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Volume Author/Editor: Pierce Williams, assisted by Isabel C. Chamberlain

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CHAPTER I

SUMMARY

MEDICAL care may be purchased in either of two ways: (1) through direct payment by or on behalf of the patient to the medical practitioner rendering the specific service; (2) through insurance. Under the insurance plan, some organization undertakes to provide medical or hospital care to certain designated individuals in case they require it, in consideration of the payment of a fixed amount, by them or on their behalf, at periodic intervals.

Insurance, as applied to industrial injury, and to some extent, occupational disease, is practically compulsory in all modern industrialized countries. The cost of such insurance is paid by the employer, on the theory that industry should bear the burden of industrial accident. All states of the American Union, excepting Arkansas, Florida, Mississippi and South Carolina, have workmen's compensation laws, under which employees in many occupations are not only guaranteed indemnification for loss of earnings due to injury while at work, but medical and hospital care as well. Railroad and other employees engaged in interstate commerce are not ordinarily subject to state compensation laws. There is no Federal workmen's compensation law relating to employees engaged in interstate commerce.

Insurance against sickness is compulsory in the chief countries of Europe, among them: Great Britain and Northern Ireland; Irish Free State, France, Germany, Austria, Hungary, Czecho-Slovakia, Soviet Russia. In the former Austrian and Hungarian provinces of Italy sickness insurance is compulsory; in the rest of the country only tuberculosis and maternity insurance are compulsory. Under the compulsory system, the employer deducts a

stipulated amount periodically from the wages due each employee. To the employee's contribution the employer adds a fixed amount, and remits the entire sum to the insurance institution set up to administer benefits. In some countries the State contributes, either directly, or by assuming certain of the expenses of administration. The benefits include not only payment of a cash allowance to cover loss of earnings caused by illness, but medical care "in kind." In Soviet Russia the entire expense of sickness insurance is borne by the State, as employer. In Belgium, Finland, Denmark, Sweden and Switzerland, the system of sickness insurance is technically voluntary. Mutual benefit associations, aided by state subsidies, guarantee indemnification to the working population for loss of earnings due to sickness, and provide them with medical care.

"COMPANY" MEDICAL SERVICE

In the United States, up to the present time, insurance has been applied to the purchase of medical or hospital care to an exceedingly limited extent. In order to find any considerable group of persons who may be said to secure medical care through the method of fixed periodic payment, one is obliged to take the long-established plans of employee group medical service in the mining, the lumber, and the steam railroad industries. In these industries, this type of fixed payment medical service for employees is of long standing and has developed out of the isolation of the communities in which workers live. Practically all state workmen's compensation laws authorize employers furnishing satisfactory evidence of their financial ability, to "self-insure," i.e., pay compensation direct to injured employees and provide the medical, surgical and hospital treatment required under the state law. Under the "self-insurance" clause of the state workmen's compensation laws, a great many companies in the mining and lumber industries throughout the United States employ one or more physicians, to render treatment to employees disabled by an industrial injury.

Hospitals are operated by relatively few of these "self-insuring" mining and lumber companies. In case hospitalization is necessary for an employee injured in the course of his employment, it is provided in an independent hospital. Usually, the provision of service is covered by a contract between the company and the hospital.

Medical care for injury and disease not coming under the state workmen's compensation law is made available by the company to the employee, in consideration of a fixed, periodic payment deducted from his wages. In many concerns the payroll deduction entitles dependent members of the employee's family to medical service.

The number of mining and lumber employees covered by payroll deduction medical service plans in April 1930, when the Federal Census was taken, is estimated by the National Bureau of Economic Research at approximately 540,000. No estimate has been attempted of the approximate number of dependent members of employees' families who are normally entitled to medical service under company plans.[1] Chapters III to VIII inclusive are devoted to a detailed description of these company plans of medical and hospital insurance.

[1] At the end of this chapter will be found a table giving the 1930 Census statistics of persons gainfully employed in the mining and lumber industries of 21 states, which are the basis of the above estimate.

Note by Mr. Hugh Frayne, Director: In giving my approval to the publication of "MEDICAL CARE THROUGH FIXED PERIODIC PAYMENT," as a document of the National Bureau of Economic Research, such approval must not in any way be construed to mean that I am in accord with this form of medical care for workers.

I am firmly convinced that these methods are compulsory and deny the workers from participating in making or setting up these plans. The American Federation of Labor is deeply interested in medical and general health care of workers, whether they are members of our unions or not. It is opposed to and will continue to oppose all forms of compulsory medical care through employers, which we consider a form of paternalism.

In localities where the workers are well organized, especially in coal fields where the miners have strong unions (and there are many other cases that can be cited), the union representatives participate in setting up and developing these plans for medical care and hospitalization, whether it be a small community or a state activity.

A comparison of these methods will prove the correctness of these statements.

Much more could be said upon this subject but I shall refrain from doing so, as I believe I have made clear my position and that of those I represent.

RAILROAD EMPLOYEE HOSPITAL ASSOCIATIONS

On 27 of the important trunk-line railroad systems of the United States, a fixed regular payment in the form of a deduction from wages entitles the employee to complete care in the hospital operated by the employee hospital association. Treatment is provided for both "duty" and "non-duty" injury and sickness. Of these 27 railroad employee hospital associations, twenty are connected with railroads operating west of the Mississippi River. Only two pay cash disability benefit.

Membership in the hospital association is usually automatic, all employees from the president down belonging. The hospitals in which disabled employees receive care are in most instances owned by the railroad companies. The governing body of the association, to which the operation of the hospital is entrusted, is made up of representatives of the employees and of the railroad management. In April 1930, the total number of employees of railroads with hospital associations was estimated at 530,000, or 34 per cent of the total average number of employees of Class I steam railroads reported for that month.[2] Dependent members of railroad employees' families are not entitled to free service, but enjoy special rates in case they make use of the hospital facilities.

The absence of any compensation law covering employees engaged in interstate commerce doubtless explains why there is no universal rule as to the basis on which expense for medical treatment arising out of a "duty" injury is assumed by railroads having hospital associations. Some railroads pay the hospital association for industrial accident care on a case-by-case basis. Others contribute a lump sum annually toward the operating budget of the hospital association. Chapter IX is devoted to a detailed consideration of fixed payment medical service in the railroad industry.

