate the source of waste which came from lawyers and litigation; and the question arises whether this should not apply equally to the medical profession. Considering the subject from the standpoint that compensation means adequate medical treatment and rehabilitation, with money payments as a stop-gap while the treatment and rehabilitation are going on, the medical aspects of compensation have not yet been fully developed either to their greatest extent or to their maximum efficiency.

While our experiences with this form of conservation have been limited in time, through the intensive study which has come from the opportunity to consider large numbers of cases more or less under one central supervision, certain essential facts have clearly demonstrated themselves. If the amount of money that industry is called upon to pay were to be handled and distributed in the old way, where the employer insured himself against lawsuit and where the injured employee settled his case on the most favorable terms that he could make with very little reference to the accident or duration of his disability, industry might well look askance at further development in the compensation field.

The curtailment of emigration, due to the war in Europe, and the increased demand for workmen, brought about by our unexampled industrial activity, have led to a readjustment of industrial vision, so that the value of the man to the community and to the industry appears in a different light than heretofore.

What I have to say is not based upon any philanthropic or socialistic theory, but is a matter of applied common sense to the medical problem. In view of Mr. Williams' paper, I will start by saying that any compensation scheme which does not make medical provision for the preservation and care of the workmen from the medical standpoint is a joke.

Adequate medical service must be a leading feature of workmen's compensation, if not the most important feature of compensation for the living workman. In return for the waiting period, generally provided in compensation laws where no monetary consideration is paid, provision is made for medical and hospital services and medicines when required.

That the injured workman has accepted any waiting period would seem to imply that he is willing to forego some of his rights if the seriousness of his accident can be minimized and his period of disability shortened.

Since most cases in Massachusetts, as in other States, do not last long enough to be paid com-

pensation in the form of money, we should scrutinize carefully any substitute for the best medical services that it is possible to offer. Further than this, with the administration of various laws, a better correlated system of treatment than the ones in vogue hitherto may be developed.

A completely efficient hospital for the proper care, treatment, re-education, and readjustment by personal study of an injured employee has yet to be constructed and maintained. The charitable idea underlying the establishment of hospitals still prevails, and the appeal to the heart is much stronger in the case of the crippled child than it is in the case of the crippled adult, even though he has depending upon him a number of children who may become crippled by reason of lack of nutrition or the invasion of disease if the breadwinner of the family is partly or totally disabled from work for a considerable period.

An appointment on the medical or surgical staff in a general hospital is a big asset to the man appointed. The medical profession itself is not at all deceived by what is given and what is received by men on hospital staffs, and the reason hospital progress has been so slow is because hospitals as a rule are run by laymen who have neither the knowledge, experience, nor the desire to exact that "strict accountability" from the staff members treating the ordinary run of cases that they would exact if the patient treated was one of their own family. Many a hospital trustee, eminent in altruistic effort and burning with zeal for uplift, is too proud to fight for an injured workman.

There is a general feeling in the medical profession that general hospitals should not care for a person able to pay for private service, and they feel that an insured person comes within that category. The public, up to a comparatively recent time, were afraid of hospitals, and were encouraged to remain away from them until compelled by necessity to go. The development of the modern hospital, with the elaborate and complicated methods of diagnosis and treatment, have become competitors for public favor. They are still in a state of evolution. The advanced type of hospital has operating physicians and surgeons who are paid for full-time work which they perform in connection with the medical teaching at some institution. There is the type of hospital in which the experience and prestige serves in lieu of other direct rewards and in which no man unless of the staff is permitted to treat patients. There is another type presented where there is a regular staff, but to which outside doctors not on the staff are permitted to send patients and perform their own operations. Then there is the private hospital under private contract.

I am inclined to believe, with Dr. E. A. Codman, Boston, whose studies of hospital efficiency are second to none, "that the time has come when hospitals should advertise the ability of

their staffs by printing truthful reports which they have obtained of cases, and this should also be true of medical as well as surgical work," and not by the presentation of only favorable results. Compare the reported results of bone-planting with what we see as results.

