# THE ANNALS

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PHILADELPHIA
AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE
36TH AND WOODLAND AVENUE
1911

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PART ONE

# *Traffic and Financial Problems*

# THE URBAN TRANSPORTATION PROBLEM: A GENERAL DISCUSSION [1]

By Bion J. Arnold,
Consulting Engineer, Chicago; Chairman of the Board of Supervising Engineers Chicago Traction.

A study of the transit facilities of the larger American cities, shows that while great advances have been made in the art of transportation, much remains to be accomplished. Nearly every city encounters a different traction problem, and many of them are pressing for some immediate solution. In the majority of cases, what is wanted is not only considerable improvement over present conditions, but also a program of development along technical, legal and financial lines which will result in a comprehensive transportation system suitable to meet constantly growing demands.

The term "comprehensive plan" is used so frequently that it may be worth while to define the conditions which such a plan should fulfil. In doing this, it will be discovered at once that there are many points of view, and equally as many opinions as to the relative importance of the elements which enter into the specifications for an ideal system of transportation. In considering the subject, the rights of the patron, the operator, the municipality, the property owner and the financier must each be recognized as well as the requirements for maximum economy.

*The patron* of the system believes he has a right to expect adequate services, consisting of plenty of cars provided with cross seats, comfortably heated in cold weather and well ventilated at all times. Every precaution should be adopted for his safety, and after safety and comfort has been secured, the maximum possible speed should be the next consideration. The rolling stock should be noiseless in operation, and the track, special work and car equipment should be built for easy riding. Through riding from point of starting to point of destination is desirable, but if this is possible, the patron

[1] This paper is one chapter of a report recently prepared by Mr. Arnold for the city of Pittsburgh, Pa., upon the traffic conditions of that city.—[Editors.]

has a right to expect universal transfers and one fare for the entire system.

*The operator* of the system can secure the best results if the equipment is efficient and up-to-date, if the construction has been sufficiently substantial to reduce maintenance to the most economical point, if the track and paving have been built so as not to encourage vehicles to follow the rail, and if street traffic is so regulated that the surface cars will have the right of way, particularly during the rush hours.

The most favorable conditions for operation exist when the peak loads are not excessive, when there is a large amount of all day travel, when the flow of traffic is not all one way so that the cars may be evenly filled in both directions, and when the profit of the short haul business more than offsets the losses from the long hauls.

*The City* is best served if the passengers are collected and delivered convenient to places of business; and the system should carry passengers to the outlying districts in the minimum of time and at the lowest cost, so as to reduce the tendency toward congestion in down-town districts. Rapid transit should be provided by well-ventilated subways or by means of roads in open cuts, or upon elevated structures designed to present an agreeable appearance and to operate with a minimum of noise. Suburban traffic should be handled by electrified terminal systems of the various steam roads so as to avoid smoke and gases. The street railway surface system should furnish and maintain the pavement between and adjacent to its tracks; and it should sprinkle the streets and reconstruct its roadbed whenever the streets are torn up for changes in grade, alterations in pavement, new sewers or water mains. Free transportation should be supplied to mail carriers, firemen, policemen and other city employees, and special low rates should be made for school children and workmen. Iron poles should be removed upon request and all transmission and feeder cables should be placed underground. In certain cities and in restricted districts of other cities the underground conduit system is insisted upon. The franchise should be indeterminate so that "franchise values" will be eliminated, and a system of supervising regulation should be established to insure that the citizens get their full measure of service.

*The real estate owner* and operator often insists upon the best

facilities being provided for his immediate district, even at the expense of the remainder of the city. The owner of property in the central part of the city will point out the advantages of confining the growth of the city by restricting non-paying extensions and by charging two or more fares to reach the outlying districts; while the development of the suburban districts and the building up of home communities inside the city limits depends largely upon extensions of rapid transit facilities and the maintaining of the universal five-cent fare.

*Financial requirements* will dictate that the rate of fare be sufficient to cover the expense of transportation, maintenance, reserve for depreciation and damages, as well as to pay interest charges and a fair return on the investment. If there be any surplus, the excess earnings should be devoted to better service and extensions, or it should be divided with the city in lieu of taxes, franchise payments or other civic burdens.

In considering rates, credit should be allowed for past burdens of non-paying years and for development expenses involved in creating, combining and building up the property and in bringing it to a paying basis. Extraordinary expenses should be amortized, and reserves for replacement of equipment, personal damages, fires and other contingencies should be provided.

*A broad economical policy* requires that the whole transportation system of a district should be controlled as if under one ownership, and that when one system of transportation more efficient than another can be provided, a transfer of passengers should be encouraged from the less to the more efficient system. Transportation in a city is a natural monopoly, therefore no district should be served with two competing transit systems when one can furnish better service than with the business divided.

The building of extensions into undeveloped districts should be assisted by assessment on the property benefited, and the operating loss on non-paying lines should be financed so as not be too heavy a burden upon the remainder of the system. As districts develop, the improvement of transit facilities should be somewhat in advance of the actual requirements.

*The problem*, therefore, is how to find an equitable balance between all these conditions. There is to be provided a maximum of safety, comfort, speed and capacity. Pavements are to be re-

paired, taxes are to be paid, all equipment must be thoroughly maintained and a reserve fund accumulated so as to keep the property abreast of all advances in the art. Separate systems must be controlled or combined to avoid wasteful competition and to secure the efficiency of a central management. Extensions must be made into promising territory. Rapid transit systems should be provided for and built in advance of immediate needs, and the losses during the first years of operation must be financed. If private capital is to be attracted for building the transit systems, a return on the investment somewhat larger than the current rates of interest should be allowed.

There are so many elements arising from local conditions that it would be impracticable to develop a formula that would be universally applicable, and while comparisons between different cities will be instructive, the solution of *any one problem* must be preceded by a study of the relative importance of its elements as determined by the special requirements of the given locality. In each case it is desirable to determine what constitutes a fair requirement as regards the following items:

1. Original investment.
2. Legal, technical and financial development expenses.
3. Working capital.
4. Adequate service.
5. Possible income.
6. Operating and maintenance expense.
7. Taxes and franchise payments.
8. Reserve funds for insurance, damages and depreciation.
9. Return on investment.
10. Provision for future extensions.
11. Facilities for rapid transit.

Transit facilities may be called the blood vessels of the city or district, and it is only by providing for unrestricted flow of traffic from any one district to every other district that we have the most favorable conditions for strength and growth. Hamper this free intercourse by poor transit facilities, and at once there is an arrested development. On the other hand, if facilities are extended too far and too fast, there follows a dissipation of strength. What is always wanted is to find an equitable balance, and then a constructive program which will *continuously maintain* this balance.

### *Present Tendencies*

It may be of benefit to indicate briefly the present tendencies which are more or less marked in the movement for transit betterments. There is a decided tendency, for instance, toward recognizing the *actual investment required to provide adequate service.* This tendency is shown by the valuations of traction properties which are now under way by various authorities and by the studies that are being made by engineers to determine not only the first cost and the "cost to reproduce" certain properties, but the probable additional expenses which have been involved in building up the property and securing a good business. It is hard to see how the problem of reorganization and of rate making can be fairly handled without making a fair valuation of the reproduction cost, and, in some cases, of the depreciated or present value.

There appears to be a constantly growing sentiment in favor of building *extensions into new territory by means of assessment;* that is, charging the property benefited with at least the cost of the permanent way. This method of financing branch lines which will be operated at a loss for some time, has been worked out in Berlin in connection with the underground road, and petitions are now being signed in certain districts of New York which are likely to result in its adoption in this country.

There is also a gradual tendency toward a *higher standard of service.* Better lighted, better heated and more comfortable cars are in demand and a limit to the crowding allowed is resulting in more adequate service. While it is generally recognized in this country that a seat for every passenger is impracticable during rush hours, knowledge of the fact that such a policy is possible in foreign cities seems to justify the more insistent demands for more seats here at the time passengers wish to travel, although the enforcement of the policy abroad somewhat inconveniences passengers by causing them to wait longer for cars.

### *Fares*

There has been some demand for *three-cent fares,* especially in the middle west, and experiments have recently been made to demonstrate the feasibility of the fare. The result, however, has been rather to prove that cheap fares and good service cannot be

secured at the same time, and the conclusion has been reached that, as a rule, the rider wants good service and is willing to pay reasonably for it.

On the other hand, the movement to *raise the city fare* above the five-cent limit has received little encouragement, and there seems to be no decided sentiment in this country in favor of the European zone system. It appears that a decided effort must be made to work out our transit system problems on a basis of a single five-cent fare for a ride in one general direction. And it will probably only be when failure to do this, due to excessive length of average haul, has been demonstrated, that it will be advisable to consider raising the fare above five cents. Then it will probably come in the form of making a small charge for certain transfers. In other words, of all the possible solutions, the augmenting of income by universally charging more than five cents for a ride within the city limits would appear to be one of the last suggestions to be considered.

An effort has been made in certain cases to increase income by *abolishing transfers,* but there is a question as to the benefits to be derived from such a course. The *abuse* of the transfer privilege should rather be eliminated. Its intelligent *use* always has been a logical and economical method of handling and increasing traffic. The tendency should be toward one comprehensive system with consistent facilities between the different branches. If the collection and distribution of passengers can be accomplished more conveniently and economically by means of the transfer than by means of *the "direct" system,* which often means the duplication of service, then the transfer system should have the preference.

When it is understood that the operating expenses per car mile are from three-quarters to one-half as much for a car in a subway or an elevated structure as upon the street surface, and that at the same time the subway or elevated car runs at fully double the speed and carries at least fifty per cent more seats, it will be seen that, as far as operating expenses are concerned, rapid transit subway and elevated lines have a great advantage. The problem is to *secure sufficient business* to run enough car miles over the more expensive structure so that the fixed charges *per car mile,* or seat mile, will not be excessive. As a rule, any subway or elevated system will not prove financially successful unless the traffic warrants

running during any year, car miles equal in amount to at least half the investment in dollars then in the property (that is, an investment of two dollars for each car mile on a yearly basis). Experience is gradually showing us that there are economical limits—both high and low—between which a certain density of traffic will justify a corresponding transportation system; beyond these limits some other system should be provided. For instance, in Boston, when the surface system became congested with traffic in the down-town districts, it was found more economical to transfer passengers to an elevated structure. In the course of time, as traffic increased, it was found desirable to extend the limits of the elevated road zone and to use subways. The same conclusions are being reached in Brooklyn, where, as in Boston, the elevated and surface roads are both under one management. In other words, a unit system of construction is naturally being developed together with a *zone system of operation rather than a zone system of fares.* But this is only possible when the entire transportation system is practically under one control.

### *Short Haul and Density*

The fact that the operating expense per car mile of the surface lines is greater than the cost of operating a mile through a subway or on an elevated line, naturally leads to a more serious study of the possible economies in surface line operation. Progress in this direction shows a decided movement to reduce the relative weight of the car per seat, resulting in lower power costs and less annual cost of maintenance of roadway. At the same time, the income is being increased and conserved by the introduction of improved fare collecting systems. There remains to be devised, however, some system of operation on the surface lines for the handling of *short haul passengers in short haul cars.* There is a large profit in all of our cities from the short haul business. But as a rule, it is now being handled in cars which run practically to the end of the various lines so that much of the advantage of the short haul profits is offset by the expense of operating cars with empty seats in the outlying districts.

It must be recognized that there are two things which reduce the cost of transportation per passenger—one is density of traffic and the other, short haul. In Paris, the subway system is a paying investment, because the average haul is less than two miles and

the cars are operated over comparatively short lines. Universal free transfers are provided over the entire system but the lines are not physically connected and the densest traffic is handled by trains running over six miles, at the end of which distance they are looped back. On the other hand, the present subway in New York furnishes a continuous ride of seventeen and one half miles for one fare, while the average passenger travel is about five miles. Taking into consideration the relative purchasing value of money in New York and in Paris, a comparison of the two cities shows that in the Paris subway, the fare is equivalent to four cents for an average ride of two miles or at the rate of *two cents per mile,* while in New York, the fare is five cents for an average ride of five miles, or at the rate of *one cent per mile.* On a mile basis, therefore, New York gets its subway transportation at half the Paris rate, but the New Yorker travels more than twice as far on each ride as the Parisian, so that the average fare *per passenger* is greater in New York than in Paris. New York has the advantage of density of traffic; Paris has the advantage of short haul. New York should cultivate the short haul business in short haul cars as is done in Paris and thus enjoy the benefits of both elements—short haul and density of traffic—and thus be relieved of the present uncomfortable overcrowding in the short haul district which now seems necessary in order to secure the very long rides for a universal five-cent fare.

### *Taxes*

The question of taxation is being more carefully analyzed and it is recognized by some students of transportation problems, that perhaps the railroads have been called upon to carry more than their share of the tax burden. For a time, the only apparent method available for the people to get their share of the profits, often imaginary, derived from the railway business, was by means of taxes. Hence special taxes of various kinds were devised. But as logical methods of control and regulation are being introduced, and as the records of investment, earnings and operating expense are being more intelligently studied, this fact is becoming apparent—that there is very little surplus left for taxes, particularly for the payment of a franchise tax, if a company is to furnish adequate service, properly maintain its property, provide for depre-

ciation due to renewals and obsolescence and pay even a moderate return on the investment so that needed extensions may be financed.

As legislatures can establish commissions which have power to regulate service, control operation and fix rates, there apparently is nothing left, under such conditions, of what has been termed "franchise value." In fact the term "indeterminate franchise" implies this very feature. Now if there is no franchise value, there should be no tax upon it. The burden of maintaining pavement is an inheritance from horse car days, when the horses used in hauling the street cars, actually wore out the pavement between the rails. And there is justly a growing sentiment toward the removal of this burden, providing of course that the money saved to the railway company is diverted to furnishing better service or toward offsetting some of the other legitimate expense of transportation.

### *Depreciation*

There is much discussion as to setting aside each year out of earnings, some definite amount to offset the depreciation of the property due to obsolescence and other causes; and it is generally conceded that *this is a duty and necessity that can be no longer* neglected. What should be done with the past obligations of this nature which have accumulated through years of development of poor business, is a problem which is receiving much consideration, but there hardly have been sufficient decisions reached to outline a final conclusion or even to indicate a decided tendency.

### *Rate of Return*

It is certain, however, that as all these requirements of successful and growing transportation systems are being more thoroughly analyzed and understood, that there is being developed a conclusion that the profits from the transportation business are, as a rule, no longer excessive; and the removal of the idea that a franchise for a street railroad in a center of population is "as good as a gold mine" is having a good effect toward reaching a sane solution of transportation difficulties. Money actually used to produce a property should be assured a fair rate of interest, and if private capital is to be attracted, an additional profit over current interest rates must usually be allowed varying in proportion with the hazard of the enterprise. It must be admitted, however,

that under conditions where the enterprise has become established, the fair rate of return considered necessary is approaching nearer and nearer toward just the interest charge at current rates: and the surplus earnings are being called upon to satisfy the demands for extensions, for effective maintenance and for reserve to cover depreciation.

The rate of interest is being reduced in some places by raising money for rapid transit systems by means of city credit, but in these cases, the furnishing of the money required for equipment and for the operation of the system has been left to private capital. In other cases, as in Chicago, the actual investment in the surface street railway system has been determined by appraisal and an exact accounting of the expenditures for rehabilitation, betterments and extensions has been made. Thus in Chicago, on the total investment, there has been allowed a return of five per cent, plus a share of the profits, amounting to forty-five per cent of the net earnings, the other fifty-five per cent going to the city. In other cities where the relation between the investment and the return has not been so carefully determined, there is a tendency either to force a reduction of the rate of fare or to complain of the service rendered. It also must be recognized that if some method were available absolutely to keep the operation of the road "out of politics," there would be a decided tendency in some cities toward municipal ownership and municipal operation.

### *Conclusion*

It will be seen from the foregoing that any attempt to formulate decisions of a hasty or prejudicial nature would very likely fall far from the truth and that a coherent solution of the problem requires analysis from many viewpoints and by various minds.

*The patron* should learn to recognize that empty seats cost as much to operate as occupied seats, that a seat for every passenger during the rush hours must mean the curtailment of the service during the non-rush hours, and that new cars and new tracks cannot be furnished until old equipment has been in service a reasonable length of time.

*The operator* should adopt the policy of continually trying to please the public and should arrange his schedule and routes to accommodate the greatest number. If the best service can be

rendered by establishing through routes and giving transfers, these methods should be adopted in an effort to increase gross earnings by making it easy to ride. *It should be realized that publicity of intention and results is the best policy.*

*The City* should co-operate with the company on street traffic regulation, widening the streets where necessary and issuing permits for extensions and new connections which are absolutely necessary for the best routing system. Unnecessary taxes and the burden of pavement maintenance should be removed in the interest of allowing more money for better service.

*The property owner* should recognize that the general prosperity of the entire district is not only vital to him but to others, and that routes and extensions cannot be controlled for his particular benefit.

*The financier* must realize that the day for exploitation of established enterprises has passed, and that the fixed charges on such properties must be reduced to a fair return on the actual investment. New capital which is absolutely necessary for the continued life and usefulness of any public utility must be furnished, and this flow of new blood should be supplied in advance of actual needs, if it is to have a strengthening influence on the system.

*Economy* and a continuation of an equitable balance dictates efficient management, and the setting aside out of earnings each year, of a fund to provide for renewals.

# THE DECREASING FINANCIAL RETURNS UPON URBAN STREET RAILWAY PROPERTIES

By Thomas Conway, Jr., Ph.D.,
Wharton School of Finance and Commerce, University of Pennsylvania.

The electric railway properties of the United States constitute one of the most valuable assets of the nation. The rapid increase in mileage which followed the introduction and development of electricity, the success of these enterprises from a financial standpoint and the immense benefits which they have conferred upon the population tributary to them, have been some of the most notable achievements of the last two decades. The securities of these companies have become a favorite field for conservative investors. According to the last census enumeration, made in 1907, over $3,774,000,000 of this class of securities were outstanding,—a sum exceeding in amount two-thirds of the investment in all forms of manufacturing property in the United States. This enormous volume of securities is owned by uncounted thousands of the most progressive and substantial people in the country.

There is no industry in which the public exhibit a livelier or keener interest. The intimate contact into which everyone is brought with these properties and the comparative simplicity of the business is probably responsible for this widespread interest and for the growth of the general belief that the public knows all about this business. There is, moreover, no industry in which the public plays so important a part in its affairs. Not only does it depend for its earnings upon the small contributions of many thousands of people, but its very existence is based upon franchises secured from the state and the municipalities.

The view which the public takes of any particular company, determines, to a large degree, the success or failure of that enterprise. If public sentiment is favorable and intelligent, this furnishes one of the greatest assurances of safety. If, on the other hand, public sentiment is hostile, the company finds at every step determined opposition thwarting or nullifying its efforts for improvement.

One of the most firmly fixed beliefs in the public mind is that the street railway industry is one of abnormally large profits, which, moreover, increase in arithmetical ratio with little or no effort on the part of the company. The basis for this widespread conclusion is not difficult to find. The history of every large urban system seems to substantiate this conclusion, for a cursory examination of a comparative table of earnings shows a rapid and uninterrupted growth in the net income of the companies, keeping pace with the growth in the size of the communities. These earnings have in most cases been made the basis of capital issues, the proceeds of which sometimes have not been used for the benefit of the property. Service has frequently been skimped in order that dividends or interest might be paid upon these additional liabilities.

The people have seen merger succeeding merger, bringing an ever increasing load of fixed charges. They have come to believe that they are being needlessly taxed for a return upon a large part of the securities outstanding which represents no real investment. The basis of the agitation which exists in almost every city against the traction companies is founded, in other words, upon the belief that the traction companies are, without exception, grossly overcapitalized, and that this capitalization results in direct harm and disadvantage to the traveling public.

From this beginning, which it should be noted in fairness, is in most cases the result of the mistakes of a previous generation, has grown up a spirit of antagonism and disbelief in the honesty and good intentions of electric railway managers, which makes it very difficult, if not impossible, to secure a calm and unbiased judgment from the public upon any question of mutual interest. The people of our large cities have fallen into the habit of endeavoring by every means to expedite their selfish interests, believing that no matter how successful their efforts may be they will secure no more than their just share of the increment in earnings resulting from the growth in the cities.

This attitude on the part of the public is most unfortunate. The company can only secure justice if the public possesses a full understanding of the difficulties and limitations of the industry. It is most important that the public cease to turn a deaf ear to the statements of the companies, and that the companies on the other hand treat the public with the utmost frankness concerning matters

in which they have a legitimate interest. There is no matter in which it is more important that the public receive the fullest, frankest and most complete information than that concerning the earnings and financial problems of electric railway properties.

The urban street railway industry at the present time is facing a financial crisis. For some years it has been evident that the net earnings of these properties instead of increasing, as heretofore, with mathematical exactitude have remained almost stationary, or in some cases have actually declined, in spite of evidence that the communities are growing, and that the volume of traffic has largely increased. To electric railway managers and students of the electric railway business, the reasons for this condition are not difficult to ascertain. The public at large, most unfortunately, is totally ignorant of the existence of the situation.

The reasons for the diminishing returns upon urban street railway properties are: (1) the decrease in the average earnings per rider which has occurred, very materially reducing, or entirely offsetting, the increase in income which would be derived from the growth in traffic; and (2) the widespread, persistent and alarming increase in the cost of maintenance and operation, due largely to causes entirely beyond the control of the management. The companies, therefore, are caught between two dilemmas, both of which work to the same end.

The decrease in the average earnings per rider is the result of several important factors. The rapid growth in the size of our cities has had a profound influence upon the street railway industry. The larger city carries with it a longer average ride, which, so far as we can see, is bound to still further increase in succeeding years. Urban street railway fares in America bear no relation to the mileage traveled by the passenger. The rate of fare in most cities is fixed by the franchise ordinances at five cents for a continuous ride. As the length of the ride increases, the rate of fare per mile naturally decreases. Unless this decreased charge can be offset by economies in operation, it is obvious that the companies are bound to lose with a continued growth in the area of our cities.

The remarkable change in the character of the business districts of our large cities has also had an unfortunate effect upon the companies. The retail shopping districts, the hotel centers, the financial districts and the location of places of amusement have

been concentrated within a small area. This has necessitated a remarkable centralization of traffic by the transportation systems to cater to the public. Branch lines have been gathered in from all points and concentrated upon a few main traffic streets, which have, in consequence, become seriously congested. This congestion has necessitated slower schedules involving a heavier platform expense, that is, a larger cost for the wages of motormen and conductors, for each car mile operated, and, because of the greater length of time required to travel a given distance, has necessitated a larger investment for equipment, in proportion to the number of passengers which can be carried.

The extreme congestion on streets, crowded with vehicular and pedestrian traffic, has brought about an increase in the number and cost of accidents. The number of persons killed increased ninety-seven per cent between 1902 and 1907, while the number of injured more than doubled during the same period. The expenditures of the street railway companies for damages have increased from $9,935,545 in 1902 to $18,176,305 in 1907, or a gain of 93.5 per cent. This increase, in itself, ate up almost one-half of the total growth in net earnings from operation, less fixed charges, during the period.

These serious limitations upon the capacity of the surface lines of our large cities have been responsible for the remarkable growth in the demand for improved methods of transportation, such as elevated and subway lines. The disadvantages of elevated lines to the people living along the streets occupied by them have concentrated the demand largely in the direction of the subway. With the exception of Philadelphia and Brooklyn, no private company has been able to secure money for the construction of subway lines. Their enormous cost, exceeding $2,000,000 per mile, requires a volume of traffic so large as to make the scheme impracticable under most conditions.

In spite of the growth in the size of the cities and the total volume of traffic naturally handled by the companies, the urban systems have been forced to continue the operation of a large percentage of lines which are both directly and relatively unprofitable. It is a public duty of a transportation company to provide new facilities in advance of the growth of a city, in order that new sections may be opened up and the territory provided for additional population. When, however, a large proportion of lines continue for years to be

unprofitable, and when by no reasonable estimate can it be demonstrated that a goodly number will ever be directly profitable, it follows that due consideration must be given to the company in order that it may be able to earn a surplus on one part of the system sufficient to offset the deficit on other parts.

The average layman has no conception of the number of lines which are unprofitable in our large cities. The audit of the public accountants, employed by the city comptroller of Philadelphia, of the accounts of the Philadelphia Rapid Transit Company, showed that in 1909, twenty-four lines, or twenty-six per cent of the total number of lines operated, were run at a profit, while sixty-eight lines, or seventy-four per cent of the total, were operated at a loss. In other words, upon the basis of the calculation adopted by the accountants, which involved an apportionment of the total expense, including the fixed charges of the entire system, according to a car mileage basis, over two-thirds of the lines comprising the system were unprofitable.

The most important factor, however, in decreasing the earnings of our urban street railway systems has been the steady and alarming decline in the average fare per passenger carried, due to the rapid growth in the use of the transfer. It is conceded by street railway operators that the transfer has played a large and important part in the remarkable growth in the business of these companies. Through this agency hundreds of thousands of rides per year have been stimulated which would otherwise never have been taken.

The transfer has made possible the more economical operation of city systems by providing a large car mileage upon the main, or trunk lines, radiating from the business center, from which passengers were transferred to a smaller number of cars on the cross-town, or branch lines, tapping the residential districts. If the companies had been required to operate a through service to every point in the city, the congestion in the business district would either have been rendered intolerable, or the service in the residential districts would have been woefully deficient.