Participation in the above described types of "insurance" plans is usually automatically related to the employment. The right of

[2] Figures for April 1930 are used because that was the month in which the Federal Census was taken.

an employee and his dependents to medical care ceases technically when he goes off the payroll. This point is important in a time of wide-spread unemployment like the present. The number of persons covered by these two informal types of medical insurance as these lines are written in May 1932, is considerably smaller than the number estimated for April 1930.

FOUR OTHER TYPES OF FIXED PAYMENT MEDICAL SERVICE

Four other types of plans under which individuals, acting singly or in groups, make certain of medical and hospital care through the principle of insurance have been found in the course of this investigation. While the industrial plans are found in isolated communities in which medical service would be lacking unless organized by the employer, these four plans are found in urban places where, presumably, medical facilities already exist. The simplest way of identifying them is by the organization undertaking to provide care in return for a fixed periodic payment. They are as follows:

1. *Private Group Clinics.* A number of private group clinics at present offer medical service in return for a fixed, periodic payment. The characteristic features of the private group clinic are these: its physicians use office, laboratory and medical facilities in common; most of the medical staff are associated with the clinic on a full-time basis; services usually include one or more medical specialties; patients are the responsibility of the entire group; income is "pooled," and members contract among themselves as to remuneration; the business administrator is usually a layman.

2. *Community Health Associations.* In Brattleboro, Vt., and New Bedford, Mass., non-profit associations offer medical and hospital insurance to residents of the community, in return for the regular payment of dues in the association.

3. *Non-Profit Community Hospitals.* In a few cities, what is in effect hospital insurance is offered to residents of the community. Any individual who pays the stipulated amount

periodically to the hospital is entitled to care in the institution in case he needs it, without further payment.

4. *Medical Benefit Corporations.* In California, certain incorporated business concerns are permitted to issue contracts guaranteeing medical and hospital service to individuals, in consideration of a fixed, periodic payment. These medical benefit corporations arrange with independent medical practitioners and hospitals to provide service to any contract-holder who requires it.

The service guaranteed under the above four plans relates only to disease or injury for which the person is not already entitled to care under the state compensation law.

Although the total number of persons who at present secure medical or hospital care under the above-mentioned plans is relatively small, these plans are, nevertheless, among the most significant experiments in voluntary sickness insurance now going on in the United States. For this reason their future development should be observed carefully. More detailed information about them is given in Chapter X.

"INCOME PROTECTION" ACCIDENT AND HEALTH INSURANCE

It is important for the reader to distinguish between the types of fixed payment medical service plans mentioned above and ordinary accident and health insurance. The plans which are the chief concern of this report undertake to provide medical care "in kind" but not to pay a cash benefit to cover loss of earnings. Commercial insurance policies undertake to pay a cash benefit, but not to provide medical or hospital care "in kind." The standard "benefit" of American health and accident insurance policies is a stipulated amount for a certain number of weeks in case the insured is deprived of income by sickness or accident. In addition to this standard benefit, many health insurance policies provide for the payment of a fixed monetary benefit in case the insured has incurred expense for medical, surgical or hospital care. The amounts payable are specifically listed in the policy.

Group health insurance policies are taken out by many large

industrial employers for the benefit of their employees. Under group contracts, the insurance company agrees to pay a stipulated cash benefit for a certain number of weeks to any employee of the policy-holder disabled by sickness or injury not already covered by the workmen's compensation law. The premium for group insurance is in some instances paid entirely by the employer; usually, however, the employee pays a share by means of an authorized deduction from his wages. Group insurance policies neither provide medical nor hospital care "in kind," nor pay a monetary benefit to the employee for medical expense incurred by him. In this respect, group health insurance policies differ from group industrial accident insurance policies issued by casualty and employers' liability insurance companies to employers, to secure their liability under workmen's compensation laws. These policies undertake not only to compensate an injured employee for loss of earnings, but to provide him with whatever medical, surgical or hospital care he is legally entitled to. The chief features and benefits of accident and health insurance, with special reference to medical and hospital benefits, are summarized in Chapter XI.

MUTUAL BENEFIT ASSOCIATIONS AND TRADE UNION BENEFIT FUNDS

Industrial establishment mutual benefit associations and trade union sick benefit funds are two other examples of voluntary sickness insurance whose chief function is income protection. Participation in the former is limited to employees of the particular plant; in the latter to members of the union in good standing. Although there are several hundred establishment mutual benefit associations and trade unions providing sick benefit in cash, only a few provide medical and hospital care "in kind." The number of persons who secure medical and hospital care through this form of voluntary insurance is negligible. However, in order that the reader may visualize these two types of sickness insurance schemes in relation to medical and hospital care insurance, more

detailed information about them is given in Chapters XII and XIII, respectively.

CLOSE TIE-UP BETWEEN COMPENSATION LAW AND INDUSTRIAL EMPLOYEE FIXED PAYMENT MEDICAL SERVICE

Returning to a consideration of the company plans of fixed payment medical service for employees and their dependents in the mining and lumber industries, it should be pointed out that in practice there is a close tie-up between the provision of medical care at the employer's expense for industrial injury, and of medical care at the employee's expense for non-industrial injury and disease. For this reason, this informal type of insurance cannot be clearly visualized without some understanding of the compensation laws in the 21 states where employee group medical service is extensively found.

The system of payroll deduction for medical care was already of long standing in the mining and lumber industries when state compensation laws were passed. Although the new laws placed upon the employer the burden of expense of medical care for industrial injury, they were careful not to disturb the existing machinery by which the employee and his dependents obtained medical care.

One of the earliest workmen's compensation laws was that of the State of Washington, passed in 1911. The original act did not require the employer to provide medical care to the employee, but only to pay him compensation for loss of earnings. This defect was corrected by the passage of the Medical Aid Act in 1917. That act authorized the employer to collect from the employee through payroll deduction a certain amount as a contribution toward the cost of medical care necessitated by industrial injury. The Oregon law passed in 1913 contained a similar provision. The Nevada, Arizona, Montana and Idaho laws were passed respectively in 1911, 1912, 1915 and 1917. These laws sanctioned the existing system of payroll deduction, but expressly stipulated that the deduction might be made solely on condition

that the medical and hospital service provided by the employer covered not only compensable injury, but sickness not related to the employment, as well. The New Mexico act, passed in 1917, is silent on the subject of payroll deduction.

While the compensation laws of these states did not specify the proportions of the total cost of medical and hospital care that should be borne by employer and employee respectively, presumably the intent was that the employer's share should cover the cost of care arising out of industrial (i.e., compensable) injury, and that the employee's share should cover the cost of care arising out of disease not due to the employment.