Constant supervision and treatment may partake too strongly of paternalism, but it is the paramount duty of the industrial accident boards to insist upon methods of persistent precision. It is important to remember that the weakened points in our whole scheme of medical care have as much importance upon final results as the most elaborate details of special treatment bring for a short time even under the most favorable conditions.

If it were possible every injured workman should be kept under medical supervision from the time he was injured until able to resume his work. Such supervision should not, and need not be of the type as to be unduly expensive, and if properly carried out would save much time to the worker as well as to the employer of labor. It would have the additional advantage that the injured man would be in contact with encouragement and sympathetic treatment; when left to his own devices he might not make his best effort or he might not make his best effort at the opportune time. Early return to work is greatly helped by the assurance given by the doctor that it is safe. That does not mean within two weeks or thirty days, but it means at the time he is able to make an effort.

The loosening up and increasing flexibility of injured members could be aided by proper treatment. Even after return to work a man should be provided the opportunity to drop in and see a doctor if the work seems too hard or increases his pain. The man will stick it out better if the doctor in whom he has confidence advises him of the significance of pain, or perhaps the doctor might indicate means of relieving his discomfort while the man still remains at work. Intelligent handling of injuries requires a great deal of skill and experience not only in regard to the specific trouble under observation but the treatment of the man as a physical whole and the man as a unit in the scheme of employment.

Care and judgment are not so much needed in regard to the first treatment, which can be and is more or less standardized, as in the later handling of the case. It is evident, for instance, that with a fracture of the lower leg, for a certain period of time hospital care is required. Hospital care is good, but the minute the man is able to get from his bed to crutches, more careful supervision is required than when he is under the direct care which comes from hospital discipline. The orthopedist must complement the surgeon.

Treatment should not be attempted in a routine manner, because the necessary treatment is impossible to estimate accurately by ordinary clinical examination. For instance, an acutely

irritated back should not be irritated further by additional massage and exercise, but rest is needed first, followed later, after acute symptoms have begun to abate, by other forms of treatment, to reinforce weakened muscles or to change weight-bearing balance. Backs can be baked too long and frequently so as to become harmfully hypersensitive to heat. They may be massaged too often and vigorously, or they may be protected too continuously and to such a degree that weakness from disuse increases.

In many cases it is necessary for patients to receive both local and general treatment. While substantially all require some local form of treatment or protection to the injured part, cure is often retarded by the lack of proper hygienic regulations or surroundings. While every form of joint or back injury requires some local form of protection, massage, or baking, they all are entitled to have their recovery hastened by simple hygiene regulations which are known to be beneficial.

Unless some amount of compensation is paid before the twenty-first or even the seventeenth day, as it will be in Massachusetts after January 1, 1917, I am convinced that clinics for industrial accidents would procure better results if in addition to the medical and surgical treatment offered to the man he should be fed at the same time and place that he received his treatment. If this were done we might feel sure that he would have at least one meal a day. At present I often have doubts that he has even that one. A 10-cent plate of soup applied to the lining membrane of the stomach will take a man further on the road to recovery than 50 cents' worth of a patented preparation applied to his knee.

Many cities of Massachusetts at the last election passed by referendum vote upon the proposition of vocational schools. One such school to be established in Lynn, one of the largest shoe-making cities in the world, will train both boys and girls to enter the shoe industry after giving a four-year course for the boys and a two-year course for the girls.

If this development of vocational schools becomes widespread, as it should, or if the present school courses are supplemented by vocational schools at night, these vocational schools might be used for the reëducation of men injured in the particular industry. Trained instructors serving outside their ordinary working hours, for the training and reëducation of injured employees, in conjunction with continuing medical treatment, will bring results.

In States which have a large urban population, with the natural congestion that must necessarily arise in cities, the development of industrial farms would afford adequate outdoor exercise for injured employees during rehabilitation. It would provide a certain amount of regular régime, with regular food and sleep, and it would take the injured or crippled employee

away from that destroyer of morals and stamina—the city saloon. The person who called the saloon the poor man's club neglected to state which end of the club was passed to the workman.