Realizing these advantages, the managements of many large city companies have liberally extended the transfer privilege throughout all sections of the city. The growth in the number of transfer points from year to year was rapid, and the invitation thus extended was soon taken advantage of by the riding public. Within the last few years, however, the growth in the use of the transfer, as compared

with the cash fares paid, has been so rapid as to exercise a most demoralizing effect upon the earnings of our city systems. Ample evidence is at hand to show the importance of this movement. The following table illustrates the growth in the transfer habit on the Chicago street railways over a period of twenty-five years:

| | 1884. | 1904. | 1909. |
|---|---|---|---|
| Number of distinct routes operated | 19 | 182 | ? |
| Number of transfer points ..... | 2 | 94 | ? |
| Average number of transfer passengers carried daily ..... | 4,000 | 207,728 | 315,955 |
| Percentage of transfer passengers to revenue passengers ..... | 4.6 | 50.7 | 58.6 |
| Average fare per passenger (cash and transfer passenger) ..... | 4.78 cents. | 3.13 cents. | 2.95 cents. |

The same general movement is illustrated by the statistics of operation of the Brooklyn Rapid Transit Company, operating the major portion of the street railways in the city of Brooklyn. The actual and relative use of transfers from 1899 to 1907 is shown by the following table:

| Year. | Passenger receipts. | No. passengers at 5 cents each. | No. transfers received. | Per cent. transfer to cash passengers. |
|---|---|---|---|---|
| 1899 ..... | $10,058,343.83 | 201,166,876 | 41,893,744 | 20.82 |
| 1900 ..... | 11,206,715.01 | 224,134,320 | 42,051,904 | 18.7 |
| 1901 ..... | 11,718,942.39 | 234,378,848 | 56,140,101 | 23.95 |
| 1902 ..... | 12,321,264.60 | 246,425,292 | 50,883,702 | 20.65 |
| 1903 ..... | 13,086,840.14 | 261,376,802 | 53,436,921 | 20.41 |
| 1904 ..... | 14,429,546.04 | 288,590,920 | 56,804,382 | 19.68 |
| 1905 ..... | 15,649,400.80 | 312,988,016 | 70,073,877 | 22.38 |
| 1906 ..... | 17,586,721.57 | 351,734,430 | 96,455,314 | 27.4 |
| 1907 ..... | 18,401,174.96 | 368,023,498 | 136,240,669 | 37. |

This alarming growth, especially in the last three years covered by the enumeration, during which the use of transfers almost doubled while the revenue passenger traffic increased less than twenty per cent, has caused much serious thought.

Most convincing evidence upon this point is furnished by a statement of the receivers of the New York City Railway and of the Third Avenue Railroad system, made to the United States Circuit Court for the Southern District of New York, praying for the abolition of a large number of transfer points in the city of

New York. The figures compiled by the general manager for the receivers of the New York City Railway showed the following remarkable growth in the transfer habit and the consequent decline in the average fare per passenger carried from 1888 to 1907:

| Year ended | Revenue passengers. | Transfer passengers. | % Trans. pass. to rev. pass. | Average fare, cents. |
|---|---|---|---|---|
| September 30, 1888 .... | 193,935,484 | 1,996,871 | 1.10 | 4.94 |
| September 30, 1889 .... | 205,286,126 | 2,253,101 | 1.11 | 4.92 |
| June 30, 1890 ..... | 215,235,832 | 2,578,701 | 1.12 | 4.94 |
| June 30, 1891 ..... | 223,420,632 | 2,826,628 | 1.27 | 4.94 |
| June 30, 1892 ..... | 230,221,158 | 2,723,898 | 1.18 | 4.94 |
| June 30, 1893 ..... | 236,099,569 | 3,203,832 | 1.36 | 4.93 |
| June 30, 1894 ..... | 236,012,459 | 5,306,645 | 2.25 | 4.69 |
| June 30, 1895 ..... | 252,496,016 | 12,769,810 | 5.06 | 4.76 |
| June 30, 1896 ..... | 288,468,143 | 47,339,246 | 16.42 | 4.29 |
| June 30, 1897 ..... | 291,989,549 | 93,108,281 | 31.89 | 3.79 |
| June 30, 1898 ..... | 305,115,538 | 124,114,348 | 40.68 | 3.55 |
| June 30, 1899 ..... | 343,559,120 | 149,083,269 | 43.40 | 3.49 |
| June 30, 1900 ..... | 360,002,672 | 173,089,442 | 48.08 | 3.38 |
| June 30, 1901 ..... | 365,124,079 | 185,486,356 | 50.81 | 3.39 |
| June 30, 1902 ..... | 382,266,904 | 154,963,644 | 40.55 | 3.60 |
| June 30, 1903 ..... | 396,245,922 | 158,526,750 | 40.03 | 3.56 |
| June 30, 1904 ..... | 389,608,537 | 168,267,818 | 43.19 | 3.48 |
| June 30, 1905 ..... | 374,258,395 | 168,957,760 | 45.14 | 3.44 |
| June 30, 1906 ..... | 391,354,877 | 178,639,866 | 45.65 | 3.43 |
| June 30, 1907 ..... | 376,629,571 | 194,765,342 | 51.71 | 3.29 |
| Six months ended December 31, 1907 .. | 189,205,244 | 104,304,715 | 55.13 | 3.16 |

Nor did the statistics chronicled for the six months ended December 31, 1907, end the decline in the average rate of fare. During the seventy days preceding April 11, 1908, when transfers were discontinued, under an order of the court already referred to, with the main part of the Third Avenue system, the average was 3.09 cents per passenger.

On September 24, 1907, however, the New York City Railway Company, the lessee of the Metropolitan Street Railway Company, had been forced into bankruptcy. The receivership was extended to the Metropolitan Company on October 1, 1907. There can be no doubt that the financial embarrassment of these companies was largely the result of the heavy decline in the average rate of fare through the operation of the transfer system.

Illustrations might be multiplied indefinitely. It is generally conceded, however, that the same development has occurred in every large city in the country.

Much has been said and written concerning three-cent fares. The average layman does not understand that in most cities there exists at the present time an average rate of fare but little above this figure for *each ride* furnished by the transportation company. The efforts of city councils and of public commissions to reduce the legal rate of fare has been generally abortive because of the protection contained in the companies franchises. The desired result, however, has been, in reality, secured as a result of the operation of the transfer system, which has brought about a condition in many of our large cities where one-half of the riding population is paying an average rate of fare but little above 2½ cents for each ride taken.

The following comparison, made in 1908, by the special committee of Philadelphia City Councils, created to investigate street railway conditions in other cities, shows how general this movement has become:

| | Average fare per passengers carried. |
|---|---|
| Pittsburgh | 4.31 cents. |
| Cincinnati | 3.68 " |
| Milwaukee | 3.19 " |
| Detroit | 4.33 " |
| Buffalo | 3.2 " |
| Boston | 3.15 " |
| Philadelphia | 3.57 " |

The public is inclined to regard a reduction of a fraction of a cent in the average rate of fare per passenger as a small matter. They forget that this small sum, if multiplied several hundred million times, representing the total number of passengers carried, runs into a vast sum of money in a year. We can easily understand the perturbation which a fractional decline causes in the minds of street railway officials and financiers, if we analyze the distribution which is made of every fare taken in by the conductors.

It is universally admitted that, at the present time, the lines in Chicago are not over-capitalized, but that, on the contrary, every cent of capitalization is represented by an equivalent value of useful property. It is conceded that these properties are in excellent phys-

ical condition and that they are operated with great ability and economy.

The "Board of Supervising Engineers, Chicago Traction," makes the following analysis of the operations of the Chicago City Railway Company for the year ending January 31, 1909:

| | |
|---|---|
| Average gross earnings per passenger (cents) | 2.95 |
| Average expenses per passenger (including 5 per cent interest on agreed valuation of property) (cents) | 2.53 |
| Average profit per passenger (mills) | 0.42 |
| City's proportion (55 per cent of profit per passenger) (mills) | 0.23 |
| Company's proportion (45 per cent of profit per passenger) (mills) | 0.19 |

In other words, upon this great system, conservatively capitalized, efficiently managed and in the pink of physical condition, there remained only forty-two one-hundredths of a cent out of every average fare for division between the city and the stockholders of the company. The average rate of fare has declined eighteen one-hundredths of a cent during the last five years.

It is recognized that the street railway companies in Boston are also conservatively capitalized and efficiently operated. The following analysis of the distribution of each five-cent fare, prepared from the report of the Boston Elevated Railway Company for the year ending September 30, 1909, is illuminating in this connection:

| | Cents. |
|---|---|
| General expenses, including insurance, pensions, etc. | 0.223 |
| Cost of power | 0.422 |
| Wages and conducting transportation | 1.340 |
| Other transportation expenses | 0.128 |
| Maintenance of way | 0.488 |
| Maintenance of equipment | 0.360 |
| Depreciation | 0.069 |
| Damages and legal expenses | 0.291 |
| Taxes | 0.367 |
| Rental subways and tunnels | 0.171 |
| Interest | 0.365 |
| Rentals surface lines | 0.486 |
| Dividends | 0.277 |
| Surplus | 0.013 |
| | 5.000 |

It will be seen that only twenty-nine one-hundredths of a cent, or 5.8 per cent of each nickel, represents profit out of which dividends can be paid.

There is no other business of high repute with investors with such a slight margin of profit. No wonder that street railway managers view the decline in the average rate of fare with each succeeding year, through the operation of the transfer system, with so much concern. They realize that either the decline must be checked or corresponding reductions made in the cost of operation, if that be possible.

I believe it is generally admitted that the transfer problem is one of the most serious questions confronting street railway managers at the present time. The complete abolition of the transfer system would disorganize our street railway systems and work havoc with the present distribution of urban population. The consensus of opinion supports the conclusion that, in addition, it would spell bankruptcy for the companies involved. On the other hand, to anyone who has even casually studied the question it is apparent that drastic steps must be taken to limit the growth in the transfer habit in order that the company may be in possession of sufficient revenue properly to meet its expenses.

Evidence is at hand in every city of the flagrant abuses of the transfer privilege through sale or gift of transfers to those having no legal right to receive them. Co-operation between the public authorities, the riding public and the street railway companies would practically eliminate this abuse. The public interest clearly points to cordial co-operation in this effort, for it is obvious that every illegal ride must really be paid for by those making proper use of the transfer or paying a cash fare. Even, however, if the abuse of the transfer privilege were eradicated, it seems obvious that some radical revision in the transfer system will shortly be necessary.

The same rate of growth in the use of transfers which has prevailed in the last ten years, if continued, would have increased the percentage of transfer passengers in New York to seventy-six per cent of the revenue passengers by the expiration of the next decade. Even the most radical anti-railway man will recognize that operation, according to present standards, would be impossible under such conditions. The company's very existence depended upon de-

vising some system which would prevent a further reduction in the average rate of fare.

The relief granted to the afflicted Metropolitan Street Railway Company by the order of the United States Court, abolishing a large number of transfer points, caused an immediate rebound in the average earnings per passenger, furnishing conclusive proof of the accuracy of the diagnosis which credited a considerable share of the financial misfortunes of the company to the transfer system. From April 11, 1908, when the order went into effect, the average rate of fare rose from 3.09 cents per passenger to 3.40 cents in the year ended December 31, 1909.—a gain of 0.31 cents or 10.3 per cent. What this meant to the company can be easily understood. Had the rate of 1909 been in force in 1907 the earnings of the company would have been increased, from this source alone, $628,446.50, which sum would have been sufficient to meet the fixed charges on thirty per cent of the total bonded debt of the company.

Many solutions of the problem have been offered. The zone system, which is so extensively employed in Europe, finds many supporters who contend that it is the only logical solution of the difficulty, because, with the increase in the size of the city and the consequent lengthening of the ride, the company must make provision to charge according to the journey taken, rather than upon the basis of a flat fare. There is much force in this argument, and were it not for the franchise stipulations in most cities, it is altogether likely that this solution would in time be extensively employed. Many other solutions have been strongly urged.

In some quarters it is believed that the entire transfer system should be reorganized, that the rate of fare for a single ride should be reduced to four cents, through the sale of six for twenty-five cent tickets, or some other method, and that those desiring to transfer should pay an additional cent for the privilege. The arguments in favor of such an arrangement are strong and logical. The company, in the first place, will probably not profit much by the change because the concession in the straight fare will offset the gain through the sale of the transfer, and thus keep the average rate of fare at approximately the present point. Second, the sale of tickets will diminish the time consumed in the collection of fares, and will thus expedite the loading of prepayment cars, which have come to be recognized as an essential part of the equipment of a

city street railway. Third, the charge for the transfer will eliminate the wholesale demand for this privilege which lies at the root of the many abuses which have grown up. Fourth, this arrangement is much more logical than the present plan, because it only requires the passenger to pay for that which he is to receive.

At the present time, taking the country as a whole, one out of every five riders uses a transfer. The operation of the line to which the transfer is given is as expensive as the lines upon which the cash fare is paid. The transfer passenger really secures two rides for five cents, or an average rate of fare of 2½ cents for each ride taken. It is obvious that if all passengers were carried on this basis, our systems would be tremendously unprofitable. It, therefore, follows that the four riders, who do not use the transfer, in reality pay a part of the fare of the fifth man who desires this privilege. This arrangement is illogical and inequitable.

It should be noted, however, that unfortunately the solution of the transfer difficulty is much complicated by the unwise franchise provisions prevailing in many cities. A most serious defect in the franchise settlement in Chicago in 1907, in the opinion of many well-informed persons, is the clause imposing upon the company the duty of giving universal free transfers. In many cities, such as New York, the giving of transfers under stated conditions is made obligatory by state legislation. In other cases special privileges, such as franchises for certain lines, are conditioned upon the granting of transfers over stated lines.

Under these conditions it is impossible to lay down any general rule, even could it be demonstrated that any solution possesses the largest number of advantages. Two effects, however, stand out as indisputable; First, that the street railways companies, through the operation of the transfer, are suffering a rapid and alarming decline in the rate of fare per passenger carried, which, unless checked, will bring financial disaster; and second, that the first step in finding a solution of the difficulty is the education of the public to the nature, extent and effect of the transfer problem, in order that their co-operation may be secured in working out a satisfactory solution.

We turn now to an examination of the trend of operating expenses of the urban companies during the last few years. Throughout our analysis of the transfer problem we have assumed that operating expenses had remained stationary and that the reduction

in the average revenue per passenger could not be offset by corresponding economies. As a matter of fact the cost of living of street railway companies has rapidly increased, probably to a greater extent than that of the private citizen. Every item entering into the cost of operation has shown a persistent and steady increase, both actually and relatively.

The operating ratio, or a comparison of the percentage ratio of operating expenses to operating earnings, has increased from 57.7 per cent to 60.1 per cent from 1902 to 1907. In the case of the large companies having a capitalization of $1,000,000 or over, which includes all of the large city companies, the ratio has increased during these five years from 54.8 per cent. to 58.4 per cent.

There is no more striking illustration of the increased expenses of electric railway properties than that furnished by a comparison of the cost of materials and supplies in general use. The United States Bureau of Labor reports that the average wholesale prices of street railway materials and supplies, as evidenced by operating expenses, less wages and salaries, increased from approximately 4.7 cents per car mile in 1902 to 6.2 cents per car mile in 1907, or from approximately 21.9 per cent to 24 per cent of the gross earnings.

The Philadelphia Rapid Transit Company reports the following increase in the cost of some of the most important items comprising the equipment of a street railway:

| | 1895. | 1910. | Per cent. of 1895 price. |
|---|---|---|---|
| Ninety pound girder rail now 141 pound rail... | $25.00 | $38.20 | 239 |
| Switches | 122.50 | 150.00 | 123 |
| Frogs | 83.00 | 97.50 | 117 |
| Ties | .50 | .65 | 130 |
| Cars | 27.50 | 55.00 | 200 |
| Coal, per ton | 1.72 | 2.30 | 133 |
| Car wheels (cast iron to steel) | 4.00 | 18.00 | 450 |
| Wages—motormen and conductors | .21 | .22 | 105 |

It will be noticed that, without exception, the prices of every important portion of the physical paraphernalia of the street railway has shown a very large increase. The total average increase in the price of the items enumerated is eighty-seven per cent.

The cost of maintaining equipment has steadily grown in spite of the fact that the use of better materials, more scientifically con-

structed apparatus, and better shop methods have made for reductions. The growth in this item of expenditure has been due almost entirely to the rapid increase in the wages of skilled workers which has attended all forms of industry, including the electric railways.

The largest item in the expenditures of electric railways is for wages and the expenses of conducting transportation. The census enumeration discloses the fact that the wages per employee has increased from $605 per year in 1902 to $658 in 1907, or an increase of 8 per cent. Apportioning these wages upon a car mile basis we find that the increase has been from 7.1 cents to 8.5 cents during the period. Had it not been for the fact that the electric railways were able, to some extent, to offset this increase by the use of larger cars, thus increasing the number of fares which can be handled in a day by a given car crew, it is evident that serious difficulties would have been encountered from this source. It must be evident, however, that the possibilities of continuing these economies are now much restricted. The size of our cars has perhaps reached the maximum for safety; especially when operated over the narrow streets of many of our large cities.

Actuated by a desire to give the public larger, stauncher and higher-speed equipment, electric railways within the last few years have greatly improved the technical standards of street cars. These improvements have involved, in most cases, the doubling of the cost of the car and have, in addition, required a much larger consumption of power for its operation. The single truck car of 1900 weighed, on the average, about 550 pounds per passenger seat. The double truck pay-as-you-enter motor car of 1909 weighed approximately 1,300 pounds per seat—an increase of 100 per cent in weight in nine years. The cost of transporting this increased weight has been estimated by competent engineers to be from six to ten cents per pound per year, or a total increase per passenger seat of from $39 to $65 per annum.

The cost of maintenance as a whole has increased not only because of the higher standards required and the higher prices of materials and wages, but also as a result of the differences in the methods employed in accounting for many items of expenditure.

Up until within recent years it was a very common practice to charge a large part of the cost of renewals to the capital account. In most cities this is no longer possible, for either municipal ordi-

nances, orders of state commissions, or the demands of investors require that renewals shall be charged to operation, or shall be taken care of through a depreciation fund. The advent of depreciation into the electric railway field, which has been postponed until within recent years, carries with it many serious problems. This question is ably discussed in the paper by Mr. W. B. Jackson, pages 31 to 42 of this volume.

It is evident that the requirements of the public authorities, and of a logical system of management of the income account, makes it obligatory upon the electric railways to provide out of earnings a fund from which renewals due to obsolescence and decrepitude can be made. The problem of public regulation opens up other questions of a financial nature.

A large number of the recent mortgages contain provisions for the amortization of tangible capital, in whole or in part, through the operation of a sinking fund, or the serial retirement of the bonds. This requirement is found not only in those cities where limited term franchises are in force, but has been adopted in many sections where the corporation possesses perpetual franchises.

In cases where the company is in possession of a limited term franchise, prudence requires that some provision shall also be made for the amortization of intangible capital. The amount represented by the discount of bonds sold, the expenditures for organization, the cost of securing franchises, the profits of promoters and the outlays for interest and taxes during the construction period, must all be returned from the earnings of the property during the life of the franchise. Particular stress is being laid by financiers, at the present time, upon this matter. It is only recently that it has come to be generally recognized that a corporation should be allowed and required to take out of its profits funds to provide for the amortization of intangible property when operated under term franchises. This expense represents legitimate expenditures made by the promotors of these enterprises in order to effect the construction of the property. Justice demands that these sums be returned to them before the expiration of their franchise grants. The burden must, of course, ultimately fall upon the riding public which furnishes the revenue of the company.

The increased expenditures of urban railways for the settlement of damage claims has already been alluded to in another connection.

It seems inevitable that this tendency is a permanent one, because with the growth in the population of our large cities, and the consequent increase in pedestrian and vehicular traffic upon the streets, the liability to accident must constantly increase.

Even the administrative expenses have shown the same general tendency. The salaries of officers and clerks, according to the last special census report, rose from $1,040 in 1902 to $1,100 in 1907, an increase of five per cent.

Such a survey of the increases in the elements comprising the total expenses of electric railway systems is most illuminating, for it shows the reasons for the failure of the companies to largely increase their profits through the growth in their traffic. Had the various items of cost remained stationary, it is inevitable that our city systems would have shown a large growth in net earnings during the last decade. The truth is that the increases in the cost of labor, materials, equipment and supplies have in most cases more than offset the growth in earnings which would have been possible through the use of larger cars, the greater volume of traffic, more economical apparatus and better operating methods.

The reduction in the rate of fare would not perhaps have been a serious matter could there have been corresponding economies made in the expenses of operation. In spite of the most heroic efforts, railway officials have been unable to reduce expenses, because of circumstances entirely beyond their control, while the reduction in income per passenger carried has gone steadily forward.

The conclusion to be drawn from this comparison at first glance would seem to be that the securities of our large urban street railway systems, and of the electric railways in general, are coming to be undesirable investments. This conclusion is only tenable if it is granted that no remedy can be found. It is immediately apparent that the suburban and interurban properties have it within their power, in most cases, to readjust their rates so as to continue the operation of the road upon a profitable basis. The danger lies in the peculiarly anomalous position of the city systems, whose hands are tied both by the provisions of fundamental ordinances and by an unsympathetic public sentiment. It seems fair to conclude, therefore, that this problem is a serious one only in the case of the urban properties.

The remedy for the situation, in the case of the city system, is

clearly apparent. The increase in the cost of wages, equipment and materials is a matter over which the street railway companies have little or no control and which must be faced by them as by every other form of industry. The solution must be found in the readjustment of the average fare per passenger carried upon a basis which will remove the danger and accord satisfactory financial conditions.

Electric railway managers are giving thoughtful study to the matter, and it is certain that a satisfactory solution can be found, provided the public can be made to understand the situation which confronts these properties, and the justness of the proposals. A campaign of publicity for the prevention of the abuse of the transfer privilege has been prosecuted in many cities, generally with considerable success. A scientific study of the conditions of operation in each large city will doubtless disclose many methods by which transfer abuses may be curtailed or eradicated. It may be found expedient to abolish a considerable number of transfer points or to eliminate them by rerouting car lines. It is too early to predict what form the solution will ultimately take. The first step in solving the difficulty, however, must be a clear and frank explanation of the matter to the public, in order that they may see the justice of the street railways' efforts to correct abuses, and may give the corrective program the support of public opinion, without which it is doomed to failure.

# THE DEPRECIATION PROBLEM

By William B. Jackson,
Of D. C. and William B. Jackson, Consulting Engineers, Chicago and Boston.

In considering "The Depreciation Problem" it is essential to clearly understand what the word depreciation actually represents. There is no universally accepted definition of the term, so far as the writer knows, though the importance of depreciation as a factor in the operating costs of electric railroads has been recognized by most writers on the subject of railroad finance and by the commissions having to do with railroad questions. In its more important features, in consequence, there has come to be a generally accepted consensus of opinion as to what depreciation means.

Every part of a properly constructed and well-equipped electric railway can be maintained in good operative condition by current repairs for a period of years; but the time comes with every building and unit of equipment when it, like a suit of clothes, can no longer be kept serviceable by repairs or current maintenance, and when it must consequently be replaced substantially in its entirety. It will thus be seen that two elements enter into the maintenance cost of the unit: One, the current maintenance or repair expense required to maintain it in condition suitable for service, and the other the cost of replacing or renewing it at the end of its useful life. The latter entails the necessity of accumulating, during the life of the unit, sufficient funds to replace it when it must go out of service. Expenditures for current maintenance are naturally distributed more or less uniformly throughout the life of the part, in accordance with the needs for repairs, while the expenditure made necessary by depreciation must all be met at the end of the useful life of the unit, and is, therefore, often designated as deferred maintenance. Depreciation results from this quality, found in most parts of electric railway plants, which limits their useful lives and makes their ultimate replacement, as a whole, necessary notwithstanding that current repairs may have been well attended to.

The length of useful life of a unit is determined by one, or

both, of two factors: First, the inherent quality of most physical property to deteriorate, on account of the effects of use and of the elements, to a point where it cannot be longer economically maintained in satisfactory operative condition by ordinary repairs—that is, a unit ultimately reaches a point of "decrepitude" when it is either impossible to keep it in satisfactory operative condition by current repairs, or the cost for such repairs becomes so great that it is more economical to replace the old unit by a new one. Second, the effects of changes in the art whereby the character of the service required is so changed, or the efficiency of apparatus for providing corresponding service is so improved, that a plant still physically capable of doing the work for which it was designed is no longer able to economically provide the service required, and it is, therefore, obsolete. This second factor is well designated "obsolescence."

A third division called "inadequacy" is sometimes considered in estimating depreciation. This is intended to cover the effect upon the useful life of apparatus or plant of expansion in business whereby otherwise serviceable apparatus is outgrown and must be replaced by larger apparatus. The writer does not consider such a division necessary, for any effect caused by inadequacy which can be estimated may properly be considered under "obsolescence."

These principles apply simply and perfectly in practice. Let us take, for example, a new electric railway and consider for a moment the rails and their fastenings. Current maintenance will keep these in good operative condition for, say, an average of seventeen years on the straight track, and for an average of five years on the curves. This will be accomplished by the usual track gangs, which will keep the track in alignment, raise low joints when they occur, replace a defective rail as occasion requires, etc. But after a period of years the track gang can no longer keep the rails so that they are safe or suitable for service, and then large sections of track must be replaced as units, for which relatively large expenditures must be made. Such expenditures cannot be provided for in the same manner as expenditures for current repairs. The latter are distributed with reasonable uniformity year by year, and may be cared for from current earnings, but the former are of only periodic occurrence, and require relatively large expenditures of accumulated funds.

These renewals cannot appropriately be paid for from funds charged to capital account, for that would have the ultimate effect of piling up unending capital with only one set of rails to show for it, nor can they appropriately be paid for by the company's notes to be liquidated during the life of the new rails, except under emergency conditions or in case the company had accumulated assets for the specific purpose of carrying such notes, for this would keep the company loaded with floating indebtedness which, when paid, would only have to be renewed when another set of rails was required. The company should accumulate funds during the life of the rails for the express purpose of providing for their replacement at the end of their useful life. The only way to be reasonably assured of having such funds when required is to estimate, when the rails go into use, the average years of service to be expected from them and the net cost of their renewal, and then distribute the charge for their replacement over the estimated useful life. And thereby the annual depreciation of the rails is obtained.

By the same process the requirements for depreciation of each kind of plant in a property may be estimated and the average amount per annum that must be appropriated to care for depreciation or replacements for each kind of plant may be determined. With possession of this information, it is merely a matter of taking the aggregate of these amounts to obtain the annual appropriation to the depreciation account required for the entire property. A knowledge of this amount places the management of an electric railway company in position to have the books of their company so organized that the accounts will show, month by month and year by year, the amount of appropriation required for depreciation and the amounts of the appropriations actually made for the purpose, together with the amount of the fund that should be in the depreciation reserve and the sum actually accumulated. They are then in a position to know, at all times, the depreciation requirements of their company and its accomplishments in providing for deferred maintenance and depreciation reserve. In the case of many electric railroads the average costs for deferred maintenance are as large, and in some cases are larger than for current maintenance, and their importance should be fully taken into account in a system of accounting that is to show the true operating costs of any property.