The compensation laws passed by California (1911), Michigan (1912), Minnesota (1913), Colorado, Oklahoma and Wyoming (1915), Kentucky (1916), Utah (1917), Virginia (1918), Tennessee and Alabama (1919), also recognized the existence of the payroll deduction method of purchasing medical and hospital care, but took a different attitude toward the system. They expressly forbade any deduction from the employee's wages unless the amount deducted was commensurate with benefits conferred in addition to those guaranteed by the compensation law. The Pennsylvania law (1915) says nothing about payroll deductions for medical care. The West Virginia law (1913) is worded in such a way as to make participation by employees in a system of hospital insurance (practically universal throughout the southern West Virginia coal field) ground for refusal by the state workmen's compensation insurance fund to pay for hospital care provided to an employee injured while at work.

DIFFERENCES IN SCOPE OF SERVICE IN DIFFERENT REGIONS

Differences in the conditions prevailing in the lumber, the metal and coal mining industries have resulted in variations in the systems by which employees and their dependents secure medical care in return for a fixed, periodic deduction from wages. In certain industries medical service is rendered by personnel engaged by the company; in others, by independent practitioners

under contract to the company. Hospital care is in some companies provided in a company-owned hospital; in the majority, it is provided in independent, privately owned hospitals under contract to the employer. For greater clarity, the information as to fixed payment medical service in the mining and lumber industries (Chapters III to VIII) is presented by regions. The following summarizes the salient points of difference in company medical service plans in different sections of the country.

THE CONTRACT SYSTEM IN WASHINGTON AND OREGON

Employer-owned hospitals are rare in Washington and Oregon, and the contract system is the customary method. The compensation laws authorize the employer to contract with physicians, hospitals and incorporated hospital associations to provide care to employees in case of injury occurring at the employment, and to deduct a fixed amount periodically from the employees' wages to apply on the cost of such care. In these two states separate contracts are sanctioned between employers and hospital associations (conditioned upon acceptance of the plan by the employees) for the provision of hospital care for injuries and diseases not due to the employment. To cover the cost of such care the employer makes a special deduction from the employees' wages. The employer pays no part of the cost of this "non-industrial" contract medical service. The operation of the system in Washington and Oregon is set forth in detail in Chapter III.

EMPLOYER-OWNED HOSPITALS IN CALIFORNIA

In certain California industries, chiefly lumbering, public utilities and railroads, and in a few manufacturing concerns, large companies operate their own hospitals. These are sanctioned by the compensation law of the state, and special regulations are made for their control and supervision by state authorities. If a deduction is made from wages, the company must show that it was not applied on the cost of providing care for industrial injury. The California system is also described in Chapter III.

THE ROCKY MOUNTAIN MINING INDUSTRY

A few of the largest mining companies in the Rocky Mountain states own and operate hospitals. In these companies the total amount collected from employees is applied on the cost of operating the medical and hospital department. However, most of the large mining companies in the Rocky Mountain states contract with independent hospitals to provide service for both industrial injury and sickness at a fixed amount per employee per month. In one district of the Colorado metal mining region, a hospital for providing service to mining employees is operated by a local union of metal miners. In another mining district, a hospital is operated coöperatively by an association of metal mining companies. The total amount per capita paid over to the contract hospital is composed of a fixed amount per employee paid periodically by the employer, to cover the cost of treatment arising out of industrial injury, and a fixed amount contributed by each employee to cover the cost of non-industrial medical care.

In the Wyoming coal field, the provision of medical and hospital service for industrial injuries, non-industrial injuries and sickness, is covered by the annual wage agreement between the coal operators and the United Mine Workers of America. Into a special fund at each mining community each operator pays a certain amount per ton of coal mined, and each miner pays a fixed amount per month. The system of employee group medical service in the mining industries of Idaho, Montana, Nevada, Arizona, New Mexico, Utah, Colorado and Wyoming is described in detail in Chapters IV and V.

THE CENTRAL INTERIOR COAL FIELD

In the central part of the United States there are three fairly distinct coal fields; Iowa, Kansas and Missouri constitute the western interior coal field; Oklahoma and Arkansas, the middle western interior coal field; Indiana, Illinois and western Kentucky, the eastern interior coal field. In these coal fields the

"check off," or deduction from wages, is found only to a limited extent. The physician or surgeon engaged by the company renders first aid in industrial accident cases. In the event that hospitalization is needed by an employee injured at his work, it is provided at company expense in some local hospital. There are no company-owned hospitals in these three coal fields.

With respect to hospital care for non-compensable injury and disease, there are a few instances in the Oklahoma-Arkansas and Illinois coal fields of contract arrangements between local coal miners' unions and independent hospitals and hospital associations. When specifically authorized in a written request by the employee, the employer will deduct the stipulated amount from the employee's wages and turn it over to the hospital association. In the extensive lead and zinc mining industry of Kansas, Missouri and Oklahoma, the system of payroll deductions for medical care is not found. In the bauxite mining industry of Arkansas (where no workmen's compensation law has been enacted) the leading producer owns and operates a hospital, in which both industrial accident cases and non-industrial cases are handled. A fixed deduction from employees' wages is applied by the employer on the cost of medical and hospital care. The group medical service prevailing in the central mining states is treated in Chapter VI.

LAKE SUPERIOR MINING REGION

Several of the mining companies in the Lake Superior iron mining region (Minnesota and Michigan) own hospitals, but they are usually operated by surgeons under contract with the companies. These "base" hospitals, strategically located, provide medical and surgical care to the local population. For industrial injuries the mining company pays to the hospital or medical "contractor" a fixed amount per employee per month. To cover the cost of medical or hospital care not arising out of the employment, a fixed amount is deducted from the employees' wages each month, and likewise paid over to the hospital. The system in operation in the iron and copper mining industries of Minne-

sota and Michigan furnishes a significant example of how medical care can be provided on the insurance basis to an industrial population living in small, scattered communities. A description of this system will also be found in Chapter VI.

THE APPALACHIAN COAL REGION

A variety of practices is found in the Appalachian coal field (Pennsylvania, Ohio, Kentucky, Tennessee, Maryland, Virginia, West Virginia, Alabama). The system in the various coal mining districts is described in detail in Chapter VII. There is no "check-off" for company doctor in the Pennsylvania anthracite coal field. This is true also of the Maryland coal field and of a few districts of the Westmoreland-Connellsville districts in the Central Pennsylvania coal field. Elsewhere in the Pennsylvania bituminous field, and in the Ohio, West Virginia, Virginia, Kentucky, Tennessee and Alabama fields, the deduction from employee's wages for company doctor service is customary. The company doctor's duties include the rendering of first-aid in the event of industrial accident and physical examination of employees.