The commission appointed in Massachusetts to investigate the subject of workmen's compensation and report a bill, was headed by Hon. James A. Lowell. Mr. Joseph A. Parks was a member of the sub-committee of two of the commission which drafted the present law. The latter's services were utilized by the Commonwealth by his appointment to membership on the Accident Board.

They indicated the lines along which the new law when enacted must develop, as follows:

The controversies under the act will relate largely to the extent and duration of the injury. The successful administration of the act requires the assistance of skillful physicians and surgeons of the highest integrity. This phase of the situation has occasioned difficulty in other countries. The details of this subject must be determined by the industrial accident board as they arise in actual practice. The emphasis will be laid *not* as heretofore *on the lawyer, but on the doctor.* (Italics are mine.)

The medical profession of this country had very little to say about the passage of workmen's compensation laws, and the rights of the medical profession were neither carefully considered nor conserved in most of this legislation.

It is to the credit of the medical profession that they were not early upon the legislative scene asking for their pound of flesh before carrying out the broad humanitarian principles underlying workmen's compensation.

Hospital fees.—We have met the situation of hospital fees in Massachusetts by the establishment of a few simple fundamentals brought about by a committee representing two great medical societies in the State, working in conjunction with three medical men appointed by the industrial accident board. The basis for medical fees is as follows:

"That fees paid by the companies should not be less than the average minimum fee in the locality in which the service is rendered."

This refers to fees paid to doctors, not to contracts between doctors and the insurance companies. This took into account that many medical and surgical fee tables established by local medical societies had perhaps been based upon the average income of the so-called better classes and were not generally applicable to workmen,—who form such a large part of the free hospital and dispensary service or who turn to fraternal organizations or hospital associations.

"That charges up to \$50 for major operations are not excessive."

This did not fix a maximum, but made possible other payments based upon circumstances.

"That service rendered by lodge physicians be paid for, provided it is not inconsistent with the rules of the order."

The status of the lodge physician is a very difficult one upon which to pass, but as the choice of lodge physicians to which a member is obliged to go is somewhat similar to the insurance company providing a man to whom the employee might be obliged to go, the committee left the matter open.

"That specialists, established and recognized by the profession as such, may receive special rates for their work, provided the case requires special skill."

In a discussion of what is reasonable hospital care, it is extremely difficult to lay down a hard and fast rule which will operate in all territories with the utmost effectiveness. In the administration of the law in Massachusetts, an effort has been made to utilize existing medical institutions as they stand without insisting upon costly duplication at the expense of the insuring companies.

The hospitals are allowed to charge the insuring companies for the care of an injured patient the same rate that they would charge to an employee of a man not insured. Perhaps that works a hardship in many instances. Perhaps better service might be obtained by paying more money, but ultimately the payments to hospitals must be based upon what they give in return.

In a general way, the payment for hospital services is based upon the rule that for the first two weeks' services \$15 per week will be allowed, provided that \$15 is not a higher rate than is charged to the uninsured employee of the public at large, and for subsequent weeks in unusual cases it is felt that some concession should be made by the hospitals, and many of them make concessions from this rate, even if the rate does not fully cover the actual cost.

Reasonable extras are allowed—a fee for the taking of X-ray plates; ambulance fee; fee for plaster-of-Paris casts; fees for special nurses, not exceeding \$4 per day; and private rooms, not exceeding \$25, when the condition of the patient or the character of the injury needs isolation.

The question of adequate fees for services rendered under the varying conditions which obtain in a State like Massachusetts, and the question whether the man is better served by doctors of the employer's choice or of his own, is still an open one. The theory that if the employer represented by the insuring company were given the choice of physicians the most skillful man would be employed has not been fully borne out by experience. On the other hand, it is for the medical profession to demonstrate that the free and untrammelled choice of physicians has not elements of weakness which will impair the full usefulness of the compensation act.