To estimate the correct amount of annual depreciation that should be expected in an electric railroad, the factors of "decrepitude" and "obsolescence" must each be given due weight. The effect of "decrepitude" is likely to be physically apparent in a piece of apparatus during a larger portion of its useful life than is that of "obsolescence," but the ultimate effect of either is to terminate the useful life of the apparatus. With buildings, power-plant apparatus and electrical equipment the factors of "decrepitude" and "obsolescence" are usually both active in determining the rate of depreciation. "Obsolescence" alone determines the rate of depreciation in road bed since there is no physical deterioration that cannot be made good by current repairs, and road bed is only superseded because of abandonment of old locations, owing to requirements for better alignments, lower grades, etc. Depreciation in steel rails may usually be considered as occasioned by "decrepitude," since their replacement is generally made necessary by wear alone; unless the requirements of heavier rolling stock call for the laying of heavier steel, in which case the additional cost of heavier rails may be chargeable to capital.

There is some division of opinion as to whether railroad ties may be considered as coming within the classes of property for which deferred maintenance appropriations should be made. The propriety of making such appropriations on account of ties will be most readily appreciated if considered from the viewpoint of a new property. During the earlier years of a railroad's existence there is no expense on account of ties, further than the renewal of a defective tie from time to time, but after from five to seven years tie replacements become necessary in large quantities, and excessive expenditures for deferred maintenance occur. Thus during the earlier years a misleading cost for tie maintenance will be shown unless appropriate consideration has been given deferred maintenance in the depreciation account.

The same considerations apply to almost all parts of an electric railway property. In the case of ballast the dividing line between current maintenance and deferred maintenance is likely to be less marked than with ties, but the propriety of building up a fund to extinguish the cost of ballast on roadbed which may be abandoned owing to improved alignment and gradients following the demands of business is clearly apparent.

An intelligent estimate of depreciation in a property must

depend upon a thorough knowledge of the nature of the service demanded by the different kinds of plant, a wide acquaintance with the general experience respecting like kinds of plant, a broad survey of the probable effect of local conditions upon the useful life of the plant, and a wide knowledge of the past and present progress of the art, in order that an intelligent forecast may be made of the influences of "decrepitude" and "obsolescence" upon the rate of depreciation of the plant, and the salvage values to be expected; and the estimates should be periodically revised, as time brings forth new developments to influence past conclusions.

The difficulty of arriving at a satisfactory basis for the calculation of depreciation is unfortunately not properly appreciated by the average layman, and by many students of the street railway problem. They are inclined to believe that the depreciation charge upon a large city system is the same as that upon a suburban or interurban railroad. They even overlook the fact that the constant changes in the art of electric traction necessitate continual revisions of the tentative standards adopted for any given property.

If they keep these matters in mind, however, the true significance of the problem and its importance both to the railways and the public should be understood.[1]

Depreciation requires most thoughtful consideration on account of the insidious nature of its growth. When a well-designed and constructed property is new it will operate for some years without any expenditures on account of depreciation, but after a limited period apparatus becomes worn out or obsolete, and its renewal or replacement becomes necessary. Ties, which for the first few years require only the attention of the regular track gangs, become unfit for further use and must be replaced in large numbers; pole lines must be renewed in their entirety; trestles reach a condition when they must be replaced entirely, or substantially so; buildings and power plant apparatus become worn out or obsolete; cars and equipment must be replaced; old grades and alignments become inadequate, and old roadbed must be abandoned for new. In fact, depreciation must be provided against every part of the physical property except land. But the growth of depreciation or deferred maintenance expense does not necessarily become apparent in the

[1]For the purpose of illustrating the nature and importance of the charges which should be made to the depreciation account, the allowances made upon three

operations of the property until the necessity of relatively large expenditures for replacements is at hand, and there is the possibility of such time arriving without those in charge of the plant realizing its approach. When such replacements become necessary they necessitate expenditures in large amounts which cannot be taken care of

important systems, as reported in the Special Census Bulletin on Electric Railways for 1907, are here reproduced.

RATES OF DEPRECIATION.[2]

| ITEM. | ESTIMATED PER CENT OF VALUE TO BE ANNUALLY PROVIDED FOR. | | |
|---|---|---|---|
| | Adopted by Chicago Union Traction Co. | Adopted by Third Avenue Railroad Co., New York.[3] | Adopted for adjusted accounts of Milwaukee Electric Railway and Light Co. |
| Track and roadway: | | | |
| Track, ties, bonding, etc. | 7.75 | 8 to 9 | 7.5 |
| Special work and installation | 7.75 | ..... | 8.0 |
| Rolling stock: | | | |
| Bodies and trucks | 5.00 | 5 | 5.0 |
| Electrical equipment | 6.66 to 8.50 | ..... | 7.5 |
| Fenders, registers, lights, clocks, etc. | ..... | ..... | 10.0 |
| Overhead system: | | | |
| Poles | [4]5.00 | ..... | 5.0 |
| Wiring, fittings, etc. | 10.00 to 14.00 | ..... | 10.0 |
| Underground system: | | | |
| Conduits | ..... | 3 | 2.0 |
| Feeders, cables, etc. | ..... | 3 | 4.0 |
| Power-plant equipment: | | | |
| Engines | 6.66 | 4 | 5.0 |
| Boilers | 6.66 | ..... | 7.5 |
| Heaters, economizers, pumps, etc. | 6.66 | ..... | 7.5 |
| Piping | 6.66 | ..... | 5.0 |
| Traveling cranes | 6.66 | ..... | 5.0 |
| Belting, shafting, ropes, etc. | 6.66 | ..... | 5.0 |
| Coal and ash conveyors and hoist wagons | 6.66 | ..... | 5.0 |
| Dynamos | 6.66 | ..... | 5.0 |
| Generating apparatus | 6.66 | ..... | 5.0 |
| Storage battery | 6.66 | ..... | 10.0 |
| Switchboard and cables | 6.66 | ..... | 5.0 |
| Shop tools and machinery | 5.00 | ..... | 7.5 |
| Buildings and improvements | 2.00 | 2 | 2.0 |

With a few exceptions, each percentage in the above table refers to a group of two or more parts or kinds of plant and represents the percentage obtained from the aggregate of the depreciations for each part calculated separately. The percentages therefore may not be applicable to any other particular road without modifications. This will be appreciated by referring to the items of track, ties, bonding, etc., which are all shown in one group though they do not individually have the same rate of normal depreciation, and all engines are in one group without regard to their types or quality.

[2] From table submitted in the case involving the rates of fare in the city of Milwaukee, Electric Railway Journal, April 10, 1909.

[3] Rates quoted in the franchise-tax case.

[4] Iron poles.

by the usual appropriations for current maintenance, and their cost may not be cared for by funds on capital account, for the replacements add nothing to the capital value of the plant except in so far as the replacements may be of a more costly character than the original, in which case the difference in cost may appropriately be charged to capital account.

Where, either through want of foresight or lack of earning capacity of the property, those having in charge the well-being of an electric railroad have not seen to it that appropriate assets have been accumulated to care for the depreciation of the plant, it means that one of three conditions will arise when the time finally arrives when the replacements on account of depreciation *must* be made: Money must be borrowed, on the strength of the future earning capacity of the road, to cover the cost of the replacements (such borrowings being gradually liquidated from the earnings of the road), while at the same time a keen eye is kept on the care of depreciation for the future; or the property may be forced into the hands of a receiver; or it may be possible to do what is indefensible under the conditions, float additional stock or bonds to take care of expenditure for renewals of plant that is already represented in capital.

Failure to appreciate the inexorable law that apparatus must come to the end of its useful life has resulted in the financing of economically unsound electric railroad enterprises, and in the embarrassment of good enterprises through the distribution to the stockholders of funds that should have been held in reserve for deferred maintenance. Difficulties arising from lack of funds with which to provide replacements are often responsible for poor service—sometimes even for unsafe service—upon roads from which good service should be expected. On the other hand, failure to anticipate all of the expenditures that must be expected when the effects of depreciation have become apparent has, in some cases, led to the establishment of rates less than sufficient to provide for all of the expenses of the properties and give a fair return on the investment.

The importance of "The Depreciation Problem" as related to electric railway properties has not been fully recognized in the past. This is probably not surprising considering the peculiar nature of depreciation, the limited degree to which its importance has been

understood, the conditions under which many railway projects have been financed in the past, and the great magnitude of many of the railroads of the country.

In the financing of early electric railroads the depreciation expenses were frequently ignored either on account of lack of understanding of the necessity for considering such expenses or because of a desire to make a creditable paper showing of projects which, if fairly presented, would be seen to be without merit; and the policy of ignoring depreciation expenses has sometimes continued after such projects were financed, owing to deficiency in funds to care for such expenses. But probably the most fruitful reason for ignoring depreciation expenses in connection with electric railways has been the influence of the example of the large and well-established steam railroads. With these it has been the usual practice not to consider depreciation expenses separately from current maintenance expenses. Such procedure has been supported on the grounds that when a railroad becomes large and well established the depreciation expenses become equalized and may be distributed with much the same uniformity as those for current maintenance. The situation is different for electric railways. These are relatively new and comparatively small, and few of them have arrived at the time when the annual expenditure required for replacements has reached its maximum. In most cases, moreover, when expenditures on account of depreciation must be made they are irregularly periodic and relatively large, and cannot easily be distributed so as to be met from day to day by the current earnings. Accumulated earnings are required for their payment.

In the past it has been a not uncommon practice to finance renewals and replacements of plant by issues of stock or bonds. This procedure was frequently sanctioned without thought of impropriety. Such a procedure, however, means the ultimate destruction of any reasonable relation between the expenditures for construction charged to capital account and the actual physical property represented by plant in service. If proper attention has been given to current maintenance and deferred maintenance, an electric railroad should be capable of giving substantially as good service after years of operation as if it were a road newly constructed for the same service. The construction cost approximately chargeable to capital account should not differ materially in the two cases except

as it might be influenced by changes in costs of material and labor between earlier and later dates.

Since funds should be in hand to replace the parts of an electric railroad at the end of their useful lives, it is evident that such funds should be accumulated gradually during the lives of the parts. The ideal plan would be to make this accumulation by uniform yearly increments. Such a procedure is frequently not practicable, owing to the variations, from year to year, in the balance of gross earnings over current operating expenses, and also from the fact that for the earlier years of operation, during the upbuilding of the business, there is likely to be little or no margin of earnings which may be devoted to such purposes, although the project may have a perfectly sound basis.

Electric railroads must expect lean years when it is difficult to meet all obligations, and prosperous years when the shortcomings of the lean years should be met. The prosperous years should provide surplus for the future if a reasonable operation of the property will permit. The building up of a depreciation reserve is likely to be affected by this condition. From this fact, coupled with the fact that expenditures for renewals are irregular in their occurrence and large in amount, it is clearly seen that this important factor in the necessary expenditures of any electric railroad can only be given suitable consideration if the books of the company show how the annual appropriations made to the depreciation fund agree with the estimated amounts that should have been appropriated, and also how the fund accumulated in the depreciation reserve agrees with the surplus that should be in hand.

It should be recognized that so long as a property is in condition to give as much and as good service as when it was new, its value, as represented by the amount of legitimate earnings to which it is entitled, cannot become reduced owing to depreciation in its plant. But any depreciation that may have occurred should be offset, when practicable, by a reserve carried for that purpose, or, if the property has been unable to make full appropriations to the depreciation account, complete knowledge of the situation should be possessed by the management, and the building up of the reserve in the future should be a most important financial consideration. Since the renewals do not occur at the same time for all parts of a property, an electric railway after beginning operation is never

*Correction.* The word "approximately," next to the bottom line

equipped throughout with a new plant. Therefore there is a difference between the first cost of the depreciable plant and a depreciated value estimated for the same plant on the physical condition after years of use. The depreciation reserve need not equal the full amount of this difference.

One of the simplest ways in which the books of a company may be arranged to show the facts in relation to depreciation appropriations and reserves, is to have accounts showing the amount by which the physical property of the company is depreciating month by month, as determined by estimate made in the manner heretofore explained; showing the actual appropriations made to the depreciation fund, and showing the amounts expended for replacements on account of depreciation. Any income derived from the investment of depreciation reserve may be utilized as accretions to the reserve.

An appropriate combination of such accounts will show at all times the relation between the total amount that the property has depreciated and the amount of reserve held to care for this depreciation, as well as the relation of the actual amounts appropriated to care for deferred maintenance to the amounts expended for this purpose.

Since electric railways, and other public service companies, have in many States come under the regulative control of state commissions and municipal authorities, there has been much discussion as to whether, in the case of properties which have paid generous dividends to the security holders—the depreciation account being meanwhile permitted to languish—the securitly holders should be expected to build up the depreciation reserve to correct proportions from earnings that might otherwise appropriately go into their own pockets. Some findings of the United States courts and rulings of state commissions indicate a tendency toward an affirmative answer, but a difficult phase of the matter is the determination of what may be considered undue dividends for an electric railway company, especially during past years, considering the newness of the art of electric railroading and the relatively unstable state of the business during the past and in the present. Such questions as these do not affect the obligation on the part of electric railroad managements to have their accounts arranged so that they will be kept informed whether they are protecting the interests of their prop-

erties in the matter of depreciation appropriations and reserves; and, if they are not, that they may have the information to enable them to intelligently handle the problem of correcting the situation.

Even if a property is not in a position to care for depreciation as outlined in the foregoing, owing to relatively small earnings, this does not justify ignoring the facts relating to depreciation since any readjustments of rates that may be found necessary should be undertaken with full knowledge of all matters affecting the real cost of service. Commissions and others, who have given attention to the question of railroad capitalization and rates, agree that deferred maintenance costs should be met as an operating cost and not as a capital charge. Under these conditions it is essential that electric railway companies should accumulate funds from earnings which will place them in position to care for the renewals required by the effects of depreciation.

It should be borne in mind that "The Depreciation Problem" does not represent the only purpose for which funds must be accumulated during the present to care for liabilities maturing in the future. Every company must expect to meet expenditures occasioned by extraordinary occurrences which cannot well be covered by ordinary insurance, such as the effects of unusual storms and conflagrations, the results of strikes, extraordinary accidents, and the like; and every company occupying public ways is confronted with the certainty that they will be compelled to make costly changes of plant owing to changes made in state or municipal regulations. It is proper that a company should make annual appropriations to provide funds to meet obligations arising from such causes.

Where franchises are limited there is the necessity for accumulating sufficient reserve funds to protect the security holders from loss of their capital under the most unfavorable conditions that are likely to arise at the termination of the franchises. Where companies abandon valuable plants, as when they give up their own power plants to buy power from outside sources, the net value of such abandoned property should be gradually extinguished from the capital account by accumulations from earnings. Again, plans for financing electric railroad properties frequently call for accumulations of earnings according to a definite contract; and other legitimate needs for reserve or surplus funds arise.

In the foregoing consideration of "The Depreciation Problem" I have followed principles having general application to all electric railways. The question of rates charged by public service companies is far from being settled. An extensive readjustment is now taking place, and it seems inevitable that rates will be periodically revised in the future. It seems manifest, therefore, that a full understanding of all the elements which make up the cost of railroad service is necessary. An important one of these elements, and one which has heretofore failed of adequate attention is that of depreciation renewals. The renewal expenses required by depreciation should be squarely faced, and not passed on in multiplied ratio to future generations.

# METHODS OF INCREASING THE EFFICIENCY OF SURFACE LINES IN LARGE CITIES

By Williston Fish,
Assistant to the President, The Chicago Railways Company, Chicago.

When this comparatively new instrument of civilization, the street car, shall have reached its highest degree of efficiency it will transport passengers:

(1) With the highest degree of safety to the passengers on the car and to the public on the street.

(2) With the highest degree of speed consistent with such safety.

(3) With the highest degree of regularity and certainty as to schedule.

(4) With the highest degree of comfort to passengers.

(5) With the highest degree of economy.

Street car service in our large cities, through the labors of an army of able and zealous men, has reached a high degree of excellence, but undoubtedly in each of the points—safety, speed certainty, regularity of schedule, comfort and economy—it is capable of further and perhaps even radical improvements. The question of improvement in the service is one of wide importance. It affects the majority of the people of our large cities daily and twice a day; moreover, the question is not only of great importance now, but it is of growing importance, because the large cities are increasing rapidly in population and still more rapidly in area.

If improvements are practical they will come, and come soon, for we live in the very age of improvement. In the old times there was but a vague, dim notion of what improvements were needed, and little hope or thought that they could be brought about. If people had had horse cars in the year 1000 they would have had the same horse cars in the year 1400 and in the years 1500, 1600 and 1700. They might have made changes in the bells on the harness and in the uniforms of the postilions, and on noblemen's cars they would have had banners, armor and gonfalons, but the art of

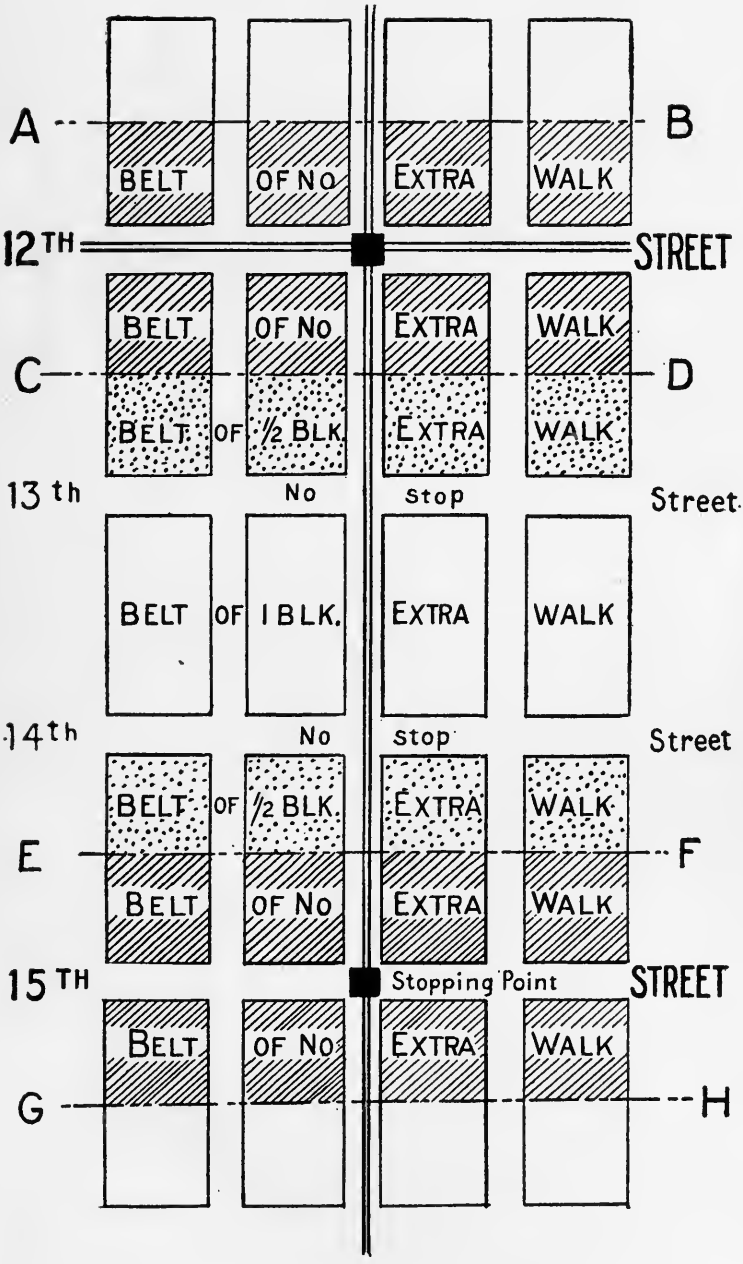
street car transportation, as far as transportation itself was concerned, would have had 700 revolving years of "lay-in'-time."

The whole life and development of the street railway is included in a period much short of a century, and we are living in the better end of the period when progress is growing more and more rapid. Years were required to show that a street car should be a street car and not an omnibus; that the pole on the car should be eliminated; that the driver need not sit on the roof; that front and rear platforms were good things, and that a car in winter should have a heater instead of dirty hay and straw. On the other hand, the last thirty years has seen the rise, development and retirement of the cable car, certainly a great improvement upon the horse car for large cities, and it has seen, also, the rise and development of the electric car to its present state of perfection.

The public now has definite notions of what it wants. It even inquires of itself if it does not want something that it has not yet thought of, and it is broadly awake to its own complete and absolute liberty to go about obtaining what it wants. The result is that specialists in all lines of public service, as well as the administrative and legislative bodies of cities, are not only encouraged, but forced to be constantly on the alert in devising and installing betterments and improvements.

I make this much of an introduction to what I have to say upon two methods of increasing the efficiency of street railways in large cities, so as to assure myself, as well as the readers of this article, that suggested improvements, if they are, in fact, improvements, are worth talking about. If the reader should consider that the changes suggested here are not, in fact, improvements, that any advantages incident to them are counterbalanced by disadvantages, or that, in the nature of things, they are impossible of accomplishment, that is the end of the matter for him. If, on the contrary, he believes that the changes would on the whole work out advantageously, but imagines that there is an inertia in the public, which makes the suggested changes visionary and impracticable, then let him be sure that he fully appreciates the wonderfully fluent and adaptable times in which we live.

*Stops.*—The first matter to be considered in this article is whether in large cities the number of stopping points of surface cars can with advantage be diminished.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Assume a section of a route as shown on the plat, and consider the stops made by a car in running from north of "12th" street to south of "15th" street. Under the present practice in our cities the car will stop for passengers to get on or off at any or all of the intersecting streets, so that on any trip the car may stop in succession at "12th" street, "13th" street, "14th" street and "15th" street.

The question arises then: Is this the system to produce the highest degree of safety, speed, certainty of schedule, and economy? The system, naturally, has a certain effect, small or great, upon each of these factors in street car effectiveness. Conspicuous in its results on important and long routes in large cities, is the intolerable multiplication of stops; but before examining the results of the system, let us first propose a different system; then, with the two systems before us the results may be studied and compared.

The proposed plan is this: That instead of stopping on signal at "12th" street, "13th" street, "14th" street and "15th" street, cars stop only at "12th" street and "15th" street, all stops at the two intermediate streets, "13th" street and "14th" street being entirely eliminated. The system, of course, would not be rigid, but the stopping places would be established so as to include transfer and other important points used by great numbers of street car patrons.

These are the two plans. What are their comparative results upon the great factors of street railway service?

Evidently a disadvantage of the proposed plan would be an increase in the walk of certain passengers. In detail this increase would be:

1. Passengers at "12th" street and "15th" street would still board or leave the cars at these points, and their walk would not be increased at all. These passengers would include all those to and from points between lines AB and CD and between the lines EF and GH.

2. Passengers to or from points between the line CD and "13th" street, and between the line EF and "14th" street would have an extra walk of from nothing up to one block. Assume the average extra walk of these passengers to be one-half block.

3. There remains to be considered the block between "13th" and "14th" streets. Passengers to or from points in this block would have one extra block to walk. They would use either the

"12th" street stopping point or the "15th" street stopping point, as might be more convenient; about half of them would also lose the time required for the car to run a block.

What does the extra walk amount to on the average? If we assume that an equal number of people under the present system use *each* of the intersections (and this, of course, is a violent assumption, as will hereinafter plainly appear), the result would be that people between the lines AB and CD, or one-third of all the people, would have no extra walk; people between the line CD and "13th" street, and between the line EF and "14th" street, or another one-third of the people, would average an extra walk of one-half a block; people in the middle block, or another one-third of the total, would have an extra walk of one block. The average extra walk for all the people, assuming all present intersections to be now equally used, would therefore be one-half of a block. Under actual conditions, as will be hereafter shown, this extra walk would be about one-quarter of a block.

It is to be particularly noted that although the proposed plan puts the stopping points three blocks apart instead of one block, it increases no passenger's walk more than one block.

As far as I can see, the small extra walk—amounting, in fact, to about one-quarter block for the average passenger, and never rising above one block—is the only disadvantage of the proposed plan. Others may see, perhaps, other disadvantages.

Now, we may consider what the advantages of the proposed plan would be. I believe that in large cities the proposed plan, if installed outside of the most congested district, would result in many advantages, some of them of great value. It is evident that the advantages will vary with the conditions on the route involved. On a route doing a small business, with passengers getting on and off infrequently, the single disadvantage of an average extra walk of one-quarter block might exceed the advantages to be derived from the plan. On the other hand, on an important route in a large city, with passengers, under the present plan, making use of a great part of all the intersections for getting on or off, the proposed plan would show its maximum of advantage. If we had a route with one hundred intersections, and there were no street or steam railway crossings, boulevards or other necessary stopping points to break up the regularity of the proposed division into three-block stops,

such a division would give thirty-four stopping points instead of one hundred; but, although cars *may* stop at every crossing, in practice they stop only at a certain number of them, and, except by actual observation of a route, it is impossible to say how many actual stops of the car would be eliminated upon that route by establishing the proposed plan. Without a knowledge of the number of stops that would be cut out, it is impossible to say how much time and expense would be saved.

To determine how many stops would be eliminated in actual service, observations have been made upon twelve main lines of street railway in Chicago. Each of the routes observed was carefully examined, and the stopping points which probably would be established, if the proposed plan were used, were determined. It is to be understood that no change was made in the actual operation of the cars, which continued under the present plan of one-block stops. In the theoretical selection of stopping points, a stopping point was included at each street intersection in the downtown district; outside of this district, a stopping point was supposed at each railway crossing, each steam road crossing, each boulevard, and each elevated station; then other stopping points were supposed intermediate between these necessary stopping points, so that in no case would more than three blocks of *ordinary length* intervene between stopping points. Good men were placed upon the cars in actual operation under the old system on a route to be observed, with blank books showing, in their order for a round trip, all the present stopping points on the route. The men indicated on the form at what points the car actually stopped, how many passengers got on at each stop and how many passengers got off at each stop. These books, when turned in, were carefully studied and the following table compiled (see page 49).