Throughout the Pennsylvania bituminous field, hospital care, either for industrial injury or for sickness not covered by compensation law, is provided in local, state-subsidized hospitals. Usually this hospital receives financial support from the local coal mining companies in the form of an annual contribution. The expense of hospital care necessitated by an industrial injury is placed on the employer by the Workmen's Compensation law. If the employee, or a dependent member of his family, requires hospital care arising out of a cause not covered by the compensation law, the head of the family is expected to make his own arrangements. It is uncommon in this region for the employer to make a regular deduction from wages to cover the cost of hospital care for non-compensable disability. The same statement holds good for the Ohio coal fields, the Western Kentucky field and the older coal field in the northern part of West Virginia.

One large bituminous coal mining company in the Central

Pennsylvania field operates its own hospital, in which care is provided both for industrial accident and for non-industrial cases. A fixed regular deduction from wages entitles the employee of this company to hospital care arising out of disease or injury not covered by the compensation law.

THE HOSPITAL CONTRACT SYSTEM IN WEST VIRGINIA

In contrast to the northern coal fields, most of the companies in the southern West Virginia region make a second deduction from the employee's wages to cover the cost of hospital care for sickness and injury not covered by the compensation law. No coal company in the southern West Virginia coal field has its own hospital, and hospital service, both for industrial injury and disease, is provided by an independent hospital under a contract between it and the coal company. The employee from whose wages the periodic deduction is made for hospital care is not a party to the contract nor has he any voice in the selection of the hospital.[3]

The hospital contract system as it operates in West Virginia has been severely criticized on the ground that it relieves the employer of the expense of hospital care due to an injury sustained by an employee in the course of his employment. It is claimed that nothing is collected from the employer by the contract hospital to cover the cost of care arising out of industrial injury. A committee of the West Virginia Legislature which investigated the hospital contract system in January 1931, recommended "that the contract hospital service be discontinued insofar as it relates to industrial accidents and affects the employees whose employers are subscribers to the compensation fund." An unsuccessful effort was made at that session of the Legislature to have the workmen's compensation law amended so as to leave no doubt as to the intention of the law that the cost of hospital care received by an injured employee in case of industrial accident

[3] It should be mentioned in this connection that workmen's compensation laws in most states leave only a limited free choice of physician and hospital to the injured employee.

should be paid by the employer. The West Virginia situation is discussed in detail in Chapter VIII.

FIXED PAYMENT MEDICAL SERVICE RARE IN OTHER INDUSTRIES

Information received from county and state medical societies in practically all states of the Union indicates that the system of providing medical service to employees in return for a fixed periodic payment is rarely found in industries other than mining, lumbering and steam transportation. Where an industry is carried on in an urban place, it would be possible, under normal circumstances, for employees and their families to purchase medical care directly from established local practitioners and hospitals. Exceptions to the foregoing statement are found in companies which, in addition to carrying on mining, operate their own smelters and refineries. There are several such companies in the Rocky Mountain region; one on the Lake Superior Iron Range; and several in Alabama. A small number of iron and steel manufacturing companies in that state have company medical service plans similar to those commonly found in the Alabama coal mining industry. These are referred to in Chapter VII.

INDUSTRIAL HEALTH SERVICE

The system by which employees secure medical and hospital care from medical personnel employed by or under contract to the employer in consideration of a fixed periodic deduction from wages, should be distinguished from industrial health service. This latter type of service aims to prevent sickness and accidental injury, and is maintained entirely at the expense of the employer. A report recently published by the National Industrial Conference Board gives valuable information as to the objectives, scope and administrative methods of industrial health service. These objectives are stated to be: "(1) to place individuals in the work for which they are best fitted; (2) to procure and maintain fitness for work; (3) to educate the worker in personal hygiene and the

prevention of accidents; (4) to reduce loss of time, absenteeism, and short work spans."[4]

The staff engaged in industrial health work in a large plant will usually include one or more physicians, several trained nurses, and, in some instances, dentists, oculists, and other specialists and technicians. The equipment of the medical department ranges all the way from a simple first-aid kit to a well-organized dispensary or fully equipped hospital.

The Conference Board found that in 1930, as compared with 1924, when a similar study was made, "much more attention was being devoted to preventive work and health education as contrasted with curative work in industrial medical departments."

The total number of companies supplying data to the Conference Board was 443, and the estimated total number of employees covered was 1,125,830. These companies represented many lines of industrial activity, but chiefly manufacturing. Out of 303 companies submitting data as to health service to employees, only 27 reported that they gave treatment for disease in return for an employee contribution. The 27 companies which furnished medical treatment going beyond preventive work employed a total of 130,934 workers. This represented 21 per cent of the total reported for the 303 companies. In 13 of these companies, medical treatment and care were available to dependent members of employees' families.[5]

It should not be concluded, however, from the foregoing, that industrial health service is by any means general in American industry. An investigation by the National Safety Council shows that "of a group of 3,580 selected industrial establishments, only 191, or 5.3 per cent, have reported some form of medical and health supervision of their employees. Estimates show (as far as the membership of the National Safety Council is concerned)

[4] *Medical Supervision and Service in Industry.* National Industrial Conference Board, New York, 1932.

[5] It should be noted in this connection that the sample studied by the Conference Board was a highly selective one, since its questionnaires were sent to companies that were believed to have medical programs.

that approximately 3,406,000 employees are not under health supervision, while 1,615,193 are."[6]

HEALTH AND MEDICAL SERVICE IN SOUTHERN TEXTILE INDUSTRY

A few words should be said about the health work carried on in many of the larger textile manufacturing companies in Georgia, North and South Carolina. One of the chief concerns in South Carolina writes that some years ago it was the practice to collect a fixed amount from each mill family as remuneration to a local physician. However, the system did not prove satisfactory, either to the doctor or to the contributors. The former felt he was being called on unnecessarily for service; the contributor, on the other hand, felt he was not getting his money's worth unless he called in the physician frequently. Today, the contributory system is found to an exceedingly limited extent.