Perhaps the BOSTON MEDICAL AND SURGICAL JOURNAL in an editorial in its issue of September 21, 1916, indicates the line along which we might proceed:

"It should be remembered in considering new legislation that unrestricted choice of physicians by employees will probably result in the establishment of a State-wide fee table. Such fee tables are in effect in other States and, of course, are much below the standard of fees now being paid under the 'average minimum' approval standard of the present workmen's compensation act. It may be also that absolute free choice will tend to eliminate competition between the present 27 insurance companies and bring about the concentration of all the compensation business under one insurance company, with whom all would be required to transact business under direct State supervision. There is a possibility that the problem may be solved by the combination of 'free choice' under a supervising consultant, agreeable to and appointed by the insurance companies."

Dr. Emmet Rixford, of San Francisco, at the latest meeting of the American Medical Association (*Journal American Medical Association*, Sept. 30, 1916), indicates another difficulty:

"The friendly societies or fraternal organizations or lodges which have increased so prolifically during the last 50 years are organized largely to afford medical and surgical services at such cost as to be within the reach of the laboring classes, the monthly dues providing the means for the employment of community physicians. Many such, however, extend their membership to include people in much more comfortable circumstances, who join for the purpose of securing cheap medical and surgical service.

"The medical profession, therefore, finds itself opposed to what it considers exploitation of the profession. While from the standpoint of cheapness this scheme works well enough for the members of the societies, it often—in fact, generally—fails to secure to the patient competent medical service. Investigation has shown that in these societies the payment to the doctor is far less than \$1 a visit on the average, and in some cases as low as 25 cents. The members paying monthly dues, and not so much per visit, run to this doctor on the most trivial excuse, thereby unduly multiplying the number of visits. Some of these lodge doctors see 40 patients a day, receiving therefor from \$100 to \$150 a month. It is no wonder, then, that the medical work done, is as a rule, of the most perfunctory sort.

"Under workmen's compensation and compulsory industrial accident insurance, practically the whole of traumatic surgery is taken from the lodges; and if insurance against illness of workmen becomes a fact in this country, as it has in England and Germany, the *raison d'être* of most of these associations will have disappeared. England and Germany, however, instead of destroying these societies, have utilized those of them which are financially sound, and have in fact commissioned them to take care of

accident and illness of members, but under strict governmental supervision."

If we have unlimited free choice, how can we get patients into hospitals from institutions?

Germany before the war started a propaganda, which is being carried out under war conditions, which is proving that workmen with one leg and with no legs, with one arm and no arms, with one eye and no vision at all, with shortened limbs due to serious injuries other than amputations, can be furnished with employment suitable to their condition in life. The saving to industry of skilled workmen, men who have followed industrial pursuits all of their lives, cannot be estimated.

Perhaps I have gone far afield from the subject assigned me, but as I feel that early, adequate and continuing medical care is necessary to preserve our trained men, I make no apology.

Cure is better than controversy.

Fee tables are simply makeshifts. The great principle underlying all of compensation is adequate treatment from start to finish, and the measure of medical services should not be the measure of the medical costs, but the measure of medical results.

I am not yet convinced that State medicine is to be the cure of our medical evils. A medical trust, no matter how euphemistically disguised, is still a medical monopoly. To-day's medicine is still in the control of a profession which has ideals and traditions of professional conduct and morals, who up to date have not measured their services by what they have taken from the community, but by what they were able to give.

PHYSICAL EXAMINATION AND MEDICAL SUPERVISION OF FACTORY EMPLOYEES.*

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PHYSICAL EXAMINATION OF EMPLOYEES.

History of Development.—The physical examination of factory employees is a comparatively new undertaking. Previous to five years ago, except in Chicago, there was, so far as I know, no physical examination of employees by any factory in the United States. About 1910 an antituberculosis society of Chicago, under the efficient management of Dr. Sachs, succeeded in interesting a group of employers in the physical examination of their employees for tuberculosis. Following this work, other factories began considering the advisability of establishing examinations, with the point of view of increasing the efficiency of their force and assisting in the tuberculosis movement, which at that time was sweeping the country. In 1911 the Norton

* Read at the Conference on Social Insurance, Washington, D. C., December 6, 1916.