Upon a consideration of this table and the general circumstances of this problem, it appears to me, first, that a change which seems to promise to eliminate 26 per cent of all stops of street cars, except stops caused by traffic blockades, is worth examination, and worth examination now, for, to eliminate 26 per cent of such stops will save much time, increase regularity and certainty of schedules, promote comfort of passengers by reducing stops and starts, and effect important economy in operation by its saving in time, power and wear and tear.

| One block | Total for all 12 routes. | Average for one route. | Per cent. |
|---|---|---|---|
| Number of stopping points for round trip.... | 2,079 | 173.25 | 100.00 |
| Number of proposed stopping points for round trip ..... | 740 | 61.67 | 35.60 |
| Number of present stopping points cut out.. | 1,339 | 111.58 | 64.40 |
| Passengers actually counted getting on or off ..... | 19,492 | 1,624.00 | 100.00 |
| Of these passengers the number getting on or off at the proposed stopping points was | 13,280 | 1,107.00 | 68.13 |
| Number of passengers getting on or off at points that would be disused under the proposed plan ..... | 6,212 | 517.00 | 31.87 |
| Number of stops actually made at all points. | 6,911 | 576.00 | 100.00 |
| Number of stops made at proposed stopping points ..... | 3,853 | 321.00 | 55.70 |
| Number of stops made at intermediate points ..... | 3,058 | 255.00 | 44.30 |
| Number of unnecessary stops—that is, stops made to take on or let off passengers within one block of a proposed stopping point *on a trip when the car actually stopped at such main stopping point*..... | 2,146 | 179.00 | 31.05 |
| Passengers getting on or off at unnecessary stops as defined above, being the 2,146 stops ..... | 4,290 | 357.50 | 22.01 |
| Average extra walk entailed on all passengers by substitution of proposed stopping points estimated at about ..... | One-quarter block. | | |
| Estimated stops per day on routes observed. | 199,238 | 16,603.00 | 100.00 |
| Total unnecessary stops estimated..... | 52,948 | 4,412.00 | 26.57 |
| Estimated stops of surface lines in Chicago per day ..... | 1,200,000 | ..... | ..... |
| Estimated number of stopping points on all surface lines in Chicago for one-way trip, estimated at over ..... | 7,000 | ..... | ..... |
| Number of elevated stations in Chicago for one-way trip ..... | 177 | ..... | ..... |

Next, it appears to me that the value of the general principle of eliminating intermediate stops is already so amply shown by the experience of urban steam railways and elevated railways, that the public, and especially street railway men, should immediately inquire whether the same principle cannot and should not be applied at once to the street railway; for these urban steam and elevated railways not only attract great numbers of patrons to their far-separated stopping points, but, by the operation of express

trains, still further reducing the number of stopping points, they are able to draw further large numbers of passengers away from the slower service of their competitors.

That it is not the greater number of stopping points and the reduction of length of walk of patrons that make a line attractive is shown by the fact that in Chicago the elevated roads, with only about 177 stopping points, haul nearly one-third as many passengers as all the surface lines, with stopping points estimated at over 7000. The elevated roads have a single-track mileage of something over 100 miles, while the single-track mileage of the surface lines is over 850 miles; the surface lines give universal transfers; the elevated lines do not, and still, with one-eighth the mileage and one-fortieth as many stopping points, the elevated lines attract about one-third as many passengers as the surface lines. Of course, the elevated lines run through what is considered to be the best territory, but they are closely paralleled on both sides by the surface lines. Per running mile, they have about one-sixth as many stopping points as the surface lines. Evidently what the public desires is quick service and regular schedules, and to obtain these it is willing not only to take a longer walk, but even to climb stairs.

I see no particular recommendation of the present one-block stopping system in its genesis. It represents a slight evolution from the early omnibus, which stopped anywhere, but it belongs with the horse car, which moved so slowly that it lost no appreciable time by stopping, and it belongs with the beginnings of our big cities when routes were short. It does not belong in New York, Chicago, Boston, Philadelphia and the other large cities of our present day, and especially not in the larger cities of the future, which will not only contain vast numbers of people, but which also will seek to eliminate congestion in residence districts.

Consider what this one-block system means in a large city. On the Clark street line, in Chicago, in the eight miles between the center of the city and Devon avenue, there are, for a one-way trip, one hundred and thirty points used as stopping places; on the Madison street line, between the downtown district and Fortieth avenue, there are eighty-four stopping points; a three-block system would cut the one hundred and thirty stopping points to forty-seven, and the eighty-four to thirty, still allowing stops at *all* intersections downtown, and at all necessary points outside. Now, the

Clark street tracks do not end at Devon avenue, with one hundred and thirty stopping points, but continue six miles further north, making the total number of stopping points on Clark street line alone equal to the whole number of stopping points on all the elevated roads in Chicago; and the Madison street line, after reaching Fortieth avenue, with eighty-four stops, continues on six and one-half miles further west, and it, too, has as many stopping points as all the elevated railways in Chicago.

### *Specialization of the Street-car Right of Way*

If it is fine to look into the future and think of the good things that *may* happen, it is inspiring, on the rare occasions that offer, to anticipate the good things that are bound to happen.

When we plat the population curve of our own city, we may hope that, when it is projected into the future, it will pass through a given point, but we cannot be certain. When, however, we find some desirable point fixed by the equation of a known curve, of which we have already drawn a part, there is a satisfaction in knowing that, when the curve is continued, it will, in spite of the arguments of mistaken people who disagree with us, certainly pass through that point. Evolution of all roads and ways proceeds in accordance with fixed laws, and it is fine to reflect when we ride on a street car, delayed, retarded, impeded, obstructed and blockaded by all the heterogeneous surface traffic of the city, that when the curve of evolution is continued, it is bound to give us unhampered service.

Nature's long course in the establishment and development of channels of distribution and communication in living bodies; and men's etablishment and development of roads move through the same stages; and if, by examining this progress, we can determine the long sweeping curve of evolution of roads and ways, we shall be able with confidence to project it into the future.

In the lowest forms of living organisms there are no channels of distribution or communication. Food and air and sensations travel by diffusion. So, in the lowest forms of society there are no roads.

In considerably higher organisms nature achieves a single definite tube, which is used for all purposes of distribution and in which the matter distributed moves indifferently in either direction.

So, in the forms of society considerably higher than the lowest, men make trails over which all kinds of traffic move together and indifferently in either direction.

In the highest forms, nature has arrived at different channels for different things; a channel for food, another for air, a set of channels to take blood of the heart and another to bring it in, a channel for the sensation of light and another for the sensation of sound, and so on. So men have produced wagon roads and steam roads and in cities traffic streets, boulevards, elevated roads and subways.

In an infinitude of time, nature has favored a movement from a low to a high efficiency. She has eliminated a great part of friction and other losses of energy. She has worked out channels of distribution and communication, each to do one thing well, instead of several things poorly. Men's progress with roads has been exactly parallel. Nature evolved these successive degrees in the perfection of the distributing system in equal steps with the evolution of the organism as a whole, and man has evolved his roads synchronously with the growth and evolution of the needs of society.

A small organism with few functions to perform has no need for a complicated system of distribution, and, in fact, until this organism is developed in powers of locomotion and means of obtaining ample food, it could not support such a system. So, a small society with few functions to perform could not maintain an elaborate system of roads. As the organism becomes larger, it is evident that distribution by diffusion becomes increasingly difficult and inadequate, and when, to increase in growth is added increase in activity, requiring the distribution of greater amounts of material for fuel and for the replacement of worn-out parts, the distributing system must be given a corresponding increase in efficiency.

Finally, nature cannot produce the maximum size, activity and efficiency in a living body without a maximum of efficiency in the distributing system in that body, and she cannot produce this maximum of efficiency in the distributing system without arriving at a minimum loss in energy and time. Men cannot produce a city of maximum size and efficiency unless they establish for it, at the same time, the best system of transportation, requiring the least loss of time and energy. We see at once that what sufficed for a small and inactive city will not suffice if we are to have a very large and very active city.

Now I wish to follow up a little more closely the past evolution of roads and ways in cities, and then suggest for consideration where the curve of this evolution will inevitably lead.

In the earliest villages the roads were common ways, in which pedestrians, horsemen and carts, when the last came into use, moved indiscriminately and in either direction. I find that in the cities of Pompeii and Herculaneum there were narrow embankments, sometimes paved with stone, on each side of the very narrow streets, for the use of foot passengers. Here, of course, was a specialization of a part of the width of the street, but the progress in specialization was not only slow, but intermittent. I undersand that in the early days in London and Paris there were no sidewalks, and as late as 1841 a traveler wrote of the streets of Berlin: "They are spacious and long, with broad margins on each side for foot passengers, and a band of plain flagstones on these margins makes them much better to walk on than the streets of most continental cities." In the course of evolution, the width of streets has been increased in correspondence with the increased activity of the people. Streets in the cities of Europe in the Middle Ages were narrow and often tortuous, as are the streets in the sluggish cities of Asia. This type of street may be quite sufficient where the people live and work in their houses, but where there must be general travel toward manufacturing and distributing centers, such streets would be entirely inadequate.

For a time, after the sides of the roadway in cities had become devoted to the use of foot-passengers, the central roadway was still left unspecialized, and the traffic remaining in it still moved as before.

By another specialization, traffic bound in opposite directions was, to some extent, confined to opposite sides of a street. In some cities, too, they have now proceeded so far that in very busy streets of sufficient width there has been a division between the roadways of rapid vehicles and slow vehicles. By further specialization in some cases there have been developed the boulevard, or pleasure drive, the elevated roadway and the subway.

The long, wide sweep of evolution of the channels of distribution and communication in all of Nature's living organisms, including cities, which are a form of Nature's living organisms, is toward the greatest efficiency, and the components of this efficiency

are economy in energy, economy in time and capacity for performance of the functions suited to the organism as a whole. In the evolution from small, inactive bodies to large, active bodies, specialization of channels has been one of the prime means of obtaining efficiency.

With the law of evolution of roads and ways in mind, and in mind far more fully and accurately than I have been able to state it, I invite the reader to consider the situation as to street car transportation, and to determine to his own satisfaction the changes that the continued operation of the laws of this evolution will surely produce in it.

When the horse car made its appearance it was simply an omnibus with a fixed track, and owing to the peculiar nature of men, which I do not excuse, the horse car was made to look as much as possible like an omnibus and to obey the rules governing omnibuses. It ran along on the common roadway with the rest of the traffic. Being a horse vehicle, like other vehicles on the street, there was only one new difficulty, and that was, running on a fixed track, it did not have so good an opportunity to proceed as the other vehicles, which could, by ingeniously moving in and out and passing around slower traffic, approximate their own normal rate of progress.

To remedy this inequality, the legislative bodies of cities provided that wagons upon street-car tracks should, on signal, quit the tracks and allow cars to pass. This legislation has been in the city codes in the larger cities of this country for, perhaps, forty years, and, to a certain extent, it has been enforced. In most cases it is our common experience that when the motorman pounds the gong the carload of passengers still look out the front windows and speculate freely as to when the driver of the vehicle ahead will, in fact, leave the track. This is about as far as the evolution of the path of the street car has progressed. Now, what about the further evolution called for by the change from small, inactive cities to large, active cities, by the change in the thing, that is the car, to be moved, and by the requirement of economy in time and energy.

When electricity took the place of animal power, the street car became widely differentiated from all other vehicles on the street. It was more rapid than the most rapid of these other vehicles; it was heavier than the heaviest of them, and, with its load of from twenty-five to seventy-five passengers, consisting in large part of

the active workers of the city, it became the most important vehicle on the street. Say that the importance of the driver of a traffic wagon, together with his load, is equal to that of two average men, which is an outside estimate, and it is evident that the business of the street car is of much greater importance than that represented by the average wagon. The electric car then is the heaviest, swiftest and most important vehicle upon the street. It has the longest distance to go, and its efficiency in transporting the public rapidly, and in allowing the large cities to expand so as to give all the people ample breathing space, depends upon its speed. When routes were short and the speed of cars was slow, delays caused by slower vehicles running on the tracks ahead of the car were of inconsiderable moment and imposed a comparatively slight tax upon the life of the city.

We have, then, in our large cities, a radically different situation in street car transportation from that in the smaller cities of former times. To show how far different the situation is, suppose that no power-driven car had yet been devised; the working limit of horse car transportation, amounting to some five or six miles, would place a wall around every city within which the city could grow only upon great and disproportionate expenditures of material and vital energy; if to-day our cities of half a million, a million, two millions and four millions were limited to horse car transportation, there would be an immense outcry for a means of faster transportation which would allow the city to grow freely, unconfined and undeformed. By great, good fortune, just as our large cities passed the endurable limits of horse car transportation, the electric car was perfected, capable of almost any degree of speed and of any extent of travel.

The same principles, which, in the past have caused nature and men to specialize channels of distribution, must necessarily now cause a specialization of the roadway of the street car. In the first place, the organism to be served, which is the city, is vastly larger than it was, and its distributing channels must be amplified in proportion. In the second place, we have different things to transmit which must go at different rates and the channels must be specialized.

The earliest steam railroad charters in New England provided that the rails must be designed so as to permit of the operation of ordinary wagons over them. This now seems ridiculous,

and yet it is ridiculous only on account of the relative speed of steam cars and wagons.

Now, in order to understand the situation, truly we must bear in mind that the present charters of steam railroads eliminate the requirements as to wagon traffic, not because the steam railroads as pieces of property belong to certain groups of individuals, but on account of the service that the public must have from these railroads, considered as channels of distribution, and as belonging to society as a whole. Nobody would want his freight between New York and Chicago to be delayed by traveling along behind a procession of wagons, and when a passenger travels by the steam roads he would be highly dissatisfied if he had to travel behind automobiles going even twenty, thirty or forty miles an hour.

The separation of the several kinds of traffic is a question of relative speed, and when there is frequent passage along a given general course by vehicles, differing greatly in speed, there must be different paths. Except in the most congested parts of our large cities, where possibly at certain times of the day, it may be impracticable, the electric car should be given a clear path. Where streets are paved, wagons should not run longitudinally upon the tracks at all, and they should cross the tracks only at street intersections. I suggest for serious consideration whether, at all street intersections, the street car should not be given the right of way. Steam cars are universally given the right of way at street crossings, and, here again, I wish to point out that this is done because it is inherently necessary in the economy of things. It is done because it would be a comparatively great tax imposed upon society if its heavy, rapid trains of steam cars were obliged to share their right of way at street intersections with other vehicles which are able to stop without much loss of time or energy. The same principle of general economy, which makes it proper that the steam-railroad trains should have the right of way over the electric car at crossings, requires that the electric car should have the right of way over wagons at crossings.

While it will be admitted by every one that a clear right of way for the electric car would be of immense advantage to the public of large cities, the question may arise whether suitable room would be left for other traffic. I think a few words will answer this question. In the first place, if we examine the evolution of roads

and ways, we will find that the specialization of parts of streets increases the capacity of the whole; even without any such increase there is room enough. For instance, there are 1486 miles of paved streets in Chicago, the average width of which is over sixty-six feet. The street car lines of Chicago are laid upon less than 450 miles of street. Sidewalks have an average width of over fourteen feet. If then, all of the 1486 miles of paved streets of Chicago were thrown into one street 1486 miles long, and the street cars were given the exclusive use of that part of the sixty-six feet of width proportionate to the total space the tracks now occupy, the entire width of the street would be divided as follows: Sidewalks, twenty-eight feet; wagon roadway between sidewalks and car tracks, thirty-three feet; car tracks, five feet.

Our streets are often called congested; in fact, there is plenty of room upon the streets, except in small territories, and the question is to use the streets so that all the people may derive the greatest advantage from them. All through the twenty-four hours of the day the greater proportion of the street area in the largest cities is practically empty—roadways, sidewalks, and all—and yet in unused streets, even when well paved, car passengers are now obliged to divide the way with wagon traffic. Moreover, it is a fact that, exclusive of the parks, more space is taken up by boulevards in Chicago, mainly devoted to pleasure riding, than is used by all of the street railways in the city.

In conclusion, I wish it understood that I put forth these suggestions for the elimination of stops and for the further specialization of the street car's roadway, for consideration by the public and street railway men. Many good reasons that I have not given for the adoption of these suggestions will occur to them, and perhaps good reasons for not adopting them may suggest themselves. I see that, at present, street-car transportation has not reached an ideal condition. It is not rapid, but slow; the schedules are not regular and certain, but irregular and uncertain; passengers are subject to continuous annoying delays, and the present system is wasteful of time and money. At the same time I see that the history of the street car is but just begun, and from considering its present importance, and the general process of evolution in the contrivances of men, as well as in nature, I am led to trust that many great and important improvements are yet to come. When I see in large cities that it is

impossible for the public to be given any but a poor, slow and irregular service; if a maximum of stops is made, and if the street-car tracks are used in common by all the street traffic, I am confident that a change will have to be made. People in the largest cities, like people in the smallest towns, have only twenty-four hours a day to live and accomplish their work. When substantial amounts of time are taken from them morning and night in waiting upon transportation, they suffer a direct loss in their efficiency, in what they are able to do, and in the sum of their enjoyments. Their city suffers with them. Restore to the multitudes of people in the large cities who travel by street cars the ten, twenty or thirty minutes twice a day that they lose on account of clogged and obstructed street-car traffic, and you have made almost another race of beings, capable of more work and more enjoyment. When expensive boulevards from 80 to 250 feet in width, surrounding and dividing cities, provided with the best pavement, ornamented with trees and flowers and cared for by gardeners, all at public cost, are considered not too much to devote to pleasure riders, certainly a strip, sixteen feet wide, on the street-car streets is not too much to devote to the daily transportation of the whole army of city workers.

The whole question of clear roadway and of stops is one of arithmetic and evolution. If the people in New York, Chicago and other large cities can give themselves a street-car service one-half more rapid and much more regular than they now enjoy, at no more expense than the discipline of their team traffic and an extra walk averaging about 150 feet, I think they will demand the better service.

# THE INVESTIGATION OF TRAFFIC POSSIBILITIES OF PROPOSED SUBWAY LINES

By William S. Twining,
Of Ford, Bacon & Davis, Consulting Engineers, New York.

The investigation of traffic possibilities of proposed subway lines is one phase of the general problem of determining the traffic possibilities of any transportation system that may be built over or under city streets, or on private right of way without grade crossing. These lines may properly be designated as Rapid Transit Systems.

If we study what has been done in large cities in the last thirty-five years, we obtain considerable data and assistance, as lines of this character have been built here and abroad in the following cities, beginning with New York City about 1878:

*Elevated Roads.*—New York City, Brooklyn, Chicago, Boston, Philadelphia, Berlin, Paris, Liverpool.

*Subways.*—Boston, New York (Manhattan), Brooklyn, Philadelphia, Berlin, Paris, London, Budapest.

Each city appears to present its own peculiar problems, due to the difference in city plan, relative location of business and residential districts, and other purely local conditions.

With the exception of the Boston and New York subways all these American rapid transit lines have been built by private capital as business ventures, and as the greater number were built with the idea of creating or building up traffic they had very little financial success for many years, several of them suffering from lack of sufficient patronage to produce net earnings sufficient to pay interest on their cost, and passing through receivers' hands.

The earlier rapid transit lines were operated by steam locomotives, but the substitution of electric motors began between 1893 and 1895, and as all are now electrically operated, reference will be made to no other method.

Compared with elevated railroads, subways have real advantages and disadvantages, as follows:

| *Advantages* | *Disadvantages* |
|---|---|
| No obstruction in street. | Greater interference with business during construction. |
| Larger platform space. | Much higher cost of construction. |
| Less stair climbing. | Artificial lighting. |
| Less noise on street. | Difficulty in waterproofing and taking care of drainage; also of properly cooling or ventilating. |

The reason for any study of a proposed project of this kind is, of course, primarily to determine its commercial feasibility, since if built with private capital the most important questions to be answered are:

(1) Will it pay from the start its operating expenses and a fair return on its total cost?

(2) If not from the start, how soon will it reach a satisfactory income basis, and what will the losses have been in the meantime?

(3) What will the greatest profit be when the line reaches its full carrying capacity?

While these questions involve a preliminary estimate of the cost of the proposed route, it will be readily seen that the most important factor to be correctly estimated is the amount of the income, since if this can be approximately foretold, it determines the feasibility of any project.

Under equal conditions, with the same type of equipment and the same number of stops per mile, the traffic capacity, and therefore the income of the different rapid transit systems, should be approximately the same. That is, as a transportation machine a subway has no greater efficiency than an elevated road or a road on private right of way.

As the operating expenses under equal conditions are approximately the same for each type, the net earnings should be the same, and from the above it will be clear that the type of railway having the lowest total cost of construction should be the most profitable.

Rapid transit systems are usually intended purely for passenger transportation. Hence the first data to be obtained relates to the probable number of passengers per annum that will patronize the line when opened; Second, What will be the probable increase in business or travel each year for, say, five years? Assuming the

fare will remain at the now customary amount—five cents—the income can be, of course, readily known, and this will be distributed as follows:

Operation and maintenance.

Taxes and municipal charges.

Interest on investment.

Depreciation or its equivalent should be allowed for as soon as the line reaches a paying basis.

Since these lines usually follow an earlier built surface street car line, from its earnings an estimate of the income can usually be made by assuming

(1) That it will take a certain period of time, say three years, to build the rapid transit line, and this allowance for growth should be added to the present income of the surface lines. This growth is usually stimulated by the prospect of better transit facilities and is, consequently, greater than the normal rate.

(2) That a large percentage of the surface car lines long riders and a small percentage of the short riders will be diverted to the quicker route.

(3) That cross-town lines of surface cars will furnish quite a large business, particularly if an arrangement for interchange of passengers can be made. This brings up the subject of transfers, which will not be enlarged upon here.

(4) If in competition with steam railroads some traffic will be obtained if better or more frequent service is rendered. Right here it may be said that while lines of this class do not cater to so-called "pleasure riders," the provision of comfortable cars and clean, quick and frequent service will have a marked effect in the number of riders, and consequently in the income.

No general rules for making these estimates can be given. It is a case calling for the exercise of caution and judgment by the engineer who makes the estimates and the promoter who finances the project. Herein lies the large business risk, and the writer believes that inasmuch as the growth of large cities demands the supply of some quicker form of transportation than is afforded by street cars, the city itself should construct the tunnels or elevated structures which represent a large part of the investment, leaving the same to be operated by a transportation company.

The reasons for favoring this solution are as follows:

(1) The great benefit is to those citizens who are able to patronize it.

(2) As the value of real estate for business or residential purposes is in direct proportion to the transportation facilities, the property benefited should pay directly or indirectly for part or all of these facilities. Transportation in a large city is as much one of the necessities of life as city water or sewers, and these tunnels or elevated structures are simply an extension of the street area vertically instead of horizontally, which would involve widening with its consequent property damage account.

(3) If built to take care of the "long haul" passengers the outer ends of such lines will usually be unprofitable, for these outer sections are comparatively thinly populated. It is to the interest of the operating company to make these lines as short as will develop sufficient traffic for their support, since a line five miles long will earn much more per mile per car than one ten miles long, and the total investment will only be approximately one-half as much. From the standpoint of the municipality it is desirable to reach and develop parts of the city or country beyond the field of the surface street cars.

(4) The cost of roads of this character is such that if built by private capital their construction in the future will be delayed until it is reasonably certain that they will pay interest on their cost, thereby following the population instead of leading it and developing the city's growth.

(5) In the case of subways, particularly, it is always necessary to build them so as to provide for future growth, since they can be enlarged only with great difficulty and expense. This means a much larger and more expensive structure than is needed at the start, thereby increasing the interest charges at a time when the earnings are smallest and the operating expenses are highest. Also, since these lines are usually built on main thoroughfares and will form, in the down-town district, a valuable extension of street area, it is to the city's interest when such a system is built that it shall utilize the full carrying capacity of the street. That is, a street in every way suitable for a four-track subway and in a district where four tracks will ultimately be necessary, should not be sacrificed to the present needs by allowing, say, a one- or two-track structure to be built in it.

(6) As these lines are vital to the health, wealth and general prosperity of modern large cities, there is good reason for claiming for them the same assistance and support as has frequently been extended to the undertakings of undoubted public benefit although working under private charter—as for example, the subsidizing of steamship lines, etc.

For locations where the traffic is so great as to demand more than two tracks, the subway is more suitable from the standpoint of the municipality, as a three- or four-track elevated structure is decidedly objectionable unless in a very wide street. Moreover, if the traffic is greater than two tracks can carry, the density of population is probably sufficient to warrant the more expensive subway structure.

Of course, under certain conditions, a promoter may not be free to adopt the type of transportation system which promises the greatest net profits, since in many cities there is a strong prejudice against elevated railways and equally strong sentiment favoring subways for local rapid transit systems. This dislike of elevated roads is well founded when applied to the earlier designs, such as exist in New York City. The modern designs, using heavy ballasted floors, are almost entirely free from the objections raised against the original open-deck type of construction.

As to the relative cost per mile of double-track railway or structure, it is of course difficult to make any close comparison, as local conditions affect costs, particularly of subways, to a very large extent; but the following may be assumed as a fair range of probable costs:

| | Per mile of route—double track | |
|---|---|---|
| | Lowest cost. | Average cost. |
| Surface line (trolley) | $30,000 | $50,000 |
| Open floor elevated | 300,000 | 400,000 |
| Solid " " | 550,000 | 700,000 |
| Subways | 2,000,000 | 4,000,000 |

As lines on private right of way involve the purchase of large amounts of real estate, no general range of probable costs can be given. The figure of $4,000,000 given above for cost of one mile of subway construction may even be exceeded in special cases, as in the Washington Street Subway in Boston, one of the most difficult and expensive pieces of work, considering its length, that has been built for a rapid transit system.

City surface street cars can not usually be classed among rapid transit systems on account of being limited to low average speed by their frequent stops.

The carrying capacity per hour in one direction of any transportation system is the product of the carrying capacity per car multiplied by the number of cars per hour passing a fixed point.