Its place has been taken by a special form of health service largely the outgrowth of the peculiar conditions prevailing in the southern textile industry. In the North, textile manufacturing is carried on for the most part in communities which either are of considerable size, or are in close proximity to large towns. The southern textile industry, on the contrary, is to a large extent carried on in small communities, in which the mill employees and their families constitute practically the entire population. Many of these mill villages are incorporated as municipalities, with their own local government. In many of these "company towns" the local church building and the land on which it stands have been donated by the company; in some instances, the school system is aided by grants from the employing concerns. Welfare activities are largely under the supervision of the textile companies.

In South Carolina, the medical care of textile employees is being developed along the lines of preventive medicine under the supervision of a local physician conducting a private practice. The

[6] See *Prevailing Practices in Industrial Health and Medical Service. Health Service Policies. Health Practices Pamphlet No. 12,* National Safety Council, Chicago, 1930.

physician does all curative work and directs nurses in the preventive work. This work is in conjunction with the County and State health departments. The nurses are paid by the company, which also pays the physician fees for certain types of service, such as physical examination of employees, and for treatment of cases of accident occurring to employees in the course of their work. (It should be noted in this connection that South Carolina has no workmen's compensation law compelling the employer to provide medical, surgical and hospital care to an injured employee.)

The scope of the service in one of the pioneer textile companies of South Carolina is indicated by the following: The activities of the physician and nurses (two nurses for a population of 2,000) are carried on in a modern building, which is known as the medical center. In this building a dentist conducts his own practice, equipment and quarters, however, being furnished free of charge by the company. The medical center has ten beds, six for white and four for colored patients. All services of hospitalization, including nursing, but excluding meals, are furnished free of charge. Meals are furnished by the family of the patient. Containers for transporting the food are provided by the company. In cases requiring special diet, cooking arrangements are provided by the company, and the cooking is either done or supervised by the company nurses.

MEDICAL SERVICE IN GEORGIA TEXTILE INDUSTRY

The scope of medical service available to employees in the Georgia textile industry is indicated by a survey of industrial relations made by the Georgia Cotton Manufacturers' Association, following a conference held in Atlanta in July 1928. Workmen's compensation has been in force in Georgia since 1920. Data for the survey were supplied by mills reporting slightly more than half the number of spindles operated in the state. From the health section of that survey the following summary has been made.

All types of mills are represented in the survey, from those

having a full-time doctor with several trained nurses, to those having no regular nursing service, and employing a physician for only a short time each week. Usually, the extent of the health program depends on the size of the mill. Several mills began their health program with a physical examination of applicants for employment. While these vary in scope, they all include examination of eyes and teeth, blood tests, diagnosis of existing physical defects, clinical history, vaccination and inoculation for certain diseases.

Practically all the mills have requirements regarding the prevention of contagious diseases. In some companies vaccination of employees against smallpox, typhoid fever and diphtheria is compulsory. Persons not submitting are required to move out of the mill village; those who acquire venereal disease are also required to seek other employment. In other mills these rules are less rigid. Usually, the precautionary serums are furnished free of charge by the mills. In villages owned by the mills the rules apply to the families of employees who live on company property, but where the mills have no villages, these rules cannot be extended beyond actual operations. This is true of some of the city mills.

EMPLOYEE CONTRIBUTORY FEATURE NOT FOUND

Most of the mills reporting have some sort of medical service, or medical clinic. In many instances the mill employs a doctor for one or two hours a day, where employees may have injuries and certain illnesses treated; sometimes his services are available to the families of employees. As a rule the doctor has an office and dispensary at some convenient point in the mill; sometimes he also visits among the families in the village. Other mills employ doctors for full-time service to employees and their families; nurses are employed to assist the doctors, some giving full time at the clinics, others doing welfare visiting in the villages. One mill in particular has an elaborate clinic with full-time doctor and clinic nurse, first-aid room, operating room, dental and optical clinics, maternity ward and nursery, and several rooms

for regular hospital service. All latest modern surgical instruments and testing apparatus have been installed. A full-time visiting nurse is also on the staff. Practically all mills have a more or less fully equipped first-aid room, usually in charge of a company nurse. As a rule the service is free to employees and in some companies to their families. A few mills make a small nominal charge for some special feature of the service.

In one Georgia textile company the doctor is employed for full time on a minimum and maximum basis each month. He is guaranteed a minimum amount, but is not allowed more than a certain amount, regardless of the number of visits he may make. If he is not on call, he designates another doctor, whom he pays himself. Several mills keep complete health records of all employees and their families. Considerable attention is being given to the teeth of employees and their families, especially school children. Dental clinics are frequently operated in connection with the medical clinics. In some instances, dental service is free, in some a nominal charge is made.

Sanitation, hygiene, proper diet, pure water supply, ice, milk, mill cafeterias, baths, safety organizations, health instructions for adults and children, etc., are other features of the health programs described in the report of the Georgia Cotton Manufacturers' Association.

In connection with the foregoing summary of medical service, Mr. B. F. Forbes, Secretary of the Cotton Manufacturers' Association of Georgia, states: "the employee's contributory feature is practically non-existent in medical service in the Georgia textile industry."

MEDICAL SERVICE IN NORTH CAROLINA TEXTILE INDUSTRY

In North Carolina, the situation as to employee medical service in the textile industry is in general similar to that in Georgia and South Carolina. The earlier system of payroll deduction to remunerate a local physician has largely given way to a system of company maintained health service. In some concerns

a periodic contribution is still made by employees, but this is intended to cover the cost of doctor service available to dependent members of the employee's family. The salary of the physician is usually paid by the company.

The enactment of the workmen's compensation law in North Carolina in 1929 (effective July 1) has resulted in the greater assumption of responsibility on the part of employers for the health program as a company activity, without any contribution on the part of the employee.

The inclusion of hospitalization in company medical plans in the southern textile industry is necessarily limited by the meagerness of hospital resources in the regions where cotton manufacturing is carried on. Industrial injury cases are cared for in the nearest general surgical hospital, at the expense of the employer. (Generally speaking, this also holds good for South Carolina, even though no workmen's compensation law has been enacted in that State.) If hospital care is needed for a cause not covered by the workmen's compensation act, it is a matter of private arrangement on the part of the employee.

Roanoke Rapids, N. C., with approximately 10,000 inhabitants, is unique in its plan of hospital service on a fixed payment basis. The local hospital was built and equipped in 1917 at the expense of the six leading employers. It is now owned and operated by a non-profit corporation. The bulk of the employed population of the town and the neighboring mill villages secures hospital service for non-compensable disease, in case they require it, by means of a fixed periodic payment deducted from their wages by their respective employers, and paid over to the hospital corporation. The cost of hospital care necessitated by occupational injury is borne by the local employers. This plan of hospital insurance is the outgrowth of company plans of contributory employee medical service like those described above. More detailed information about the Roanoke Rapids hospital insurance plan will be found in Chapter X, along with descriptions of two other plans of service on a fixed payment basis by non-profit community hospitals in Dallas, Texas, and Grinnell, Iowa.

INDUSTRIAL CONCERNS PROVIDING MEDICAL CARE GRATUITOUSLY

Two instances of manufacturing concerns which provide medical and hospital care gratuitously are the Endicott-Johnson Corporation of Endicott, N. Y., and the A. O. Smith Corporation, of Milwaukee, Wis.

The Endicott-Johnson Corporation's medical service was inaugurated in 1913 to meet the requirements of the Workmen's Compensation Law of New York State, and in the beginning it provided only for first-aid to injured workmen. It now includes care for non-industrial injury and ordinary sickness. There are three medical centers, two maternity hospitals, two nose and throat hospitals, all fully staffed. In addition, employees are cared for in local community hospitals, at the expense of the company. No monetary contribution toward the cost of any of this service is made by the employees.[7]

The "Department of Preventive Medicine" of the A. O. Smith Corporation was established in March 1925. According to Dr. T. L. Squier, of the Department, "the objective was twofold; first, the discovery and elimination of disease, and more especially, the precursors of disease, with the group of employees and dependent members of their families. Second, a study of the pre-clinical signs of degenerative diseases, with the ultimate goal of adding to the present rather meager knowledge of the relation between apparently minor defects and future systemic deterioration." At the A. O. Smith Corporation there is the usual first-aid department, but its organization and personnel of doctors and nurses is entirely separate from and independent of the Department of Preventive Medicine. In that Department, the service is chiefly diagnostic, with special emphasis on the examination of the supposedly healthy. The only therapeutic function actually performed is the extraction of diseased teeth. The Department endeavors to aid the family physician in his care of his patients.

[7] A full description of the Endicott-Johnson medical service is contained in Publication No. 5 of the Committee on the Costs of Medical Care, Washington, entitled *Medical Care for 15,000 Workers and Their Families.*

Expectant mothers, wives of employees, are offered hospitalization at the company's expense, provided six months' notice is given and adequate pre-natal care instituted. The employee chooses his own physician and pays the medical fees. He may also choose any one of the Class A hospitals of Milwaukee. The hospital bill is paid by the company, and if necessary, a housekeeper is engaged at the company's expense to care for the home during the mother's absence. During the year 1930, 65 per cent of all babies born to A. O. Smith employees were delivered under this plan. The service of the Department of Preventive Medicine as above outlined is available without monetary contribution to all employees and their dependents, after six months' service with the company.

LINES OF POSSIBLE FUTURE DEVELOPMENT IN MEDICAL INSURANCE

Recommendations as to public policy in regard to sickness insurance in the United States are outside the scope of this report, which is limited to depicting the actual situation. However, certain possible lines of future development may properly be pointed out. Before doing this, the difference between urban and rural communities in respect to the problem of providing medical care should be emphasized. For the average urban community in the United States, the adoption of the insurance method of purchasing medical care is chiefly a matter of satisfactory agreement between groups of would-be purchasers on the one hand, and physicians, surgeons and hospitals on the other, for the provision of treatment on the basis of fixed periodic payment. A great many rural communities, however, cannot adopt the insurance method until they solve a still more fundamental problem. That problem is how to attract and hold in their midst a sufficient number of practitioners to supply even the minimum medical demands of the population.

A study made by the Committee on the Costs of Medical Care shows great unevenness of geographical distribution of physicians, dentists, trained nurses and hospitals throughout the United States. "In 1927 South Carolina and Montana had only 71 physicians per 100,000 people. California, at the other extreme, had 200. Various state surveys show clearly that the larger cities have more doctors compared to population than the smaller towns and rural districts. Comparatively few recent graduates of medical schools are located in the small communities; the proportion settling in the larger cities is becoming progressively greater." Dentists likewise are unevenly distributed over the country; some urban communities have one dentist to every 500 persons, while some rural communities have only one dentist to every 4,000 persons. As with doctors and dentists, there is a considerable variation in the distribution of graduate nurses. The number ranged in 1929 from 39 per 100,000 people in Mississippi and Arkansas, to 297 per 100,000 in California. "Trained nurses, like other professional groups, are concentrated in the larger cities, while rural sections are comparatively under-supplied." The same uneven distribution exists with respect to hospital facilities. Over 40 per cent of the counties in the United States have no hospitals for general community use. "The individual states show a range of from one bed per 154 persons in Wisconsin to one bed per 749 persons in South Carolina. Smaller cities have in proportion to population fewer hospital facilities than larger cities." [8]

To what extent rural communities can profit by the experience of the isolated industrial communities in the mining and lumber industries is a question. In these last mentioned places, the initiative in organizing and maintaining medical and hospital service has come from the employer. The existence of a fairly numerous and homogeneous group in the community, i.e., the employees of the company and their families, has also facilitated the prob-

[8] *A Survey of Statistical Data on Medical Facilities in the United States,* by Allon Peebles. Publication No. 3 (October 1929). Committee on the Costs of Medical Care, Washington, D. C.

lem of medical organization in mining villages and lumber camps. Lacking an organized employee group, the rural community may need to devise some other convenient group, if it desires to apply the principle of insurance to the problem of securing medical care for the local population.[9]

MEDICAL INSURANCE IN THE URBAN COMMUNITY

In considering the possible lines of development of medical care insurance in communities which already have a sufficient number of medical practitioners and a reasonably adequate number of hospital beds, three indispensable elements should be kept in mind. These are: (1) a number of individuals desirous of assuring medical care to themselves, and willing to make the requisite fixed periodic payments to maintain the fund out of which the cost of medical service actually rendered is paid; (2) a properly constituted organization to (a) collect the periodic payments from those desiring the protection, and (b) remunerate practitioners and pay hospitals for medical care provided; (3) a sufficient number of doctors, surgeons and other practitioners willing to provide service on the basis of the changed relationship between physician and patient which a plan of medical care insurance almost inevitably creates. To what extent do these three elements in medical care insurance already exist in the typical American city?