The maximum capacity for a double track line of surface cars, without overcrowding, is probably about 80 passengers per car × 150 cars per hour = 12,000 passengers in one direction. While for a modern rapid transit line running ten-car trains on one minute headway, we may take 100 passengers per car × 10 cars per train × 60 trains per hour = 60,000; or, say, five times the capacity of a surface line. This is passenger capacity. However, since the schedule speed of the rapid transit line should be about double that of surface cars, the comparative maximum work done by the railroads per hour is as one to ten, that is, five times the number of passengers carried twice the distance. Starting thus with the maximum carrying capacity, the "load factor" or ratio of average travel to maximum travel must be estimated. The daily period of maximum travel on all city transportation lines will average, say, two hours each in the morning and evening, a total of four hours, with fourteen hours of light travel and six hours with little or none.

As an example, take the Market Street Subway in Philadelphia. From the last (1910) report, we learn that this road, with a length of seven and one-half miles between terminals earned, in round numbers, $1,500,000 and ran 4,258,000 car miles; thus earning about thirty-four cents per car mile. The maximum service at present supplied during the rush period consists of five-car trains on two and one-half minute headway, twenty-four trains per hour equals 120 cars per hour past any station.

Four million two hundred and fifty-eight thousand car miles per year on an eighteen-hour basis on this particular road is equivalent to an average of forty-three cars per hour past any station, a load factor of about thirty-six per cent or thirty-nine cars on the basis of twenty hours operation (thirty per cent).

This proportion will vary in different cities, depending on the character of the territory served, the quality of service and the amount of competition. It is interesting to note, in the case above, that while the rapid transit line earns thirty-four cents per car mile,

the surface car line which parallels it earns twenty-six cents per car mile, showing that each grade of transportation fills a need and one supplements the other.

If we assume the minimum total cost of a double track subway railroad, including equipment at the low figure of $2,000,000 per mile, it is clear that it must earn at least about as follows to be commercially successful:

| | |
|---|---|
| Interest 6 per cent | $120,000 |
| Operation and taxes (50 per cent of gross earnings) | 120,000 |
| Total | $240,000 |

or at five cents fare, 4,800,000 passengers per mile of route per annum.

Should local conditions make the total cost higher than $2,000,000 per mile, or should the operating expenses and taxes exceed fifty per cent of the earnings the interest item would have to be reduced or the traffic increased.

The Market Street Elevated in Philadelphia by its last (1910) report carried about 30,000,000 passengers on seven and one-half miles of route, or 4,000,000 per mile. The elevated roads of New York city carried last year about 7,500,000 passengers per mile of route and the subways about 10,000,000, part of the latter route being four-track.

In only one of the American cities (Boston) has an entire subway been built to form a down-town terminal for surface street cars, although a part of the Philadelphia subway was so designed. It is the writer's belief that short sections of subways in the congested district, for use by surface cars, will prove a solution for the "rush hour problem" in the large eastern cities where the streets are narrow and the business section confined to a limited area. This solution has much to recommend it, the strongest argument being the comparatively low expenditure for the advantages gained, and the structure being built in the terminal district may form part of a true rapid transit line when the growth of the city outruns the carrying capacity of surface cars.

A second argument results from the fact that on few lines in the residential sections of a city is a shorter "headway" between cars than two minutes warranted even during "rush" periods; this

would permit, let us say, four to six surface car lines from different parts of one district to be brought into one subway and thereby serve a much larger population than one rapid transit line *based on equal time of trip,* and at much lower cost, owing to much of the route being served by the lower cost surface car equipment. Of course, the subway portion will not be worked so efficiently as when used for train operation, handling, say, 120 cars per hour in single units instead of, say, 500 per hour with train operation; but these facts should be taken into consideration:

(1) That a subway when built must always have a capacity largely in excess of the traffic intended for it at the time of construction, in order to allow for growth.

(2) As they are only built in congested districts, they really form city terminals and reduce delays from obstructions and interference on the street, thereby permitting higher schedule speeds for which considerable outlay is warranted.

(3) The outlay is made as the business and traffic require; that is, the addition of the subway terminals to the surface lines permits them to be operated to their full capacity, and when this is reached, the rapid transit line can be completed and train equipment added as needed.

(4) A rapid transit line operated independently of the surface lines usually serves only a comparatively narrow territory lying along each side of it—say not over 1,500 feet as an average, or it must draw the bulk of its traffic from an area of 300 to 400 acres per mile of route. If operated in connection with surface lines, this area will be much increased, but it introduces the transfer problem, which should always be avoided when possible, and involves change of cars, also objectionable and tending to reduce traffic. The proposed plan allows "through routing" and avoids the objectionable features mentioned above.

The writer believes that each type of road has its own proper field.

The subway or tunnel system is particularly well adapted for use in the down-town or business district. Here it performs the function of a terminal, and the high construction cost is partly offset by the saving in property damages which would result from any other form of construction. In a congested business district the columns of an elevated structure are decidedly objectionable,

whether they are located on the curb line or in the street pavement, and the elevated stations with the long platforms needed to accommodate the eight- or ten-car trains are not things of beauty as ordinarily designed. These platforms, to accommodate ten-car trains, should be not less than 450 feet long, and with stations one-half mile (2,640 feet) apart, seventeen per cent of the total length of line would be station platforms.

In the outer sections of cities, while the subway system may be preferable from the standpoint of appearance and freedom from noise, the less expensive elevated type of structure is the more advisable on account of the comparatively limited amount of traffic. Considered as a transportation tool, the theory of efficiency demands that for rapid transit systems the total cost for interest and operation and maintenance shall be the lowest possible. Assuming that the items for operation and maintenance would be the same for subway and elevated roads under equal conditions, it is clear that the cheapest form of construction which will do the work should be used, as this will make the total cost of carrying a passenger the minimum, and with a fixed rate of fare, should leave a maximum of profit.

The expression, "cheapest form of construction," is used in an engineering sense, and means that in making comparative estimates of the cost of these systems only the real essential features need be included. All expenses for ornamentation or decoration, where it involves extra cost, should be estimated separately. While not advocating the lavish use of ornamental features, the writer believes that elevated railways, particularly, can be made less objectionable to the public by proper and careful design.

Finally, the writer would earnestly urge the transportation committees in our large cities to have a complete unbiased engineering study made of all their local needs and conditions before deciding to recommend franchises for any particular rapid transit route, whether subway or elevated, as the transportation of our cities should be developed as a whole and along a definite and determined plan.

# POSSIBILITIES OF FREIGHT TRAFFIC ON INTERURBAN LINES

By Frank S. Cummins,
Traffic Manager, The Inter-Urban Railway, Des Moines, Iowa.

The word interurban as applied to railways to-day is descriptive of the frequent passenger and freight service between cities, towns and country districts which has come to be the distinguishing characteristics of these properties.

The first interurban railways were built for passenger traffic only, and with little or no idea of revenue from freight or other traffic. These lines were built cheaply, for operation by electricity and were, in a way, but street car lines extended out from large cities into the surrounding country and to neighboring towns. Franchises were obtained in the towns for the use of the streets. In some cases highways were used through the country; where private right of way was obtained it was devious and narrow, the alignment was crooked, the grades heavy.

Soon after the establishment of these passenger lines it became apparent that a package, or less than car-load freight service, could be established with profit and without interference to the passenger service already established. Then came the establishment, where the physical condition of the property permitted, of a car-load freight service. As new lines and extensions were projected, especially in less densely populated territories, the possible freight earnings were considered and the lines constructed and equipped for freight traffic as well as passenger traffic. And so the change has been going on until the modern interurban railway of to-day is, in many instances, a thoroughly well-built and equipped railroad operated by electricity.

The modern, well-built interurban railway, with its adequate facilities at its large terminals, consisting of a conveniently located and arranged freight house for less than car-load shipments, conveniently located team yards for car-load shipments, suitable provisions for factory and warehouse locations, transfer connections with the other railways entering the terminal, adequate facilities at

all towns (consisting of a conveniently located freight station, and yard with team track, stock yards, and land available for elevator and warehouse sites), its intermediate industrial sidings at reasonable distances from towns and its freight equipment and motive power sufficient for the business of its territory has unlimited opportunities for freight traffic.

The days of railroad cut-rates, rebates and special privileges to favored shippers are gone. Business must now be created and controlled largely through the service and facilities of the railway. The interurban railway may excel in its territory its steam competitors, by offering to its shippers more frequent and reliable service and equally good or better facilities. It is in position, because of its low operating cost per train unit, to give frequent regular service for less than car-load shipments, and for car-load shipments; and special movements for comparatively small tonnage trains of live stock and perishable freight. Again, because of the local character of its business, it can make much better provision for the volume of its business and thus give its shippers more reliable and satisfactory delivery. It does not become congested with an unusual volume of through business, as it practically has none; nor do weather conditions seriously impede its operations.

This service of the interurban railway is of great value to every resident along its lines and to every shipper in its territory. For this reason it obtains at competitive points the major portion of the business, and at non-competitive points draws from a much enlarged territory. Its tributary territory increases in population and production; new enterprises seek its towns. It creates new freight traffic through the encouragement given in town and country to the production of high class commodities.

Just as an interurban railway is limited in possible freight earnings if it can only transport less than car-load shipments, so is it handicapped if it may only transport local shipments. By local shipments is meant those originating at or destined to points on its own line. Foreign business, or that originating at or destined to points on the lines of its connections, can be handled only when proper provision is made for interchange and satisfactory arrangements made with connecting lines for the handling of this through traffic as a whole or in part under through tariffs and at a through

rate. Many steam lines have opposed this joint business with interurban railways; the opposition being much greater in some localities than in others.

In some few instances where steam lines have refused to recognize interurban lines and interchange traffic with them, they have been forced by law to do so. In other instances the arrangement is brought about as a reciprocal traffic agreement wherein the steam line hopes to profit from the tonnage which the interurban railway is in position to route via or deliver to its line. And, this tonnage may be made an item worth while, for with proper service, and equitable and competitive rates, the limit to the tonnage which the interurban railway may obtain is the entire tonnage which is shipped into or out of its entire territory, when this territory is developed to the highest possible degree of business activity and productivity.

Much of the opposition of the steam lines has been caused by the methods adopted by the interurban railway for conducting its business. Cut-rates for local business are not fair competition if the interurban railway expects its connecting lines to join it in through or foreign traffic. Local methods of accounting in particular through traffic and intercharge at variance with standard practice; failure to comply with, or adopt in practice the rules of the various national railway associations pertaining to through traffic; improper facilities, or the lack of any facilities at all, and the lack of systematic operation, discourage the steam railways in this traffic arrangement. Every connection possible should be obtained, because each line reaches much local territory not reached by other lines, and has its influence on many distant connections.

The interurban railway, when in position to handle local and foreign traffic, is given the greatest opportunity to develop its territory. In farming country, grain elevators, lumber, coal and stock yards, and factories may be located on its depot grounds at all stations. In large cities, warehouses and factories may be located along its lines, and at all points sidings may be laid to factories already established, and transfer connections made with all railways for the reciprocal switching of cars between all industries in the town.

In an ordinary territory, be it farming, mining, or in fact any

sort of a district, the car-load business of a railway will far exceed the less than car-load business. It is from this car-load business that the railway will receive its greatest freight earnings. The major portion of car-load business is not so-called perishable freight; much of the less-than-car-load freight is. Car-load freight is loaded or unloaded by the shipper; less-than-car-load freight is loaded and unloaded, perhaps handled several times, by the railway employees. Both require practically an equal amount of station time and expense. The car-load business of a territory is the foundation of a freight business, and the interurban railway, equipped for less than car-load business only, is receiving but a small part of the possible freight earnings in its territory. With an established car-load business in the important commodities of its territory, the interurban railway will find a means of maintaining for all shipments a regular and reliable service, which is essential to the successful conduct of a freight business.

A prosperous appearance inspires confidence. The prosperous appearing lawyer inspires confidence in the mind of his client; the prosperous appearing bank inspires the confidence of the depositor, and so does the prosperous appearing railway inspire the confidence of the shipper. An interurban will not, or cannot, succeed in any community until it obtains the confidence of the shippers and until these shippers are satisfied that they may route their shipments via the interurban railway with every assurance of as good or better service than they may obtain otherwise.

If the weeds are growing on the right of way along the team track and around the depot, it is a sign of lack of business. These weeds must not grow; this lack of business must not continue; regular business in the necessary commodities of the community must be established which will give to the interurban property the appearance of prosperity so necessary to success. Back this up by service which can be depended upon at all times, and the interurban railway stands a fair chance of holding its own in the business of the community. Convince the shippers by proof that the grain, the hogs, and the cattle can be hauled to market, no matter where the market may be, and the merchants of the community will be satisfied that you can haul not only the merchandise shipments from the neighboring town, but can also haul from any point the car-load merchan-

dise such as flour, feed, fruits, furniture, coal, lumber, and all the necessary articles consumed by the community. The proof to be given the shipper is service—and in this as in no other thing may the interurban railway excel. As previously stated, the only limit to be placed on the freight business of the modern interurban railway is the total of every shipment originating in or destined to its territory.

Competition in freight traffic will exist in every community where there is more than one railway. The interurban railway equipped with industries, team yards and freight houses, equal to its competitors, for handling the necessary in-bound and out-bound commodities of the community with access to the factories and industries of the town through transfer connections, and enjoying reciprocal switching arrangements or through private industry tracks, can fairly compete for the business of the community.

The frequent and regular service of the interurban railway is of the utmost value, for by this means it outdistances competition in local merchandise and in local car-load shipments. This frequent service and the through traffic arrangements with several steam lines, insures to the shipper the shortest route with naturally the best time to or from any distant market, and at a rate equal to competitors. These connections with steam lines, if in a territory where many connections may be made and through rates and routes established to and from many markets, give the buyer and the shipper located on the interurban lines many advantages. The south, east, west or north may be the best market at any given time for the grain, live stock or other commodities originating in the territory. These connections put these markets within easy reach and afford the service so essential to the largest profit of the shipper. Many markets offer quicker sales and bigger profits with less hazard and less capital invested for the produce shipper.

The manufacturer, the merchant and the dealer in lumber, coal and similar articles, appreciates a large territory for selling or buying. The direct route is added assurance of the receipt of shipments in salable and undamaged condition, and in the shortest time possible. This reduces the hazard in his business by permitting the carrying of a smaller stock, yet with every assurance of taking care of all trade with seasonable and salable goods.

To hold the respect of the community and of the connections upon whom it depends for much service and many favors, the interurban railway must compete fairly; it must be a railway among railways. It must not undermine the business of its competitor by unfair or unbusiness-like methods. It does not need to do this to obtain business, for as soon as its worth in the community becomes apparent it can obtain an always increasing business through the accommodations it has to offer.

The interurban railway must always bear in mind that it is a local proposition, that for this reason its territory will show its appreciation of the attention given to its business, and that, regardless of the length of the line or the size of the trade center, every mile of the track is a main line and every town or industrial siding on the main line is entitled to only the best in service. No business is too small or none too large for the interurban railway. It has no through business not originating in its territory to congest its rails; it is in position to give to its territory service and attention as no competitor, with its larger and more complicated organization may give. This is intensified railroading which makes the possibility of developing local freight traffic practically unlimited.

The interurban railway is to-day local in character. If in the future these lines are extended or consolidated until great systems of many miles in length are built up, added traffic of a through nature will be given to these present local lines. But if, in any way, this through traffic be permitted to interfere with the local service, and the attention it is now possible to give the local territory, the interurban railway will lose its greatest opportunity. As long as the interurban railway will keep its organization and its service local in character, it will only gain by this consolidation. The opportunities of the consolidated railway will be greater than the opportunities of any form of railway now in existence.

Perhaps no phase of the interurban railway question offers more serious problems and yet greater opportunities than the industrial development of the territory. The interurban railway may profitably center its energy upon the development of a comparatively small territory, and need not rest content until every foot of territory is producing every ton of freight possible.

How can this territory be made to produce the greatest tonnage

for the railway? The character of the country must be very carefully studied and all natural resources taken into account. Grain elevators must be established, with grain buyers, at all points in grain-producing territory; retail coal dealers must be found and located on the railway grounds. Lumber yards, farm machinery warehouses, merchandise warehouses, must be brought into the community, either from old locations or as new companies. All classes of business dependent upon railway transportation must be encouraged.

The co-operation of the commercial organizations must be obtained in towns where these exist, or if they do not exist, organizations must be perfected in an effort to locate new factories and enterprises in the town. Every effort must be made to keep in touch with prospective moves of factories or of branches or new enterprises contemplated, and when this has been done no opportunity should be lost for demonstrating the desirability of locating in this interurban territory. Here again the local character of the interurban railway is immensely valuable, as the personal interest given to the affairs of these local commercial clubs, and in the development of these towns, is appreciated for its value by all the community.

The development of a vast factory district in or near large cities and industrial centers is very possible for the interurban railway. The assurances which it may give of adequate service for switching revenue, the liberal contracts which it can offer for trackage, and the close personal attention which may be given to the development of projects, will attract industries and make the venture successful.

The interurban railway should not rest content until every piece of land in its territory, with natural resources of commercial value, is being developed. If there be material for manufacturing, a company must be found or organized for utilizing and marketing the product; and likewise if there be mineral, timber or similar material, a way must be found for developing the property and marketing the commodity.

The farming country may even come in for its share of attention. Better farming means bigger crops and greater tonnage. New markets created by the interurban railway demand certain farm products, and the growing of such products is to be encour-

aged. The land close to large cities may be developed into small truck, poultry and fruit farms, creating a local tonnage of high-class freight into the cities and a tonnage out-bound for the subsistence of the community. Dairy farms for supplying the trade of the large centers may be encouraged for the traffic in milk. The establishment of canning factories in the small towns, taking from the surrounding country vegetables and fruits, will create a tonnage in-bound and out-bound.

The encouragement of locations of state institutions, sanitariums, resort hotels, and of real estate ventures in suburban towns near large cities, will add to the freight traffic through the tonnage of building materials and subsistence merchandise.

These are a few of the opportunities given to an interurban line for creating freight traffic in its territory.

Solicitation of freight is of the utmost importance to the interurban railway. The shippers must be given knowledge of the service which the railway has to offer; of the territory from or to which it can handle shipments to the best advantage, and the assurance that the rate is competitive. When contracts are to be let for supplies, such as coal for industries, etc., the buyer must be brought in touch with dealers on the railways' lines or with those who will ship via the railways' lines. Frequently contracts are let for new construction, such as public buildings, to contractors not located in the territory and not acquainted with the service of the interurban railway. The advantages of the line must be brought to the attention of such parties, while at the same time local supply men should be requested to ask for opportunities to bid on the materials.

If a farmer, merchant, dealer or plain ordinary man has anything to sell, or wants to buy anything produced on the interurban lines, a buyer or seller must be found and the movement be thus secured for the railways' lines. Consistent solicitation and friendly calls upon the shippers of the territory will bring results. It advertises and keeps the line before the people, it pleases the shipper to think that his business is appreciated and worth asking for, it affords the solicitor the opportunity to straighten out many little misunderstandings which might result in withdrawal of business from the line, and it informs him of many large shipments moving in or out of the territory which might otherwise be overlooked. Regardless of the excellence of the service which you may have to offer, the

average shipper wants the railway to come after the business and ask for it.

Opportunity is given the interurban to advertise its freight service, through its passenger service. This keeps the line before the people, which is the essential thing in railway advertising.

Steam railways make the claim that in some instances passenger trains are operated at a loss, as an incentive to freight traffic. This may never be necessary on interurban lines, but efficient, frequent and convenient passenger train service is a great help to the interurban railway in obtaining freight traffic. Likewise good freight service for merchandise shipments is a big help in obtaining general freight traffic. "On Time" service is the best advertisement a railway can have, for a satisfied traveler or shipper praises it; a dissatisfied one "knocks," and the "knocker" makes the most noise.

Keep the freight service before the people, through the columns of the local papers, special advertising time-cards and bulletins to agents and representatives. This is not costly. A few dollars each year will keep the shippers supplied with all necessary information, and they will repay many times over in traffic the thoughtfulness of the railway company.

The organization of the freight department for an interurban railway must not contain red tape; but, to give results, must be made up of good men, doing their work intelligently and carefully. Every man from the traffic manager to the station agent is an important factor in the freight business of the interurban railway. Careful and conscientious attention to details and prompt and courteous attention to inquiries and complaints will greatly assist in obtaining the confidence of the shipper and thereby his shipments.

All work of the office must be thoroughly done, standard practice being the best method to pursue. No better blanks and forms can be used than those ordinarily used by railways and adopted by them after years of experimentation.

In the matter of freight claims, too much emphasis cannot be laid upon the value of prompt investigation and settlement, where the railway is responsible for loss, damage or overcharge. Business is often routed against a line with which just claims are pending, where the claims are long delayed in settlement through inefficient investigation.

The interurban railway must keep a record of its freight traffic even down to the smallest shipment of the smallest shipper. Records of shipments received and forwarded by individual shippers, as well as stations, will be of the utmost value in obtaining business. These records will show the amount of business obtained, and having approximate knowledge of the total tonnage of shippers or stations is an incentive to greater efforts in obtaining all the business. As an example, from the records of shipments forwarded or received in certain seasons of the year, the traffic movement may be anticipated, solicited and obtained by the interurban railway.

Possibilities of freight traffic on modern interurban railways might better be the subject of this article; but what is true of the modern interurban railway, with its facilities and traffic agreements wherein it may handle a general freight business, is also true, in part, of all interurban railways.

Those handicapped because of the physical conditions of the property must necessarily conduct a restricted freight business; but those handicapped only by lack of station facilities and traffic arrangements have prospects for the future.

The possibilities of freight traffic are great on any interurban property; the earnings most gratifying. To the modern interurban railway the possibilities and earnings are the greatest both now and in the future.

# EXPRESS BUSINESS ON INTERURBAN LINES

By A. Eastman,
General Manager, The Windsor, Essex and Lake Shore Rapid Railway Company, Kingsville, Ont.

There still exists a great diversity of opinion among electric railway operators regarding the correct method of handling express and freight by electric power.

Ten years ago, very few electric railways were engaged in freight and express traffic and the question then was: Shall we engage in the freight and express traffic? The field was entered into with considerable indifference on the part of some managers. The situation, however, has undergone a rapid change and nearly all interurban railways now count on the revenue from freight and express traffic as a substantial part of their gross earnings. A statement recently prepared, shows that of thirty-nine electric railways reporting concerning the matter, the percentage of gross earnings derived from freight and express traffic amounted to from 1.5 per cent to 48.5 per cent, aggregating each company from $1,489 to $162,904 per year.

So far as my personal knowledge is concerned, I know of few, if any, interurban railways that are not at the present time engaged in freight and express traffic. While it has apparently been decided that the handling of freight and express is remunerative, the question as to what is the proper method still remains a point on which a great difference of opinion exists. There are many strong arguments in favor of all methods advocated.

I do not believe a general rule can be recommended or adopted as to whether interurban electric railways can handle freight or express. It appears to be a matter which is controlled entirely by local conditions; especially as regards competition, traffic to be handled, etc.

Since the topic of this paper is "Express on Interurban Lines," it would be out of place to go into a lengthy discussion as to whether

it is more desirable and remunerative to handle freight. Experience has proven beyond a doubt that there are conditions and circumstances favorable for the development of freight traffic.

It might be well at this point to distinguish clearly between freight and express traffic. Freight traffic in this particular connection includes all commodities moved or transported by electric railways, from place to place; such traffic can be handled in car load lots, or less than car load lots. The rates charged for such transportation are known as freight rates and are usually governed by an official classification; such rates cover only the transportation charge and possibly a terminal charge, but do not provide for a wagon pick-up at point of shipment or delivery at destination.

Express traffic may consist of shipments of any commodity or of merchandise, but it is usually composed of a higher class of shipments, or merchandise, than are handled by freight, and for which faster time is desired, or absolutely required. Express rates not only cover the transportation charge but provide for a pick-up and delivery at point of shipment and destination. While a number of electric railways advertise "Express service at freight rates," a real express service is not usually given, with the exception that the running time from point of shipment to destination, is as fast as in the express service. No provision is made for a wagon service. Express rates usually consist of a standard merchandise rate per hundred pounds, covering all commodities, with certain exceptions which are provided for in the express classification. A general comparison of freight and express rates cannot well be made, as express rates will usually exceed ordinary freight rates from 15 to 200 per cent, according to distance; so it can be seen that a clear distinction is made between freight and express, when the rate is taken into consideration.

Coming down to the methods employed in handling the express traffic we find that several general classes of arrangements are in force. The three most common arrangements are: First, the lease of the express privilege to a good old-line express company on a percentage of income, or a stated amount per ton basis; second, an independent express service handled and conducted entirely by the electric railway; third, a mixed service usually conducted by the railway and operated in conjunction with the freight business. A

great majority of electric railways conduct their freight business themselves as part of their regular business.

Of thirty-nine electric railways recently reporting upon the matter of express traffic it was found that twelve had arrangements with old-line express companies to handle the express traffic over their lines on a percentage or tonnage basis, and eight companies maintained an express department, with wagon service run as a local proposition. The twelve companies having arrangements with old-line express companies also handled freight traffic.

There are a number of arguments in favor of an arrangement with an old-line express company, to handle the express traffic. In the first place it opens up a wide field to an electric railway by making it possible to participate in handling through traffic, that would not or could not be handled on two local rates. Under an arrangement of this kind the old-line express company provides agents, wagons and horses at its own expense, leaving nothing for the railway to do except to transport the express matter. This can usually be accomplished with small cost unless special cars are required, which is seldom the case. This arrangement, moreover, does not hinder or complicate the development or handling of freight traffic.

There are conditions, however, that make it desirable for an electric railway to conduct, maintain and operate its own express department. It is absolutely necessary in order to make an independent service a commercial success, that the company serve a thickly populated territory and have one terminal located in a large city. Without these the amount of strictly express traffic moving would not be sufficient to warrant the expense of such a service. The maintenance of horses and wagons in connection with this service is, of necessity, a serious consideration, and such a service can only be successfully operated when local conditions are favorable.