[9] The Committee on the Costs of Medical Care suggests that the municipal doctor system in rural Saskatchewan may contain something of value for American rural communities that are without physicians. The rural municipality in the Province of Saskatchewan corresponds generally to the county in the United States. Twenty of these rural municipalities employ physicians on a full-time salary basis to provide medical service without charge to all taxpayers and their families residing within the municipality. Twelve other municipalities in Saskatchewan make grants of money to physicians (i.e., subsidize them) to engage in practice in the community. Nominal fees for specified services are established in some communities. The scope of the medical care given by the municipal physician is that of a general practitioner. It usually excludes all major surgery, as well as many types of minor surgery, and the treatment of obscure conditions requiring the services of specialists. The municipal doctor also serves as the medical health officer for the community in which he resides. See *The Municipal Doctor System in Rural Saskatchewan,* by C. Rufus Rorem, Ph.D., C.P.A. Publication No. 11, 1931. Committee on the Costs of Medical Care, Washington, D. C.

POSSIBILITY OF COMPULSORY SICKNESS INSURANCE LEGISLATION

In approaching the matter from the standpoint of the first element mentioned above, the question immediately arises whether the number of persons desiring sickness insurance is sufficiently large to justify the expectation that the legislature of any state of the Union will in the near future enact a law making sickness insurance compulsory. Under the American constitutional system, the enactment of sickness insurance legislation, like the enactment of workmen's compensation, is a matter for each individual state to decide for itself. Legislation making sickness insurance compulsory for employees engaged in interstate commerce could only be enacted by the Federal Congress. No prediction as to the future action of individual states or of Congress can be made, and the fact that at the present moment no organized effort in favor of compulsory sickness insurance is under way in any state of the Union should not be taken to indicate that this form of social legislation will not be passed.[10]

The reader may need to be reminded that compulsory sickness insurance, modeled on European lines, has received legislative consideration in several States of the Union. During the years 1915 to 1920, a well-organized campaign of education was carried on under the leadership of the American Association for Labor Legislation. The Standard Bill prepared by that Association was introduced in a number of State legislatures, and the subject was investigated by official commissions in eleven. Four of these reported favorably to the principle. In March 1919, a bill to establish compulsory sickness insurance was passed by the Senate of the State of New York, but was defeated in the Assembly. The widespread interest engendered by that campaign, notwithstanding its failure to achieve its goal, has special significance in connection with this study. In order that the reader may appraise that movement for himself, an account of it is given in Chap-

[10] The American Medical Association informs us that during the past three years no bill for compulsory sickness insurance has been reported from any State legislature.

ter II. The exposition there given will enable the reader to compare the basic principles, methods of organization, and scope of benefits of the type of compulsory sickness insurance proposed for American wage-earners fifteen years ago with the existing plans of medical and hospital insurance on a voluntary basis.

FACTORS IN EXTENSION OF VOLUNTARY INSURANCE

Whatever the future course of developments with regard to compulsory sickness insurance, the way lies open for interested groups to encourage the adoption of the fixed payment method of purchasing medical care throughout the United States. The group which appears to lend itself most conveniently to the administration of sickness insurance is the group of employees of a particular industrial, financial or mercantile establishment. The local trade union is another type of group which experience has demonstrated is suitable for the purpose of medical care insurance. Other types of organized groups, professional, fraternal, social, existing in urban communities are equally capable of being utilized for the purpose of voluntary medical insurance. Group disability insurance, as the name indicates, is written by life insurance companies to employers for the benefit of their employees, and utilizes the entire body of employees of a particular concern as the unit of insurance against non-compensable disability. Likewise, a policy issued to an employer to secure his liability under a state workmen's compensation law makes use of the entire group of employees for purposes of insuring them against industrial accident. One advantage of some form of organized group over individuals insuring singly is in the matter of expense. Experience with commercial health and accident insurance has demonstrated that it is relatively costly for the company to acquire and hold its business when clients have to be solicited one by one. The more the insurance carrier has to expend in getting and holding policyholders, the less there is available for benefits. Chapter XI sheds light on this point.

TYPES OF VOLUNTARY INSURANCE ORGANIZATIONS

The existing types of medical and hospital insurance in the United States do not afford much experience to help in deciding what type of voluntary organization for collecting the periodic payments and arranging for medical service would be most satisfactory. In the mining and lumber industries, the employing concern itself collects the periodic contributions and administers the medical care fund. Few of these company plans provide for any participation by employees in the administration. The trunk-line railroad plans of hospital care, on the other hand, are administered by associations governed jointly by employees and railroad officials. As Chapter XII shows, employee mutual benefit associations paying cash sickness benefit exist in many industrial establishments. Although few of these associations provide medical and hospital care "in kind" as a benefit of membership, there would seem to be no inherent reason why more of them should not do so, assuming they can secure the coöperation of medical practitioners.

The possibility that commercial insurance companies now issuing "income protection" accident and health insurance may at some time in the future find themselves in position to offer policies which undertake to provide medical and hospital care "in kind" should not be ignored. In case this development comes about, a new form of group sickness insurance paralleling group industrial accident insurance, would be available. There would seem to be no reason why an employee mutual benefit association, a local trade union, or some other organized group, should not enter into an insurance arrangement with a commercial insurance company authorized to sell medical service contracts as well as cash benefit policies. It must be recorded, however, that the medical benefit corporations of California have so far had little success in writing group medical and hospital service contracts to employee beneficial associations. The incorporated hospital associations which operate in Washington and Oregon (Chapter III) are examples of a type of commercial organization providing

what is in effect group medical and hospital insurance for industrial employees.

INFLUENCE OF INDUSTRIAL HEALTH PROGRAMS ON EMPLOYEE GROUP MEDICAL INSURANCE

The extent to which existing employee mutual benefit associations may broaden their present cash benefits to include the provision of medical and hospital care "in kind" for disease and injury not already covered by the state workmen's compensation law, may be influenced by the future development of industrial hygiene. It has been shown earlier in this chapter how in many large industrial plants, employee health service, aiming at the prevention of accidents and increased efficiency, is carried on wholly at the expense of the employer. In most instances, the service provided by the employer does not follow the employee beyond the walls of the plant. However, the attitude of employers toward the provision of medical and hospital care to employees for non-industrial injury and disease may in turn be influenced by the trend of workmen's compensation legislation with respect to occupational disease. A gradual broadening of the scope of compensation to include more and more types of disease is noted by persons closely in touch with this field of insurance. To some extent this broadening of scope is due to legislative enactment; to a greater degree it is due to day-by-day interpretation of the law by state workmen's compensation commissions. To the extent that the range of diseases compensable under state laws is widened and the employer's responsibility for providing medical care automatically increased, the range of diseases for which the individual must purchase medical care on his own account is correspondingly narrowed. It is within the bounds of possibility that more and more large concerns with well-organized medical departments may make the services of plant physicians and nurses available to employees in their homes, in case of non-compensable disability. Workmen's compensation laws of many states specif-

ically authorize agreements between employers and employees for the provision of benefits additional to those conferred on the employees by the compensation act itself. Medical and hospital treatment arising out of non-compensable injury and disease are among the benefits envisaged. The agreement may provide for payment of the entire expense of the service by the employees, or for the sharing of the expense between employees and employers.

THE MEDICAL PROFESSION AND INSURANCE PRACTICE

It remains only to discuss briefly the third essential element in any successful plan of medical insurance, viz., the medical practitioner. The attitude of the rank and file of the American medical profession towards medical insurance constitutes the crux of the problem. It is not too strong a statement that the future of fixed payment medical service in the United States is largely in their hands. Will the average practitioner lend his coöperation in working out a mutually satisfactory basis for the provision of medical and hospital care to persons desirous of purchasing service on the insurance plan? It is perhaps not necessary again to emphasize that the insurance plan of providing medical service fundamentally alters the traditional relation between the physician and the patient. Instead of receiving payment directly from the person to whom the service is rendered, the physician is remunerated by the organization to which the fixed periodic payment has been made. This is equally true whether the scheme of insurance be voluntary or compulsory. The physician may be employed by the insurance organization on a salary; he may be retained by it under a contract to render service to members of the insured group at stipulated fees; or he may be under agreement to perform service at a fixed amount per person per month. "Contract practice" as defined by the American Medical Association is "the carrying out of an agreement between a physician or group of physicians as principals or agents, and a corporation, organization or individual, to furnish partial or full medical

services to a group or class of individuals for a definite sum or for a fixed rate per capita."[11]

It is the necessity for medical coöperation if a plan of medical or hospital insurance is to succeed that gives special significance to the fixed payment medical service which is being offered by a number of private group clinics in various cities of the country.[12] Increase in the number of private group clinics is evidence of recognition on the part of the medical profession of the need for an improved form of organization for rendering efficient medical service. In their endeavor to adapt the group form of medical practice to the plan of group purchase through fixed periodic payment, medical men are supplying valuable experience by which further developments in the field of medical insurance can be tested.

Another experiment in group medical organization, involving a transformation in the traditional economic basis of medical service is the plan of clinics operated by the county medical society. In order to relieve the individual physician of the responsibility and expense of rendering free service, it has been proposed that the county medical society should organize and maintain a clinic, where patients unable to pay for service received, would be treated by members of the medical society assigned in rotation to clinic duty. This experimental application of the group practice idea may also lend itself to the rendering of service on the basis of a fixed periodic payment.

The growing interest of non-profit community hospitals in the possibility of offering care on a fixed payment basis (Chapter X) is further evidence of the desire of physicians to lend their coöperation in testing the feasibility of the insurance principle. However, the number of community hospitals at present offering care on this basis is too small to justify any generalization as to future possibilities. It should be mentioned that the Judicial Council of the American Medical Association has recommended caution on the part of non-profit hospitals in undertaking to provide treatment on the basis of fixed periodic payment.[13]

[11] Quoted in an article on "Contract Practice," by R. G. Leland, M.D., in the *Journal of the American Medical Association,* March 5, 1932; Vol. 98, pp. 808-815.

[12] See Chapter X. [13] See *Contract Practice,* by R. G. Leland, M.D., cited above.

Whatever the lines of experiment that may be pursued in the attempt to provide medical care to the American people at a cost within the reach of the masses, the coöperation of the medical profession is essential.

TOTAL OF GAINFULLY EMPLOYED PERSONS IN VARIOUS INDUSTRIES IN 21 STATES (1930) IN WHICH SYSTEM OF FIXED PAYMENT MEDICAL SERVICE IS FOUND

State	*Industries*	*Number*
Washington	Forestry	30,566
	Saw and Planing Mills	40,220
	Extraction of Minerals	6,862
Oregon	Forestry	19,277
	Saw and Planing Mills	25,101
	Extraction of Minerals	2,644
California	Forestry and Fishing	14,203
	Saw and Planing Mills	18,094
Idaho	Extraction of Minerals	6,514
	Forestry and Fishing	6,018
Montana	Coal Mining	2,428
	Other Mines and Quarries, excluding Oil and Gas Wells	14,139
Nevada	Extraction of Minerals	6,059
Arizona	Extraction of Minerals	17,566
New Mexico	Coal Mining	3,383
	Other Mines and Quarries	3,817
Utah	Coal Mines	3,283
	Other Extraction of Minerals	9,238
Colorado	Coal Mines	11,612
	Other Extraction of Minerals	8,433
Wyoming	Coal Mines	5,062
Oklahoma	Coal Mines	5,997
Arkansas	Coal Mines	3,751
Minnesota	Extraction of Minerals	14,520
Michigan	Extraction of Minerals	26,375
Pennsylvania	Coal Mines (bituminous)	131,774
West Virginia	Coal Mines	109,391
Virginia	Coal Mines	13,846
Kentucky	Coal Mining	59,792
Tennessee	Extraction of Minerals	16,039
Alabama	Coal Mining	27,112
	"Other Extraction Minerals"	7,847
Total		670,963

(Note: The classification "extraction of minerals" comprises the following industries in the various states: Washington, Oregon, Tennessee, chiefly coal mining; Idaho, Colorado, chiefly precious metal mining; Montana, Nevada, Arizona, New Mexico, Utah, chiefly copper mining; Minnesota, Michigan, Alabama, chiefly iron ore.)

SUMMARY

In arriving at the total estimate of 540,000 given earlier in this chapter, the Census figures have been reduced by 20 per cent, in order to allow for the following factors:—(a) inclusion in the California and Idaho figures for "forestry and fishing" of the fishing industry, where the system of fixed payment medical service is not found; (b) inclusion in the figures for "extraction of minerals" of employees of numerous mining companies which do not have a company doctor, due to the small number of persons employed, and the intermittent character of the mining operations; (c) inclusion in the figures for "saw and planing mills" of employees of companies which operate planing mills close to urban centers and do not provide medical service to employees: (d) inclusion in the figures for bituminous coal mining in Pennsylvania of employees of companies in certain districts where no payroll deduction for medical service is made.