Another method which has proven successful consists of a compromise service, with rates so arranged that three grades of service are optional with shippers and consignees: (1) whether goods are to be forwarded subject to rates providing for pick-up service at point of shipment and delivery at destination, (2) or wagon service at point of shipment or destination, (3) or simply transportation without wagon service.

Other companies have adopted the plan of handling freight traffic, but at a higher rate than charged by competing steam roads and eliminating the heavier and lower class commodities.

In conclusion it can be stated that practically all interurban railways handling freight and express, under whatever system they have adopted, find it remunerative. Any company which is considering the inauguration of an express service should first make a careful study of the local situation and secure the opinion of an experienced yet unbiased person as to whether it is advisable to enter the field, and whether to handle freight traffic only and lease the express privilege to an old-line express company, or to organize an express department and handle such traffic as a part of the organization.

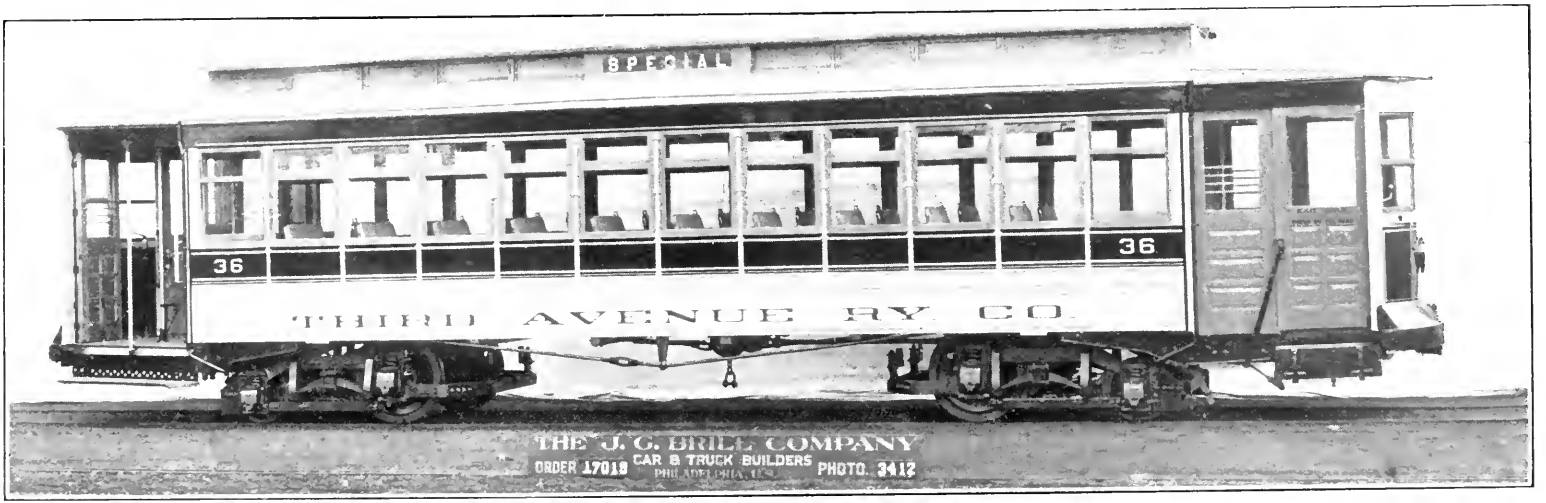
# ECONOMIC FACTORS IN THE SELECTION OF CARS FOR URBAN SERVICE

By Samuel M. Curwen,
Vice-President and General Manager of The J. G. Brill Company, Philadelphia.

In a series of articles under the caption, "Conditions Which Govern the Type of Car for City Service," which have been recently published in "Brill Magazine," fifteen of the principal cities of the United States are shown to have a wide variation in types of cars, no two being alike. The lengths of the bodies run from twenty-eight feet to thirty-six feet; the platforms differ all the way from five to eight feet in length, while the centers of the side posts vary from twenty-nine to thirty-four inches. In some types the seats are the longitudinal form of the old days; in others transverse seats are in vogue, and there are a number of mixed transverse and longitudinal seating plans. Weights differ widely in car bodies, trucks and motors, the car bodies differing in some cases several thousand pounds for the same length. Some of these differences, and others not mentioned, are demanded by local conditions; some are the result of local practice, methods and opinions, while some are due to the diversity of principles of design among car builders.

There is, however, a strong trend in the direction of standardization which is being very materially assisted by the consolidation of groups of railroad properties and the rehabilitation of many properties by competent engineers connected with the railways, working with a view to ultimate standardization of all equipment. The American Street and Interurban Railway Association has adopted standards and recommended practices in regard to step heights, wheel measurements, axles, journal boxes, brake shoes, etc., and is extending its good work in other directions through its committees, composed of practical men connected with the railway industries. It is hoped, therefore, that before long, instead of few orders being alike, as at present, there will be a conformity of types and a standardization of principles of design and construction, in whole or in part, reducing the cost of production, operation and maintenance.


Convertible Car With Panels and Sashes Removed and Metal Screens Substituted. Mounted on Single-Motor Trucks.




Semi-Convertible Car With Pay-As-You-Enter Platforms. Steel Underframe. Mounted on Single-Motor Trucks.


Semi-Convertible Car With Plain Arch Roof and Pay-As-You-Enter Platforms. Steel Underframe. Mounted on Single-Motor Trucks.

The recent progress in the art of building car bodies, trucks, motors and other equipment is creating large advances in efficiency and economy and eliminating the non-essential and freakish features and wasteful practices and principles which have, in one way or another, gained acceptation. There are still too many changes being made to enable one to predict what types will finally be established, but there are evidences in many quarters of a focusing on certain principal dimensions, seating and platform arrangements and on structural designs which will soon obliterate much of the rampant individualism of the last few years.

The greatest differences heretofore have been chiefly in the design of the bottom framing, the arrangement of windows, the seating plan and platform plan, and, above all, in the weight—differences which, generally speaking, do not appear to be necessary. The bottom framing, for a given length of body and for a certain type of trucks and motors, should be of a specific design, determined theoretically and tested practically, to insure the required support and rigidity, with a sufficient margin to resist the maximum stresses of uneven tracks, excessive speeds and extra heavy loads. Trucks and motors have been developed to a stage where there will be little change in dimensions, capacity and general features in the future. Therefore, in these particulars, there is no obstacle which materially bars the way to standardization. The transition from the wood to the steel frame has progressed gradually, and it is probable that the all-steel frame will eventually be used, but this need not prevent certain standard designs of composite frames being adopted for the present.

Out of a great variety of window arrangements two only have continued in general use—the semi-convertible system and the one in which the upper sash is stationary and the lower sash raises. The double-sash window has come into general use on account of its light weight and the desire to reduce the expense of replacement of glass. The semi-convertible window system is considered to be one of the greatest advances made in car design during the past decade, as it provides a large window opening which can be made entirely clear of the sashes at will. The manufacture of open cars has been discontinued for a number of cogent reasons, and the necessity of designing cars for all-year-around service, with ample interior width for comfortable seats and sufficient circulation of air

in summer, has greatly stimulated the introduction of the semi-convertible type. Several arrangements of this kind have been tried, but the one patented by the Brill Company is the only one that has continued to give satisfaction, as it obviates certain distinct disadvantages which handicap the others. The superiority of the Brill device can be best understood by a brief survey of the other methods in use. One method consists of removing the sashes from the car during the summer season, leaving only the curtains for protection against rain and wind. In another, both the sashes are dropped into pockets in the side walls. These pockets reduce the interior width of the car, provide a too-convenient receptacle for rubbish, rendering them extremely unsanitary, allow moisture to penetrate to the framing, and do not afford sufficient protection to the glass. Another arrangement consists of raising the upper sash into a shallow recess and dropping the lower sash into a wall pocket.

In the Brill arrangement both sashes are raised by one operation into a pocket in the side roof. The operation is simple, and the windows can be held at any desired height by a series of stops in the post grooves. By doing away with the wall pockets, the objectionable features just mentioned, especially the reduction of the interior width, are avoided. Moreover, the window sills may be brought low, the standard height being twenty-four and one-half inches above the floor. It is necessary to describe this patented feature belonging to the company which the writer represents, because of the important place which this window system has assumed in car building, a majority of the city cars now in use having this feature.

The transverse seating arrangement is now, and has been for a number of years, used in a majority of city cars, and, as each seat is placed between a pair of side posts, it depends upon the spacing of the posts whether or not the maximum seating capacity is secured. Experience has proved that two-feet-six-inch centers of posts afford sufficient room for a comfortable seating arrangement. This allows the seat to be seventeen and one-half inches wide, and the distance between the seats twelve and one-half inches. In a large number of cases, probably a majority, the seats are fourteen and one-half inches apart, which reduces the seating capacity of a car, with ten or eleven windows on a side, by four passengers. On railways where the narrower and wider spaces between the seats have both been used, there has been found no objection by the riding

public to the narrower spacing, and it would appear that this spacing of two feet six inches between centers of posts could be satisfactorily adopted as standard. On a car with eleven windows on each side, and measuring twenty-eight feet ten inches over the body, the seating arrangement which has given the best results generally consists of seven transverse seats on each side at the center of the car, and longitudinal seats occupying the space of two windows each at the corners. The longitudinal seats provide ample aisle space near the doors to prevent crowding.

The introduction of the pay-as-you-enter type of platform about five years ago in Montreal, and its subsequent adoption in the principal cities of the United States, has proved to be the most radical and beneficial improvement in car construction in the history of city railroading. By placing the motorman in control of the exit of passengers at the front end, and the conductor in control of the exit and entrance of passengers at the rear end, a large percentage of accidents is prevented. The time consumed in stops is cut down to about one-half; there is no missing of fares; peculation on the part of conductors—especially where fare boxes are a part of the equipment—is greatly reduced, and, finally, the comfort of the passengers is increased by eliminating the necessity of having the conductor pass to and fro in the car. The length of the platform enables the average group of people waiting for the car at street corners to be taken aboard before the fares are collected, thus allowing the conductor to watch all of the passengers boarding, and alighting, and enabling him to close entrance doors or gates, if such are used, and ring his signal bell, before commencing the collection of fares. The largest groups are usually taken aboard at transfer points. As a rule, cars are not delayed, however, as the transfer slips are quickly collected.

Naturally, there have been a number of variations in the prepayment-platform scheme, but these variations are in matters of detail and have to do with differences in width of car body, length of platform, and whether the platforms are inclosed with doors or are open.

Platforms of the non-prepayment type are classified as open, half-vestibuled, and vestibuled, the selection usually depending upon the climate. The lengths are from four to five feet, except in the case of cars which are operated at only one end, where it is common to use a

long platform at the rear, usually about six feet in length. The American Street and Interurban Railway Association has recommended uniformity in regard to the step heights.

Until recently car roofs have been of the monitor, or clear-story, type, fitted with ventilator sashes, and in some cases extended over the platform hoods in a manner similar to the well-known steam-car roof construction. The plain arch roof is now making its appearance in this country, after about twenty years of the monitor type, and bids fair to come into general use. The monitor roof is a broken arch, composed of four joints and inherently weak, necessitating a heavier construction than the plain arch form, and in these days, when all parts of the car are being investigated with a view to reducing weight, it is only logical that the roof should come in for a change from an inevitably heavy construction. The plain arch roof, moreover, permits of higher windows, increases the head room very considerably, and, being constructed with what is practically a double roof, has a distinct advantage if used in conjunction with several types of ventilating apparatus. An important consideration, also, which should be kept in mind in comparing the two types of roofs is in the fact that there are no joints in the plain arch roof to furnish access for moisture, the entire roof of the body being covered with canvas, made in a single piece. The plain arch roof costs less to build and, apparently, has every advantage in its favor. It is reasonable to suppose, therefore, that it will be very generally adopted in the future.

The question of cost of electrical operation, which increases very materially with the increased weight of cars, has not until recently been given sufficient attention. Great economies in operation can be gained by proper construction standards, enabling the car builder to build the very lightest car to meet satisfactorily the requirements of the service.

To manufacturers, standardization will reduce the cost of production by eliminating much of the special designing, special patterns, castings, etc. More definite knowledge of the sizes required will permit the laying-in of larger stocks of lumber and steel, with a consequent reduction in cost. It follows, also, that a large percentage of waste will be avoided. It will greatly simplify the drawing of specifications and the facility with which they can be complied with. The buying and selling of cars will be placed on a basis

Interior of Convertible Car Arranged for Summer Service. Seating Capacity, 45.

Interior of Semi-Convertible Car. Both Upper and Lower Sashes Raise Into Roof Pockets.

Interior of Plain Arch Roof Car. Space Between Ceiling and Roof Utilized for Vacuum Ventilating System. This Type of Roof Permits the Window Openings to be 4½ Inches Higher Than Standard.

of mutual understanding, deliveries will be made earlier, and the furnishing of repair parts will be facilitated and the cost, at the same time, reduced. All this will benefit the railway company, for, besides reducing the initial cost of equipment and the cost of replacements, it will be productive of economy in the maintenance and engineering departments, and will furnish a lighter and better design of car in most cases. Standardization will also result in the wide recognition and the more speedy adoption of advances made in construction, thereby greatly accelerating the progress of the art of car building.

# THE RELATIONS OF THE ELECTRIC RAILWAY COMPANY WITH ITS EMPLOYES

By C. D. Emmons,
General Manager, Fort Wayne and Wabash Valley Traction Company, Fort Wayne, Ind.

With the evolution of methods of transportation from the horse car creeping along the streets at the rate of four to eight miles per hour, to the heavy, high-speed interurban cars rushing through the country at the rate of forty to sixty miles per hour, there has been a corresponding change in the relations of transportation companies with their employes.

The horse car, with its open vestibules, required men of great physical endurance, but possessing relatively low standards of skill, judgment or education. The superior officers of these men were generally known as drivers, and were very often of the character that would drink to excess and would lead the host in demonstrative cursing. The hours of the employes were long, and but little thought was given to their creature comforts or to the treatment accorded them. The change from the horse car to the high-speed city and interurban car required a higher grade employe, and to their credit be it recorded that many of the horse-car drivers proved themselves capable of the necessary evolution and made first-class motormen and conductors.

With the higher character of intelligence required the former robust physique and endurance began to disappear to some extent, and it was soon evident that the man himself must need some attention.

This has resulted in the establishment of many regulations and mutual relationships, among which are the following:

*Reduction of Hours of Work and Increase in Scale of Wages.*—With the increased nervous strain which was thrown upon the driver of a transportation vehicle in changing from a six-miles-per-hour horse car to the higher speed city and interurban car, it became apparent early that the employe could not work the long hours which were endured during the horse-car period. In consequence the number of hours which the employe works has been very greatly

reduced, while at the same time the higher grade of skill required has caused a corresponding increase in the scale of wages, so that to-day the transportation employe, by working from one-half to two-thirds of the number of hours which were required of the driver of the horse car, is drawing from two to three times the wages formerly paid. This has been a natural process, and we can but anticipate that as traffic becomes heavier and the streets more congested there will be, of necessity, still further adjustments of this character.

*Apprenticeship Courses.*—In order to satisfy the demand for a higher grade of employe many roads have established apprenticeship courses, designed to train young men who have had a higher education; preferably a college education. These men will start to work for the companies in the ranks, sometimes beginning as a motorman or a conductor, or as a power house or car shop employe. After being given a certain amount of training in each department they are from time to time transferred to other departments, with the result that after several years of training they are well equipped for almost any position in the organization.

The education of future employes is a matter of great moment to transportation companies. If care is exercised in the selection and instruction of apprentices, especially as regards the necessity for close relationship between the company and its employes, the tendency will be to bring about greater harmony between the management and all of the employes.

At the same time employes who have been in the service for years, and who show a capability for higher positions, must not be neglected. Most companies have therefore established a system governing the advancement of valuable men.

*Promotion from Ranks.*—When a vacancy occurs in a higher position, it is important that the management should first give the greatest consideration to its own men, in order to discover whether there is among its employes a man who has shown sufficient capacity, ability, steadiness of purpose and loyalty to the company to warrant his promotion to the vacant position. No more effective step can be taken by a company than to have its men feel that if they show ability and capacity, they are all in line for any opportunity which may arise. Among the larger companies this relationship is being very gradually and firmly established.

*Establishment of Rest and Recreation Rooms.*—With the increased nervous strain upon the employe the necessity of conveniences for relaxation has become apparent. Many companies have established quarters at car barns and terminals which are conveniently fitted up with toilets, wash basins and individual lockers, and contain reading rooms with comfortable chairs, and files of the popular periodicals and transportation journals. Amusement rooms, containing card tables, checkers, and pool tables, have been frequently included. These provisions give the employe an opportunity to relax during his spare or waiting moments without visiting adjacent saloon or pool rooms and getting into company which is more or less demoralizing. It also enables the company more easily to find its men if needed unexpectedly. Large expenditures are constantly being made along this line, with great benefit to both the company and the men.

*Employes' Mutual Benefit Associations.*—These organizations have been of the greatest value in strengthening the ties between the electric railway and its employes. The idea is not a new one, for such organizations have been in existence for many years on important steam railway systems, such as the Pennsylvania and the Baltimore and Ohio.

The first organizations were prompted by the necessity of providing some relief for the unfortunate employe whose ability to earn his usual wages had been temporarily interfered with because of accident or illness. The old, and still much-used method, of "passing around the hat" is not only embarrassing to the employe for whom the solicitation is made, but a very great burden upon his friends who are charitably inclined.

The mutual benefit associations are usually independent of the railway company, although fostered and backed financially by it. By means of a small contribution each month the member employes make provision by which they will receive certain sums per day for sick and accident benefits. In the event of death a prescribed payment is made to the estate of the deceased employe. These associations have conferred untold benefits upon the employes of both steam and electric railways.

*Pension System.*—Many of these organizations have expanded and established a pension system by which an employe may be retired from active service at the age of 65 or 70. If an employe is permanently incapacitated by accident he receives a pension equiva-

lent to a certain percentage of his wages, based upon the number of years he has been engaged in the service.

*Employes' Saving Funds.*—Some roads, in order to encourage their employes to save money, have established a savings fund department. The employe can arrange to deposit a certain amount each month, and thus gradually, through his contributions and accrued interest, build up a very considerable bank account, without the necessity of going to or dealing with a banking house.

*Profit Sharing.*—Other roads, by means of a profit-sharing arrangement, endeavor to bring about a more intelligent interest of the employe in his work by dividing with him a certain per cent of the profits derived from the operation of the road. This incentive to closer relationship has not been tried on a sufficient number of roads or for a sufficient length of time to warrant any conclusions as to its success.

*Merit and Demerit System of Discipline.*—Perhaps the greatest cause for the lack of a close relationship between the electric railway companies and their employes is the system of administering discipline. Very few men, who have violated an order or rule, are ready to admit that they were at fault, and if, to their resentment at being so charged, a lay-off or suspension is added, they are very apt to become estranged and unruly members among the employes. During the period of suspension the employe is likely to get into bad company and become an undesirable citizen and a bad employe. In addition the loss of his wages causes not only suffering for himself, but also for his wife and children dependent on him. To avoid these things and to promote harmonious relations between the company and its employes many roads have adopted the merit and demerit system of discipline, the main objects of which are:

1st. To avoid a loss of wages by persons employed and consequent suffering to those dependent upon their earnings.

2d. To stimulate and encourage employes in the faithful and intelligent performance of their duties.

3d. To provide equal and exact justice to every employe.

4th. To provide a method by which years of faithful and satisfactory service may be considered and weighed in judging of any delinquency.

Under the system a stated number of demerits are entered against the record of each employe for the violation of each important rule. Where demerits are given for unsatisfactory service it

is logical that merits should be given for good service, and merit marks are credited to an employe whenever possible.

Employes are notified in writing of any favorable or unfavorable entry against their record, the reasons therefor, and the number of marks given. If any employe feels that he has been unjustly awarded demerits, he is given an opportunity to present his case in writing to the Discipline Committee at its next regular meeting, at which time his case is reconsidered and a correction of the record made, if this is found to be necessary and proper.

This method tends to remove the embarrassing difficulties which are presented when an employe is unjustly disciplined by some immediate superior. When an appeal is made to a higher official under the ordinary system a correction is hard to make, for, although the higher official may believe or know that the employe is in the right, he cannot take his side of the case openly, for by so doing he would cause the erring official to lose entire control of the men. All cases of discipline would in the future be appealed directly to the higher official. Under the merit system employes are permitted to state in writing why they believe they should not receive demerit marks, or may ask the merit board to reconsider its action if they are not satisfied with the rulings of the board.

This system necessitates identical treatment of all employes on all divisions of any property, especially where the merit board is made up of the superintendents of the different divisions. In many cases the different superintendents differ as to the discipline which should be administered. A majority vote of the board decides the question, thus usually securing the best possible adjustment, besides establishing a uniform practice. Questions which an individual superior officer would be at a loss to know how to decide are satisfactorily worked out through the combined knowledge of the members of the discipline board.

*Conclusion.*—It seems to be apparent that the keynote of the policy of most electric railways at the present time is the necessity for fair, impartial and humane treatment of their employes, caring for their physical comforts, and so treating them that a spirit of courtesy to the public and loyalty to the companies may be fostered. Not only is this policy commendable from a humanitarian standpoint, but it is conclusively demonstrating its value as a financial measure. The creation of an *esprit de corps* is a valuable asset to any company.

# THE STRIKE PROBLEM UPON ELECTRIC RAILWAYS

By Daniel T. Pierce,
Former Executive Assistant of the Philadelphia Rapid Transit Company.

That something must be wrong in an industry where every year about one-third of the employes give up their work or are discharged is an unavoidable conclusion. This is the condition prevailing on all street railway systems in large cities. Every year these companies are compelled to employ and train from twenty-seven to thirty-three per cent of new men.

The reasons for this condition are obscure. The principal reason cannot be the prevailing rate of wages, for the *yearly* earnings of motormen and conductors, who average twenty-three cents an hour for about ten hours a day, are more than the yearly earnings of the most skilled trades-workers. The latter's wage rate per hour is, of course, higher, but employment on urban electric railways is steady throughout the year, while irregularity of employment is the rule among skilled workers. As nearly as the writer can discover, not more than half of the men who employ as motormen and conductors intend to make this work their permanent calling. Car service seems to be regarded as a makeshift until "a better job" can be obtained. The conditions of employment, the hours of labor, constant friction with the public, and, in short, the annoyances of platform duty appear to make it an undesirable employment from the viewpoint of the workingman.

Under such conditions, without the *esprit de corps* found among steam railway workers and the feeling of common interest that exists only among permanent employes, it is inevitable that labor disturbances, critical or subdued, rather than peace, should characterize the relations of street railway companies and their army of motormen and conductors.

## I

The recent conflict between the street railway company and its employes in the city of Philadelphia affords an opportunity to study the trend and results of labor disturbances in all their phases. The

great strike of February-April, 1910, had its source in the discharge of forty Philadelphia Rapid Transit Company employes in November, 1908. These men were removed from the service for "pernicious activity" in the attempt, then seriously begun, to unionize the company's 6500 motormen and conductors. Through the intervention of the mayor of the city in their behalf, the discharged men were reinstated upon their promise that their efforts at organization should not be, as they had been, a disorganizing force among the company's men and destructive of the discipline which is absolutely necessary in the operation of a railway.

These promises were not kept to the company's satisfaction. Organization of the men slowly continued, and on May 28, 1909, a mass meeting was held and a strike called. Just how many of the employes voted for this strike cannot be ascertained, but the officials in charge of the affairs of the union at that time subsequently told the writer that they had less than 425 paid-up members. Notwithstanding this, two-thirds, or four thousand five hundred, of the motormen and conductors went out on strike. The writer was in a position to know that very few of these men voted to strike or wanted to strike, but they would not work after a strike had been declared, and so run the risks and incur the odium that falls to the lot of the "scab." These facts may well be considered by street railway managers who comfort themselves with the belief that their men cannot be called out because they are not organized.

After a strike lasting seven days an agreement was reached as to the terms upon which the men should return to work. They had demanded the abolition of the "swing-run system," a three-cent-an-hour increase in wages; that they should be free to buy their uniforms from at least one union firm, and that grievances should be adjusted at regular meetings with "accredited representatives" of the employes. The company conceded the first demand, refused the increase of pay, specified five firms, one union, from which uniforms might be bought, and agreed to meet representatives of the men for the adjustment of grievances—the term applied to all complaints regarding discharges and suspensions.

An agreement was drawn up between the company, as party of the first part, and the "accredited representatives" of the employes, party of the second part. These accredited representatives were elected by the union employes of the company's nineteen barns,

or operating depots. They were all known to be union men, but signed the agreement simply as individuals, and not as representatives of Local 477, which is the Philadelphia branch of the Amalgamated Association of Street and Electric Railway Employes of America.

Under this agreement, which was finally brought about largely because of political pressure applied to both the men and the company, labor relations were maintained with surface friendliness for a period of about five months. In the fall of 1909 an upheaval occurred within the union, seven of the original "accredited representatives" were expelled and complaints were made that the company was violating the June agreement by meeting, for the adjustment of grievances, a committee composed of employes other than those who had signed the agreement. It was then claimed, for the first time, that there could be no conferences or relations between the company and its men except those carried on through the accredited representatives, or their successors, who represented the union element.

The committee to which objection was made by the union represented about two thousand five hundred members of the "United Carmen's Association," commonly called the "Keystone Men." The Amalgamated Association claimed that this was an outlaw organization, fostered by the company, and that there was gross discrimination by company officials in favor of the Keystone men, tending to disrupt and destroy the Amalgamated local. The Keystone men were mainly those who had remained loyal during the May-June strike; they were hated by the Amalgamated officials, and were always ostracised and not infrequently assaulted and terrorized by the more radical union element. It was insisted that these loyal men had no right to recognition in any form. This was the issue which really brought about the strike of 1910.

The company flatly refused to give exclusive recognition to the accredited representatives of the Amalgamated union, and this being insistently urged by the latter, conferences were arranged in January for the purpose of coming to a better understanding. At this time it was charged by the company, and became evident to every street-car rider, that breaches of discipline were the rule rather than the exception among the union carmen, who were easily identified by a button one and one-half inches in diameter worn by them. The

company's officials were flooded with complaints concerning incivility and other improper acts, which seemed to establish the presumption that the Amalgamated motormen and conductors were deliberately proceeding upon the theory that the more enemies they could make for their employer, the better their chances would be to bring the company to terms.

Unionism among Philadelphia carmen was a new thing. To many of them it spelled nothing more than freedom from discipline. Most of the union leaders tried to correct this misapprehension; they disclaimed responsibility for the insubordination of their followers, and frequently told the men at their meetings that they would lose instead of gain public support by the acts of which the company and the riding public bitterly complained. But in this and in other respects the leaders were unfortunate in having little control over their men. The organization, in short, suffered from the weaknesses of most labor organizations newly conscious of power and wholly mistaken and misled as to the best methods of achieving their aims. In fairness to the men it should be set down that their misconception of the attitude of the public toward their plan of campaign was largely the result of a false analysis of what they saw daily in their work. In Philadelphia, as elsewhere, the street railway employe feels and reflects the dissatisfaction of the public with the inevitable inconveniences and discomforts of street-car transportation. The men concluded from the grumbling and ill-temper of the riding public that it would countenance any course upon the part of the men, no matter how extreme. This mistake has been made many times in the last few years. To overlook this factor is to ignore one of the greatest difficulties with which street railway managements have to deal.

Efforts toward a better understanding were not helped by the adoption of a strike resolution on January 18th. This action was taken on a ballot which set forth that the company had violated the June agreement by receiving more than one grievance committee, and was attempting to destroy the union by discriminating against its members. There was some truth in the latter assertion. Subordinate officials of the company, such as division and street superintendents, in many cases favored the men who were loyal to the company as against those who were disloyal and troublesome and whose first allegiance was paid to the union rather than to the com-

pany. No number of general orders that all men should be treated alike could change this condition of affairs so long as the union man refused to work faithfully and in harmony with the non-union element.

The strike vote did not frighten the officers of the company, as the men evidently expected. They continued to refuse acquiescence in or even to discuss the proposition urged by the union that employes should be free to join but one organization, namely Local 477 of the Amalgamated, and that the company should have no dealings with any other body of its employes.

The company proposed that the agreement be modified by the insertion of the following clause:

> Employes shall be free to join or not to join any organization and may present their grievances to the company individually, or, if members of any organization of employes, by a committee or the representatives thereof, and there shall be no intimidation or discrimination against any employe so doing by any official of the company or their subordinates.

This amendment at once became the crucial point in the negotiations. The principle it expressed is one that street railway managements must always insist upon and which the Amalgamated Association will always oppose, unless its policy is radically changed. The Amalgamated, as its officers repeatedly told the writer, cannot enter into any agreement which recognizes the existence of any other labor union, and this would be done if the Amalgamated, or any one representing it, signed an agreement containing the proposed clause.

The Amalgamated's policy, as it has been expounded by its highest officials, is first to secure the unhampered right of organization; then to bring into its membership the great majority of the employes of a system, and then, finally, to make an issue of the closed shop and of wage questions.

The sad experience of the street railway companies in San Francisco, Detroit, Cleveland and Pittsburg, which permitted this procedure, has convinced railway managers that the principle of the open shop must be maintained at all hazards. Once thoroughly organized and able to confront an operating company with a total suspension of service, the union is able to force wages up to a point higher than the earnings will bear. Dealing with the Amalgamated Association is, furthermore, very different from dealing with the conservative and ably led organizations which include the various

classes of steam railway employes. The street railway union suffers from the existence of the floating and irresponsible element quite as much as do the railways. It is therefore easy to understand why unionism is invariably resisted by electric railways while it is taken as a matter of course by steam railway managements.

The negotiations preceding the Philadelphia strike reached a complete deadlock, as already indicated, over the question of the exclusive recognition of the Amalgamated Association. It was evident that the men would sign almost any agreement, even including the sliding scale, which is so objectionable to them, provided they could obtain recognition of the union and the exclusion of any other body of employes from relations with the company. When it became evident that this would not be conceded by the company, the conferences were abandoned. Unrest and insubordination increased among the union element, and the crisis was reached when the company, on February 18th, discharged 174 men for various offenses, including intoxication, failure to register fares, disobedience of orders, and the harassing of non-union men.

These discharges were in the nature of an accumulation. Very few discharges had been made by the company during the conferences of January and February for the reason that the company did not wish to render a situation, already full of ill-feeling and antagonism, more acute. After the strike I acted as arbitrator of these cases, and recommended the reinstatement of 76 of the 174 discharged men. This recommendation, which was accepted by the company, was based not upon a showing that the discharges were unjustified, but upon representations that the men reinstated would not give further cause for offense. The men reinstated were mainly those who had good working records, but who had been active in harassing non-union men.

When, however, the union officials heard of these discharges they announced that the company had declared a lockout. It was stated that the leaders believed that 600 or 700 men had been discharged. Instead, however, of waiting to find out what were the facts, a strike was called February 19th at one o'clock in the afternoon, under the authority given to the local leaders by the vote of January 18th. In the strike order every union man was instructed to turn in his car upon reaching the barn "and allow it to remain there until the company will sign an agreement with us, guaranteeing

twenty-six cents an hour, and protecting us in our rights to belong to a union without being unjustly discriminated against."

Thus began a nine-weeks' struggle which cost the Rapid Transit Company $2,395,000; cost the city many millions more, and resulted in the loss of a score of lives. The men lost about $800,000 in wages. No one gained anything.

On April 25th, 3400 of the 4800 men who had gone on strike returned to work at the wage offered at the beginning (twenty-three cents an hour, increasing to twenty-five cents for men who remain in the service until 1914), without an agreement of any kind with the company, and having lost their seniority in the service.

That no basis of settlement could be reached after the strike had begun was due to the fact that the company would not submit to arbitration what it considered to be "inalienable rights." Its position was set forth in a letter to a body of clergymen who had urged the board of directors to arbitrate the matter in dispute. This letter said in part:

"There are but two real questions at the bottom of this strike:

"1. The right of our employes to deal directly with us without the intervention of an organization officered and controlled by outside men; and

"2. The right of this company to have the same freedom in hiring and discharging men that the men have in staying with or leaving the company.

"These rights are fundamental and inalienable and do not submit themselves to any form of arbitration. To surrender them to any outside interest would be to abrogate the management of the corporation, which duty the law imposes upon us as directors."

Terms offered from time to time by the company were either formally rejected by the men or refused informally by their leaders because they did not include exclusive recognition of the union, or, as the men put it, protect them in their union rights. The contest, it is evident, was one in which both parties preferred ruin to the sacrifice of what each considered to be a vital principle.

## II

Into this struggle was introduced a comparatively unused weapon, at least so far as the United States is concerned, in the form of a sympathetic or general strike.

Mr. C. O. Pratt, leader of the carmen, has represented this movement as both justifiable and successful.[1] As to whether or not it was justifiable, opinions differ. To the average mind the sympathetic strike appears to be a contradiction of every principle of right, justice, and expediency. If a labor contract in the building trade, for example, scrupulously observed by the employer, is to be broken by the employes because the street railway men go on strike, then labor contracts are comparatively useless. Mr. Pratt enlarges upon the solidarity among unionists which he thinks was brought about by the Philadelphia sympathetic strike, but he fails to consider how many tolerant, half-converted, and even friendly employers were convinced, by that strike, that fair dealing and good faith cannot be expected from trades unions. The greatest advance the trades union propaganda could make would be to secure the general acceptance of the principle of collective bargaining as to conditions of employment. This is impossible if relations are rendered unstable by general or sympathetic strikes.

As to the success of the Philadelphia sympathetic movement, there is not so much room for honest differences of opinion. Its beginning, course and effect can be briefly summarized:

On February 27th, the ninth day of the carmen's strike, a meeting of the Philadelphia Central Labor Union, comprising 127 locals, was held, and resolutions passed providing that if arbitration of the car strike was not brought about by March 5th, a general strike would be ordered. The resolutions stated that the general strike was a protest against the wrongs committed by the company and by the city authorities in its behalf, and "We pledge ourselves not to return to work until all rights have been recognized and complied with."

The car strike was not settled by arbitration or otherwise within the time limit set by the resolutions, and a general sympathetic strike was accordingly called, to become effective March 5th. The announcement was then made that "75,000 organized workers had quit their various employments in this city, to remain on strike until the Philadelphia Rapid Transit Company grants arbitration or effects a settlement with its striking employes."

It is impossible to say how many men and women went out

[1] Annals of the American Academy of Political and Social Science, Vol. XXXVI, No. 2.

under the general strike order. The Committee of Ten in charge of the strike issued grossly exaggerated estimates, running as high as 140,000. The police reports indicated that perhaps 35,000 strikers were out for a week, but the number steadily decreased after the first few days of the strike, until on March 27th, when the strike was formally called off, only a few thousand strikers were out. Some industries, notably the textile mills, were affected by the strike, but the life of the city as a whole was not seriously disturbed. As far as the transit company was concerned, it did not feel the effect of the sympathetic strike in any way. Judged either as a means of bringing the company to terms or as a demonstration of the solidarity and coercive power of organized labor, the strike was an absolute failure.

Upon this point the contemporary statements and opinions of the daily press are unanimous and conclusive. In its issue of March 16, 1910, the twelfth day of the strike, the Philadelphia "Record" said:

> The general strike has already been demonstrated to be a futile as well as a senseless weapon for the coercion of the corporation against which the warfare was originally directed.

The Philadelphia "Press" of March 28th, the day following the termination of the strike, said editorially:

> The sympathetic strike . . . never took a strong hold on the majority of the men appealed to . . . Their robust good sense would not permit them to join a movement to embarrass their own employers merely to show their displeasure with the employers of other men. It was too unreasonable and absurd a performance that was asked of them, so only a relatively few responded . . . The sympathetic strike did not have the degree of support necessary to make it successful.

Reviewing, on April 17th, the course of the carmen's strike, the Philadelphia "Public Ledger" in an editorial, said:

> The (general strike) effort failed, as it must have done in a reasonable American community and after that the carmen's strike resolved itself merely into a question of persistence.

These statements show that we are safe in concluding that the sympathetic strike failed because those who were expected to be influenced and impressed by the general strike were not in sym-

pathy with it, and were not convinced of anything except that it was a complete failure. This failure was due in part to lack of leadership and organization, but mainly, in the writer's opinion, to the belief on the part of the great majority of workers that the general strike was unjustified.

## III

Lessons of great value may be drawn from the Philadelphia labor battle. One of these lessons is that no street railway company can, in any proper sense of the word, *win* a strike of its motormen and conductors, and for this reason, if for no other, such strikes should never occur. One hour's suspension of service on a system like that of the Philadelphia Rapid Transit Company means a loss in fares alone of $2300. The losses of a strike of ten days' duration would equal the amount of a cent-an-hour increase in wages for a year. When the indirect losses, the antagonisms engendered, and the disorganization and disturbed morale resulting from a strike are added to the money loss, it becomes evident that a street railway can only win a strike at a cost greater than the value of any victory to be obtained.

As it can not be expected, on the other hand, that street railways will follow a policy of successive surrenders in order to avoid strikes, some other line of action must be sought out. The remedy will be found in the improvement and readjustment of working conditions on street railways. The first step in this direction should be to overcome, or at least to counterbalance, the real or fancied objections to street railway service so as to make it permanently attractive to a better class of workers.

Motormen and conductors are at present held at a dead level of wages and opportunity, except on those systems where the sliding scale, depending upon length and efficiency of service, prevails. A few roads have tried with success a merit and demerit system, carrying with it a bonus, or increase of wages, for faithful and efficient service. This line of policy should be augmented by every means, such as sick relief, death benefits, and welfare work, tending to attract and hold good men in the service. Such a policy is the best insurance against strikes and the best assurance of better service. At the present time the men and the managing officials of large systems, and the small electric system is becoming rarer every day,

are so little acquainted that a good understanding and mutual confidence is impossible. The large number of men constantly entering the service only to leave it after a year or less greatly aggravates this evil. Not until a fairly permanent body of employes is maintained shall we be on the road to a peaceful and satisfactory era in the street railway world.

# EDUCATING THE PUBLIC TO A PROPER APPRECIATION OF URBAN STREET RAILWAY PROBLEMS

By A. W. Warnock,
General Passenger Agent, Twin City Rapid Transit Company (Twin City Lines), Minneapolis and St. Paul, Minn.

Twenty years ago there was hardly a first-class street railway in the United States, judged by present standards, and consequently there were few, if any, of the many problems which face the average street railway company operating to-day. As street railways have developed, their problems have multiplied rapidly, which is what is to be expected when one considers that there is probably no business that comes into closer contact with so many persons in a community as these common carriers on our streets and highways.

We expect the street railway, as a matter of course, to provide us dependable service under all conditions of weather and under all stress of circumstances. We forget how well these carriers in all our cities are performing their service, never thinking how few times each of us has been seriously delayed on account of burnouts of cables or power stations, snowbound tracks or breakdowns in wires or cars. We place absolute confidence in the street car, depending upon its daily punctuality and reliability to enable us to keep important business and social engagements.

But in spite of this responsibility on the part of the company to the public, and their dependence upon the company, there has grown up from year to year many important problems which, instead of being worked out in a spirit of mutual forbearance and helpfulness, have furnished the basis for misunderstanding and friction. The company's right to use the streets, the company's taxes, the extension or building of lines, the character of cars used, the system of heating and ventilation, the speed of cars, the system of transfers and transfer privileges, the question of fares and the frequency of service, are only a few of the many problems that stand unsolved to-day between the average operating company and the public it serves.

Admitting that there are many serious differences existing be-

tween the public and its servants, what should be the true relation between the two and what is the most sensible way to go about establishing such a relation? This seems to me to be the kernel of the question assigned to me for brief discussion.

I should say that the ideal relation should be one of mutual confidence in and respect for each other. Let the company properly appreciate that the public's wants should be given fair and courteous hearing and prompt decision. Let the public give the company the same decent consideration in all matters that one individual grants to another. First, let there be a basis of good faith established between the two and, after each understands the other's viewpoint better, perhaps the problems will solve themselves, or be settled by compromise for the mutual good of both.

Education of the public by the corporation of the latter's viewpoint seems to me to be a sensible remedy. Let the public know the ins and outs of your business, at least as regards any problem in which its rights are concerned, and perhaps the public will take a broader and fairer view of matters of which at present it may be ignorant.

*Education by Publicity.*—Everybody to-day believes in the immeasurable value of publicity in clearing up misunderstandings. At the present time almost every corporation, great or small, has its publicity department, organized not to give false or colored facts, but for the purpose of presenting its true position to its patrons. The old days when corporations preserved owl-like stillness on every subject have gone. To-day people want to know why. The public says to us in effect, let us know what you want and why you want it, and if you can convince us that you are right we will help you. There is no reason why any company should hesitate to respond fully to such an invitation and tell exactly what it wants and needs and what it will give in return, discussing the whole matter in an open, frank way.

I believe that the daily and weekly newspapers, the display cards in the company's own cars, and the company's folders and publications, offer the most effective mediums for conducting such a campaign of education. I would rather rely upon an announcement printed in the columns of a good, clean newspaper which is carried into the homes of its readers than upon any other means of directly educating the mass of the people. The value of such publicity can

scarcely be estimated or appreciated. I believe that such announcements, if prepared with the utmost care as to statements and attractiveness, can do more to develop a fine feeling of confidence between the company and its patrons than any other form of appeal. Of course, this broad statement is based upon the promise that the announcement rings true and fair and that the company's word stands for something when it makes promises in print.

Companies everywhere are following a plan of newspaper advertising when problems arise which require discussion with the public. I know of one company which tells its side of the case every time an important matter comes up. One day it discusses the question of taxation; another day fares; another day it argues out the policy of building new lines or extending old ones, of putting on more cars, of adopting new features in equipment, or of warning parents against accident features. In brief, it takes the public into its confidence, and puts each case squarely up to the patrons for a fair answer. The company's general manager tells me there has been developed a wonderfully fine feeling on the part of patrons since this newspaper educational campaign was begun some three years ago.

Companies have opportunity to supplement their newspaper campaign by inserting display cards in their own cars and announcements in their folders, time tables and other periodical literature. These measures need involve no great cost, and so the hue and cry of great expense to conduct a publicity campaign need not frighten the ever-watchful manager. A campaign of education, no matter how well conducted, however, has its discouraging features. There are roving the earth to-day many ultra "progressive" politicians who boast of their independence to the point that they are positively vicious when anything comes up for public consideration that has to do with any corporation. "Don't believe a word they say, it's not so," is the clarion cry they give out when any corporation raises its voice to defend itself. Then it sometimes happens that the few or the many, as the case may be, do not give the corporation a chance to be heard. Thus another chasm is thrown between the company and its patrons. The corporation asks, "What's the use?", and in the future treats the public as an enemy. Every corporation official devoutly hopes that Fate, with a large, upholstered club of Titanic dimensions, will some day overtake these

political trouble-makers, or, as the Great African Hunter might say, "These bold, bad, mischievous mixers of black lies." It is hard, also, to convince the wise citizen who boasts in season and out of season that he takes everything a corporation says "with a grain of salt." I would classify this man as belonging to the "You can't fool me family."

A prominent eastern street railway recently spent $25,000 on a publicity campaign, giving its reasons why it could not continue to develop if it had to reduce its rate of fare, which was ordered by the city council. The company claimed the order was illegal, as it conflicted with the terms of its charter, which had some years to run, and which had been ratified by the state legislature.

The company took one whole page in six daily papers every day for one month, and told a hard-luck, almost "tear-compelling," story, which was the talk of the town. These pages told of the company's early vicissitudes and explained all the hardships and heartbreaks incident to building up a new road in a new land in panicky days when money was needed and hard to get. They told of panics wiping out profits and dividends devoured by disasters; how for twenty years stockholders had gone without a cent earned on their money invested and how the company had faced bankruptcy so many times it had become an old story. Finally, after twenty years of leanness and want, brighter days had come and dividends had been paid at the same rate the savings bank paid! The question was then put up to the public squarely: Do you want a constantly improving service at present rates, or do you want a constantly depreciating service at lower rates? The educational campaign was a series of stories telling real chapters of business, and explained, with diagram and figures, the company's history, its troubles and what was in store for it and for the public in the future if its fare was reduced. Frankly, the company said: "Let us get together and see if we cannot settle this out of court," for the case had gone to the Supreme Court of the United States by this time; "let us see if we cannot arrange matters and make any compromise other than reducing the fare."

The wise politicians seized this chance to suggest loudly in open meetings and in printed pamphlets that the company was not telling the truth, although any of the statements could have been checked and easily verified. They declared that the public "had the

company scared and on the run," and exhorted their hearers not to concede anything to the company or to make any compromise trade, but to "stand pat" upon the original demand. Bad feeling was engendered, and the company, seeing that it was not trusted, withdrew its offer of settlement. The case went to the Supreme Court and in a short time was decided in favor of the company on all counts. The public, having listened to the wise politicians, had lost a good chance to trade.

While it is obviously impossible to arrive at any authoritative conclusion concerning the reasons for the failure of the publicity campaign in the case just cited, yet it is interesting, and perhaps instructive, to examine into the causes which militated against its success.

A most potent factor was doubtless the lack of a feeling of trust and confidence between the company and the public. Rightly or wrongly the public were suspicious of the company, and were not willing to accept its statements at their par value. This feeling of skepticism was carefully cultivated by the politicians, who thought they saw an opportunity to make capital out of the situation.

It must not be inferred, however, that because a particular publicity campaign fails to attain the desired objects, that publicity is a weapon of doubtful value in settling differences between the public and the street railways. It pays a company to tell its troubles frankly to its patrons. The differences of opinion between the public and the company are largely due to the misinformation upon the part of the former.

It is the province of a publicity campaign to destroy false impressions and to give to the thinking portion of the city's population the information necessary to a formation of an intelligent opinion. To those who read with an open and receptive mind, any good newspaper, window card or folder is a valuable agent in assisting the corporation.

The effectiveness of the publicity campaign depends largely upon the public attitude of mind at the time at which it is inaugurated. It can only succeed where a sense of mutual regard and trust has been established. The company's promises and its statements will only be accepted if its reputation for fair dealing with the public has been earned by its previous acts. If the corporation has so lived that it has earned respect for its sincerity and the truthfulness of

its statements there is no reason why a publicity campaign, properly conducted, should fail.

I believe that most public service corporations are doing and trying to do the decent thing by their patrons and their communities, and that in consequence a better understanding is being effected between them. The ethics of corporations, like the ethics of all business concerns, are measurably higher at the present time than they were fifteen or twenty years ago. It is not fair, therefore, to condemn a corporation because of mistakes made in the lifetime of previous generations. A corporation's sincerity should be judged from its acts during recent times. The keynote between the patron and the company in all matters should be mutual co-operation for the benefit of both. "Let us get together" is the twentieth century keynote in the relation between the big and the little, the server and the served, the few and the many. It is the spirit that must prevail in the hearts of both parties before any campaign for education on any subject can be successful.

# THE PRESENTATION OF INTERURBAN PROBLEMS TO THE PUBLIC

By A. D. B. Van Zandt,
Publicity Agent, Detroit United Railway, Detroit, Mich.

It is generally recognized by street railway men and financiers that the success or failure of an interurban project depends largely upon the effectiveness of the appeal which the line makes to the public. The publicity problems of the interurban are so peculiar and vary so between different localities as to require the highest order of ability on the part of the publicity manager in their presentation. While almost every other part of the electric railway field has been reduced to standards, having a general application under all conditions, the field of publicity still remains intensely individual.

The technique of operation and the rules and regulations enforced upon the various railways are happily coming to a common basis. The operating official from one line, on joining forces with another interurban road, soon finds himself acquainted with the methods of his neighbor.

Publicity plays a most important part in the success of an electric railway. Not only must it be relied upon to stimulate and develop passenger, freight and express traffic, but it is generally recognized that it is the most potent weapon in the possession of the railway to secure a satisfactory solution of the most vital of present day interurban problems—how to secure a satisfactory return upon this class of investments.

When electricity came into being as the motive force for trolley cars it was the belief of many that the cost of doing business would be greatly below what eventualities have proven possible. In the optimism that prevailed it was widely believed that the only thing to be done was to substitute motors for horses and string up a few wires, and so save the cost of feeding, the cost of care, the heavy depreciation resulting from the short life of the animal power, besides gaining much in the way of speed. The interurban lines of

the older companies were at first nothing more than extensions of city lines, and were intended as feeders to the town or city service. In building these lines out into the country every political division of territory, such as villages and townships, had to be dealt with separately, each giving a right to operate only through its own territory and each making its own local rate of fare. The township of A had nothing in common with the township of B, nor was B in the least concerned with the proposed relationship between the interurban line and the municipality of C. What each wanted was a service from farm to farm, or from farm to town, with local stops wherever the passenger might be. Perhaps I should not have said what each wanted, because in many cases the attitude was merely one of toleration, with much doubt as to whether the new-fangled mode of locomotion would be successful, and still greater doubt whether it would not be an actual detriment to the public good.

In almost all fields of commercial endeavor, and more especially where the product is to be consumed—as for instance in the making of gas—it is reasonably easy to fairly determine at the outset the cost of production. The interurban railway man, unable at the beginning to determine the cost of a ride, calculated it to be less than it has proven to be, with the result that he has been selling cheaper than he should. Not only were the pioneers in the field of electric interurban transportation deceived in the belief that the mysterious application of electricity would cut the cost of transportation to almost nil, leaving great profits from rates that have since proven to be ridiculously low and not sufficient to make any returns upon the original investments, but the development of the business has added greatly to the burden of the carrier.

Bearing in mind the original intent of these interurban lines—the giving of purely local interurban service—and following the development down to the present day, this burden can be easily appreciated. Horse cars were fitted with motors, then it was found necessary to build larger cars to carry these motors with any degree of safety, and then the larger and stronger car body needed more powerful motors to obtain any degree of speed and guarantee any certainty of service. For the public convenience in the local service the tracks were laid upon the highways twisting and dipping with the roads. These tracks were at first cheaply constructed of thin

bands of iron upon light cross ties laid in the mud. As the cars grew in size and the tracks pushed their way farther into the country to distant settlements it was found that the location of the tracks upon the highways was not fitting for the new service demanded. The highways were too narrow, poorly drained and lacked proper gradients. As the country settled up, largely as a result of the convenience of the new method of transportation, the highways became overcrowded and so new tracks of heavier rails and with proper gradients had to be built upon private right of way purchased at growing prices, because of the enhanced values made by the very presence of the interurban lines. And so the thing has gone on, until to-day we find rails as heavy as on the best steam roads, large, powerful, palatial cars, bigger power houses and more intricate overhead equipment, greater frequency of service, and a speed of operation undreamed of in the earlier days. Type after type of equipment has been discarded, as the result of the progress of invention, before it has had an opportunity of earning its life's value.

In spite of all these things, however, and of the increase in the cost of material and in the operating expenses, the old contractural relations as to the rates of transportation, and the police regulations are still in existence. Under the glow of expectations the interurban lines have spread their network of tracks, but now the glamor has died away; the builders are not so anxious to find places to which to go as are the people to have them build. The cold douche of experience has checked the ardor of the financial world until such time as the man who rides more fully understands what it costs the other man to make the ride possible.

And to understand this is difficult without study. The man who wants to ride knows that the man who makes possible the ride has in times past offered a ride to other people at a certain price, and he looks with doubt upon the claim that there must be a new deal. He forgets that the ride he wants is not the ride of the years that are past.

That there is a difference is the one great interurban problem of traffic to be presented to the public. And how is it to be presented? By publicity in all that the word means. The American public is not only fair-minded; it is generous, but it does not desire to be hood-winked nor cheated. It does not wish to purchase its

wares at a price, knowing it means ruin, because it realizes that such a condition leads to a shoddy article, whether that article be a coat or a car ride. It is equally true that the American public has no stomach to pay more than a just price.

Now all this information can be given by the interurban lines by specific history and tables of costs and revenues, but above all what is needed is a scientific study and consideration of the whole matter, without prejudice, by the people themselves. The company that cannot stand the white light of publicity, which must come sooner or later, will be obliged to purge itself and confess its sins before repentance is believed. As I said, however, in the beginning, these problems differ somewhat in different communities. What I have pointed out concerns more particularly the interurban lines early in the field, for from the pioneer work in Michigan others have profited.

The second important duty of the publicity department is to bring home to the public the immense advantages which have been conferred upon them by the interurban lines. People are so used to taking for granted new changes and improvements that in a few months, or years, they forget the conditions which prevailed before these changes came into existence. Out of this forgetfulness grows a large amount of the apathy which is responsible for the failure of electric railways to secure just changes, when they become necessary.

While the interurban railway builder and operator has been learning his lesson of cost the benefits to the public served have grown apace. In the great interurban railway centers like Indianapolis, Toledo, Cleveland, and Detroit the people, through the constant use of the country trolley for business and pleasure, have gained a better understanding of farm life. These men of the city do not look upon the farmer as the joke "Hey, Rube," but as the man who feeds us all. They do not look with pitying glances on the man with the hoe, but rather are envious of the man of broad acres who, with the modern machinery at his command, has as it were but to press the button and watch the land come to life with the fruits of the soil. The farm is not the thing the city man wants to shun; it is the reverse, for deep in his heart is the hope that some day he, too, will be able to retire to his own acre of peace and plenty.

Similarly those of the farm and village have been brought into close and kindly touch with the city. They know the stores, they know the parks, they are even not unacquainted with the latest play. The farmer is no longer obliged to spend two or three days of his own time and that of his team in the task of marketing his produce at a price unknown until delivery is made, but to-day, through the agency of the interurban trolley that makes possible an extensive system of rural delivery of mail, the farmer gets his daily newspaper, knows early the price he can get for his product, places his product on an interurban express car, follows himself by passenger car, and in as many hours as it formerly took days he makes his sales and his purchases.

Much of the opposition to the interurban railway has come from the villages, under the belief that a frequent service would spell mercantile ruin, and here and there this opposition still exists. I quote from a recent edition of the Birmingham (Michigan) "Eccentric," to show the change:

"When the trolley was first established it was claimed it would ruin the smaller towns, the reverse is true. Look over the following census figures and you will note that every town in Oakland county not reached by an electric road has been steadily on the toboggan for the past twenty years. On the other hand, towns having an hourly service or less have held their own or shown only a slight increase, while the section served by the Pontiac line, with its thirty- and twenty-minute service, has absorbed more than the actual net increase in the county."

The truth is the interurban line is not a deterrent, but an aid to the small town. It does not of necessity cause all towns to become manufacturing centers, but it does give them better facilities to become such. The interurban line modernizes the trading post, giving the country merchant the same ease in making his purchases as has the corner store keeper in the city, and the same privilege of making these purchases as he wants them and in the quantities he wants. There is no longer the necessity of stocking up for the winter because of impassable road conditions. To-day the interurban grocery delivers to its customers strawberries just as early in the season as does the city grocery.

Before the advent of the interurbans the course of trade was from the village to the city. To-day it runs equally from city to

village as from village to city. Making use of the interurban car for his pleasure trip out into the country, the city man picks up his bargains in the way of butter and eggs and even in staple groceries. A full lunch basket out into the country means a full basket of supplies back into the city.

All these things can be brought home to the fair-minded public old boundary limits of business and pleasure have been abandoned and new ones made further out, just as far as the streaks of steel reach. Where such a space-eating and comfort-bringing institution prevails the outside man must treat his trolley line as his good friend and servant. He must realize that it is not a political institution and that it must not be made a political football. He must realize that it affords him so many conveniences; that of the many necessities he has to-day it would be one of the last he would abolish, and finally he must realize that enough must be paid for the service to make it efficient and give a decent return to the capital invested.

All these things can be brought home to the fair-minded public through effective publicity. If this is done, the public is constantly reminded that the interurban railway is in reality a partnership between them and a set of stockholders; that the stockholders receive their return in the form of dividends, while the public receives its return in the form of good service and all the advantages which this brings with it. If this idea can be firmly implanted in the public mind, and if, in addition, it can also be shown that good service is not possible without satisfactory financial conditions, the publicity man has won his fight and incidentally placed his road upon an assured financial footing.

PART TWO

# *Public Regulation of Electric Railways*

# VALUATION OF INTANGIBLE STREET RAILWAY PROPERTY

By Frank R. Ford,
Of Ford, Bacon & Davis, Consulting Engineers, New York City.

The intelligent regulation of street railway fares, taxation, capitalization and service depends upon the possession of accurate information concerning the value of the property under investigation. Without this knowledge, the governmental authority can do nothing more than form a more or less accurate guess as to the solution of the problem, based largely on *ex parte* testimony, and this, in some cases, will not be just to the company and in some, to the traveling public.

The importance of an accurate valuation of street railway property is now universally recognized. An examination of the history of the serious efforts to place a valuation upon street railway property discloses, in recent cases, a development in the methods of valuation, and the formulation of certain rules and practices which are now becoming standardized.

The valuation of tangible property is an engineering matter of comparative simplicity. An engineer of experience can ascertain, in detail, the expenditure required to duplicate a property having the same physical standards as the one under investigation.

The valuation of intangible property is more involved. The things to be valued are difficult to measure by definite standards, but must be appraised generally by indirect and, in many cases, by inductive methods.

In distinguishing between tangible property and intangible property of the street railway company, the publicly accepted method has been to call one physical property and the other franchises. A careful consideration of the subject, however, will show that there are other items besides franchises which should be included in the term "intangible property."

Physical property is fairly easy to label, inventory and value, so that, it is believed, a correct understanding of the term "intangible

property" can best be had by subtracting from the total property that which is physical, or tangible.

### *Tangible Property*

The physical, or tangible, property includes land, construction, equipment and cash, or its equivalent. If these items are being valued on the basis of either the original cost or the cost of reproduction, they should include the cost of acquiring land, the cost of supervision and administration of the construction by the general contractor, the sub-contractors, the engineers and the company's executive organization. In other words, all labor and expense going to make up the construction of the finished whole should be included, whether this labor be that of day laborers, foremen, superintendents, contractors, engineers or officers and employes of the company. The expenses of such construction work should also include all contingent expenses in connection with such labor, together with such items as interest and taxes during construction, and other overhead charges. In some cases the cost of acquiring land, the administration of construction work by the company's organization, the general contractor's services, engineering expenses and interest and taxes during construction have been considered as intangible property, this distinction being due, presumably, to the fact that in estimates of cost of reconstruction these items have been arrived at by the use of round percentages. Such labor and expense, however, are essential features of the cost of construction and equipment, and consequently belong, strictly speaking, to the tangible property. Stock, tools, supplies and working capital, in whatever form it exists, are also part of the tangible property.

A list of the principal items which enter into the cost of production of the tangible, or physical, property comprises the following:

### *Work and Expense Items Forming the Tangible Property of a Street Railway*

I. Company's overhead charges upon construction.
   1. Executive organization's work and expenses, including:
      *a*. Accounting expenses.
      *b*. Office expenses.
      *c*. Storeroom and stable expenses.
      *d*. Permits of authorities and city inspection.

2. Legal work and expenses.
3. Technical work and expenses.
   *a*. Company's engineering organization.
   *b*. Consulting engineers.
   *c*. Architects.
   *d*. Testing and outside inspection.
4. Interest during construction.
5. Taxes during construction.
6. Wear and tear during construction.

II. Land, including private right of way and sites for power-houses, car barns, shops, terminals, etc.
1. Assessed value.
2. Additional market value for ordinary purposes.
3. Additional value for railroad purposes, including:
   *a*. Plottage.
   *b*. Contiguity factor.
   *c*. Special value for railroad purposes due to location.
4. Overhead charges for acquisition of land, such as:
   *a*. Brokerage.
   *b*. Legal work and expenses.
   *c*. Technical work and expenses.
   *d*. Title insurance.
   *e*. Loss on portion of site not necessary.
   *f*. Loss of buildings discarded.

III. General contractor's overhead charges and profits.
1. Work and expenses of contractor's general organization and office.
2. General superintendence, watching and lights.
3. Fire, accident and liability insurance during construction.
4. Maintenance and use of tools.
5. General contractor's profits.

IV. Material and labor, comprising the physical construction and equipment, as furnished by the sub-contractors.
1. Inventory, priced on basis of sub-contracts.
2. Extras, incidentals and contingencies.

V. Stock, tools and supplies.
1. Inventory, priced.
2. Incidentals.

VI. Working capital, including:
1. Cash on hand.
2. Accounts and bills receivable.
3. Prepaid accounts.
4. Land and buildings not used in operation.

*Intangible Property*

All of the remainder of the corporation's property should be considered as intangible property.

From the standpoint of value, the intangible property represents the total value of the company from a business standpoint, less the value of its physical property. From a standpoint of cost, either first cost or cost of reproduction, the intangible property represents the cost of acquiring rights and capital for producing the tangible property and for placing the company in a potential position for doing business efficiently as a going concern.

*Intangible Property from the Standpoint of Cost*

From the standpoint of cost of production through the period of development, the intangible property will include many, or all, of the following items:

*Work and Expense Items Through the Period of Development Forming the Intangible Property of a Street Railway*

I. Promotion of the enterprise.
1. Work and expenses of promoter's organization.
2. Preliminary legal work and expenses.
3. Preliminary technical work and expenses.
*a.* Survey and location of line.
*b.* Estimates of construction cost and of income and expenses.
*c.* Preparation of prospectus.
4. Profits of promotion.

II. Corporate organization.
1. Legal work and expenses.
*a.* Incorporation.
*b.* Details of perfecting legal organization.
*c.* Form of securities.
*d.* Mortgages.

2. Executive organization's work and expenses.
   *a.* Directors', officers' and employes' work and expenses (until commencement of construction).
   *b.* Office and general expenses (until commencement of construction).
   *c.* Engraving securities.
   *d.* Registration and certification of securities.

III. Franchises and consents (often under conditions of competition).
   1. Property owners' options and consents (for location and for change of motive power).
      *a.* Executive organization's work and expenses.
      *b.* Legal work and expenses (vacations of injunctions, etc.).
      *c.* Technical work and expenses (surveys, maps, etc.).
      *d.* Payments for consents.
   2. Franchises and consents of municipal authorities (including municipal legislature, mayor, borough presidents, commissioners of bridges, parks, docks, highways, water supply, sewers, etc.).
      *a.* Executive organization's work and expenses.
      *b.* Legal work and expenses.
      *c.* Technical work and expenses.
      *d.* Payments for franchises.
         A. Lump sum.
         B. Capital expenditures under governmental requirements for property, the title of which does not vest in the company, such as:
            1. Grading and widening streets.
            2. Removing sub-surface street obstructions.
            3. Paving.
            4. Track and overhead line constructed on municipal property, such as parks and bridges.
            5. Change of location of track or line, due to governmental requirements.
   3. Consent of state utilities commission.
      *a.* Executive organization's work and expenses of presenting project.

*b*. Legal work and expenses.
*c*. Technical work and expenses.

4. Trackage, pole and other agreements with other public utility corporations.
*a*. Executive organization's work and expenses.
*b*. Legal work and expenses.
*c*. Technical work and expenses.

IV. Development of technical standards.

1. Past supersession and obsolescence, caused by:
*a*. Changes in the art, and experiments, such as:
A. Stage coaches.
B. Horse-car system.
C. Cable system.
D. Storage battery system.
E. Compressed air system.
F. Underground contact systems.
G. Gasoline motor system.
*b*. Improvements in the art, such as:
A. Large double-truck cars in place of small single-truck cars.
B. Introduction of prepayment and safety devices on cars.
C. Improved electric motors.
D. Improvement of grade and alignment of track.
E. Standardization of gauge.
F. Replacement of single track with double track.
G. Heavier rails of improved design.
H. Improved paving and foundation.
I. Steel instead of wooden poles.
J. Placing electrical conductors underground.
K. Fireproofing barns, shops and power-houses.
L. Replacing small belted and direct-connected engine units with large steam turbines, and other power-house improvements.
M. Alternating-current distribution, permitting power development from one large plant, in place of direct-current distribution from several small plants.

2. Piecemeal construction.

3. Extra cost of construction, due to non-interference with operation.
4. Solidification of roadbed.
5. Adaptation of construction and equipment.

V. Development of company's business.
1. Losses of early operation.
2. Losses of outlying sections of line.
3. Perfection of executive organization and business methods.
4. Development of park amusement enterprises.

VI. Consolidation with and control of other corporations.
1. Corporate consolidation.
*a*. Executive organization's work and expenses.
*b*. Legal work and expenses.
*c*. Payments to state or city.
*d*. Payments for securities.
*e*. Tangible or intangible property of merged corporation which is superseded by consolidation.
2. Leases of other corporations.
*a*. Executive organization's work and expenses.
*b*. Legal work and expenses.
*c*. Payments to state or city.
3. Investments in securities of other corporations.

VII. Financing.
1. Work and expenses of promoter and associates in negotiation and underwriting.
*a*. Preliminary promotion syndicate or association.
*b*. Stock underwriting syndicate.
*c*. Bond underwriting syndicate.
2. Sale of securities.
*a*. Permission for issue from state, state commission or municipal authorities.
A. Executive organization's work and expenses.
B. Legal work and expenses.
C. Technical work and expenses.
*b*. Financial negotiations.
A. Executive organization's work and expenses.
B. Legal work and expenses.
C. Technical work and expenses.

*c.* Payments of commissions to bankers and brokers, representing their work, expenses and profits.

*d.* Discounts on securities.

VIII. Patents and licenses.

1. Development of inventions.
2. Purchase of patents or licenses.

IX. Interest on work and expense items of intangible property until commencement of operation.

It may be questioned, however, whether a number of the above items should appear in the capitalization of the enterprise. In many cases they have been charged against early income or later profit and loss. As an established industry to-day, it would seem that the allowable return should be high enough to permit the gradual writing off of some of the features of original cost. It would not appear just, however, to present security holders to discredit or destroy capital which was fairly expended for these items, especially if the history of the corporation shows that after deducting profits commensurate with the return on other kinds of business, it would not have been possible to amortize this portion of the principal.

It will be noted that the cost of producing the "going concern" value is included in the above list under items such as "solidification of roadbed" and "adaptation of construction and equipment," under the general heading of "development of technical standards," and also under the heading of "development of the company's business."

In considering the cost of reproduction new of the intangible property, some of the items in the above list disappear. A detailed treatment of this feature will appear below.

### *Intangible Property From the Standpoint of Value*

In appraisals, whether for the acquirement of the property by the municipality, for the fixing of rates, or for the assessment of taxation, the value of intangible property has often loosely been referred to as the value of the franchises, and in such cases the term "franchises" will be understood as synonymous with "intangible property," although, speaking accurately, the latter term includes much more than the former.

Typical instances of valuations of intangible property of street railway systems are furnished by the appraisals in Detroit in 1899,

Chicago in 1906, Cleveland in 1908 and 1909, and Detroit again in 1910.

*The Detroit Street Railway Commission Valuation of 1899*

One of the first valuations of American street railways took place in Detroit in 1899, under which the State, through a commission headed by Gov. H. S. Pingree, proposed to authorize the city of Detroit to purchase the railways for municipal ownership and operation. The appraisal of the physical property was made by a board of experts, headed by Prof. M. E. Cooley, and totaled $8,000,000. The value of the franchises was fixed by Prof. E. W. Bemis at $8,478,563. His computation was made on the basis of capitalizing the net earnings for the remaining life of the franchises after allowing four per cent. annual increase of earnings and deducting four per cent. interest on the $8,000,000 of physical value. In this case the ratio of this intangible value to the value of the physical plant was one hundred and six per cent.

*The Chicago Street Railway Valuation of 1906*

In the Chicago case the franchises for some parts of the track had expired, and for other portions lasted for various periods. The expert commission representing the city, headed by B. J. Arnold, apportioned the earnings of the system by franchise expirations on the basis of car mileage operated over each track franchise. The future gross earnings of the unexpired track franchises were then estimated on the basis of an assumed rate of growth of the business until the expiration of the franchises. From these were subtracted the estimated operating expenses, including taxes, based on the present cost of operation. From the resulting net earnings was deducted interest at the rate of five per cent. on the estimated value of physical property corresponding with the franchise section, which physical property was proportioned in accordance with the car mileage operated over each franchise. The resulting net income of each franchise was then discounted as of the present date and capitalized at five per cent.

There was a dispute as to the length of the remaining franchises, and the valuations submitted to the City Council by its experts were based on various franchise periods from twelve months to thirty-six months. The total value finally agreed upon for all of these prop-

erties was $50,000,000, which corresponds most nearly with the value of the property if the franchises are given an average remaining period of eighteen months. On this basis the total value of the physical property, including paving, is $41,977,811, and the value of the intangible property $9,016,971, making a total value of $50,994,782. It will be noted that the value of the intangible property in this case is over twenty-one per cent. of the value of the physical property.

As a matter of fact, the proportion of intangible property in the final value was considerably more than this percentage, due to the fact that the cable systems were valued largely as going concerns. If the cable property, however, was valued according to its availability in converting these lines into part of an electric system, there would be deducted from the physical value $4,794,618. Reducing the physical value by this amount, and adding the same amount to the value of the intangible property, would result in values of physical property of $37,183,200, and of intangible property of $13,811,582, so that on this basis the intangible value represents over thirty-seven per cent. of the physical value.

The experts of the city also included in their physical property valuation an item of ten per cent. upon the total construction cost to cover the general classifications of (1) legal expenses, including those incurred in securing right of way and frontage consents; (2) interest during construction; (3) brokerage, or the expense of securing the necessary moneys; (4) contingencies and other items of expense. This allowance is generally believed to have been insufficient.

Part of these expenditures undoubtedly belong under the heading of intangible property, and if we assume that Items 1 and 3, or one-half of this ten per cent., were so classified, we add $1,690,145 to the intangible value, which thus becomes over forty-three per cent. of the physical value.

*The Cleveland Street Railway Valuations of 1908 and 1909*

In the Cleveland valuation of 1908, the negotiations were conducted by Mayor T. L. Johnson, for the city, and F. H. Goff, for the company, and the physical valuations were made by committees headed by A. B. du Pont and H. E. Andrews. The value of the physical property, after deducting depreciation, was found to be

$15,034,614. This amount included a charge for the legal organization of the company, which should be classed as intangible property, amounting to $40,000. Deducting this sum would leave the net physical value $14,994,614. The value of the franchises and good will agreed to was $8,954,985, to which we should add the above-mentioned $40,000, giving an aggregate total intangible value of $8,994,985. In this case, therefore, the ratio of intangible to physical property was sixty per cent. This ratio is probably larger than it should fairly have been, as the physical value was unreasonably lowered and depreciated.

Judge R. W. Tayler, who was the arbitrator in the final settlement of this Cleveland valuation in 1909, recognized this low estimate of physical value by increasing the estimate as of the same date (January 1, 1908) to $17,511,856. He reduced the intangible value, however, on that date by decreasing the franchise value to $3,615,844, and eliminating entirely the item of "good will," and transferring the item of "going value" to the classification of "physical property." After shifting the $40,000 of intangible value mentioned above from the physical to the intangible value, we find that the ratio of intangible to physical value is twenty-one per cent. This figure, however, would be further enlarged if it were possible to secure the details of certain items included by Judge Tayler in his physical value, inasmuch as he added a general overhead charge of fifteen per cent. to include a number of development expenses, some of which, such as financing, organization, consents and litigation with property owners, would come under the class of intangible property as above defined. It is probable, therefore, that the ratio, under Judge Tayler's valuation, is considerably over twenty-five per cent.

*The Detroit Street Railway Commission Valuation of 1910*

The valuation of property of the Detroit United Railway, made in 1910 by the committee of fifty appointed by Mayor Philip Breitmeyer, has created much interest in the street railway world. This valuation of physical property was made by a number of experts, under the supervision of F. T. Barcroft, who found that the total value of the physical property was $11,121,725.

The valuation of unexpired franchises was made by Prof. H. C. Adams, and amounted to $2,810,615. This was based on the some-

what inaccurate method used in the Chicago franchise valuation, of proportioning gross earnings by franchises on the basis of the car mileage operated over each franchise. It also allowed for no increase of gross and net earnings during the remainder of the franchises, which in some cases did not terminate for twenty-five years. The ratio of intangible to tangible property as thus developed is equal to slightly over twenty-five per cent.

Professor Adams also presents an estimate of the value of these franchises on the basis of assuming six per cent. increase of gross earnings per year of the unexpired term. On this basis the franchise value would be $4,246,208, which would equal over thirty-eight per cent. of the physical value. This ratio, however, would seem to be somewhat larger than fairness would justify, as the valuation of the physical property made by the experts of the company was $24,676,182, or more than double the Barcroft valuation.

### *Intangible Property From the Standpoint of Cost of Reproduction New*

In order to view the subject of value of a street railway property from the standpoint of cost of reproduction, the usual method has been to endeavor to ascertain the cost of reproduction of the physical property, depreciated to present condition. For some uses, such, for instance, as in a rate case, it is believed to be fairer and more satisfactory to ascertain the cost of reproduction new of the entire property. This is the amount which a competing enterprise would cost to produce and upon which its rate of fare would be based. The public is not interested in the amount of depreciation of physical property if it is well maintained in condition to give good service. There would be an economic waste if such depreciation were repaired.

It has been suggested that the normal depreciation which is present in every operating property be regarded as an offset to the "going concern" value of the property. A street railway property, upon the commencement of operation, has to go through a period of adaptation of the component parts of the physical construction and equipment, both as to each other and as to their joint uses in the business, whereby the mistakes of design and construction are eliminated. Similarly, the legal and executive organization of the company must be got into smooth and efficient working order,

and furthermore, what may be most important, the business and income of the company must be developed through a period of at least several years to a point which will prove the success of the company as a profitable enterprise. This assurance of its technical, operating and business practicability is the "going concern" value of the property. If, therefore, the "going concern" value equals the amount of depreciation, we arrive again at the cost of reproduction new as an important and in some cases a controlling element in the valuation of a street railway property.

The items forming the cost of reproduction new of the physical property have already been considered. In order, however, to produce this tangible property, it is necessary to reproduce both the rights under which it is constructed and by which it may operate, and the financing which pays for the production of both tangible and intangible property.

For any given company or system we must imagine that the streets are clear of its tracks and that we begin with the inception of the enterprise in the mind of a promoter or business pioneer. This man and his associates, for the development of the enterprise up to the construction period, in the case of a large company, will employ a working force of lawyers, engineers and an executive organization. The securing of public rights and private capital, often under conditions of competition with other transportation interests, must be considered from the standpoint of local conditions, customs and laws.

### *Inventory of Work and Expense Items of Reproduction of Intangible Property*

It is believed that the first instance that this theory has been worked out in careful detail was the Coney Island fare case of the Coney Island and Brooklyn Railroad Company, before the Public Service Commission of the First District (New York City). As technical advisers to the company, my firm there made up a list, or inventory, of the work and expense items comprised in the reproduction new of the intangible property of that company. This inventory, in brief, sets forth the time and expense items of all departments of the organization, of the promoter and of the company, first, during the promotion period, or time of obtaining rights and capital, and then during the construction period, or time of

expenditure of capital, to the completion of construction. These items are separated as between the promoter's organization, the legal department and the technical department, through the preliminary development of the idea, the formation of the promoter's syndicate, the securing of the corporation's charter and the obtaining of its franchise from the municipal body and of its certificates from the Public Service Commission, together with the property owners' consents and those required from the minor city departments and other corporations. The time spent in connection with financing the enterprise is largely co-extensive with that of obtaining rights and comprises the various steps of underwriting and negotiating the sale of securities. After the franchises and capital are obtained, the construction period begins by the organization of the permanent working force of the company, and continues through the general administration of the construction work by this executive organization to the completion of construction. This inventory, as submitted in the case, is reproduced on pages 134-140 as Exhibit No. 1.

### *Time of Reproduction*

In order to determine the time spent on each part of this work, and the contemporaneous nature of a large part of it, there was prepared a chart of estimated time of reproduction sub-divided as between the various departments. The estimated time taken for each part of the work was based upon the actual time which has recently been required to secure similar rights in New York City under present legal restrictions. It was estimated that three and one-half years would be required from the inception of the project to the time that capital and rights would be obtained. The construction period was estimated, from instances of recent construction work, to require two years and ten months' additional time, making a total of six years and four months, although the beginning of partial operation was assumed to take place one year before the end of construction. The chart of estimated time of reproduction is shown opposite page 140 as Exhibit No. 2.

### *Estimated Cost of Reproduction*

The number of men in each department and their rates of pay were then assumed, producing, when allowance had been made for general expense items, the total expenditure in each department and

for each part of the work. All of this was, as far as possible, based upon actual similar work and expenditure of other corporations. The resulting estimated cost of each general item of the tangible and intangible property is shown in Exhibit No. 3 (page 141).

In this case the ratio of intangible property to tangible property is $779,700 to $8,520,198, or slightly over nine per cent. There are, however, a number of items, such as profits of promotion, discounts and commissions on sale of securities, etc., which were specifically excluded in this estimate, as it was claimed that these items should be allowed for in a rate of return higher than the interest rate of six per cent., rather than in a principal value. For these items, the experts of the Public Service Commission estimated the minimum cost of reproduction at $976,490, and the maximum cost at $1,973,938, equivalent to over eleven per cent. and twenty-three per cent., respectively, of the above cost of reproduction of tangible property. The same reasoning would apply to other items for which no claims were made by either side, such as features of value of the present franchise of this company that cannot be reproduced, the cost of development of the business, represented by the deficiency below a reasonable return due to deficits of early operation, and the cost of development of technical standards, comprising obsolescence of the horse system and of the early electric system. If the rate of return on the valuation of the street railway property be fixed as low as six per cent., allowance should also be made for this class of expenditure of capital in the principal amount of cost of reproduction new.

In conclusion, it would appear from this general survey of the field of street railway valuation, that there are elements of value in the street railway property, whether called by the terms "intangible property," "franchises," "earning power," "good will" or "going concern," which can be measured by methods more or less exact, and which have been appraised in recent notable instances at from twenty-five per cent. to over one hundred per cent. of the value of the physical property.

## Exhibit No. 1

## CONEY ISLAND & BROOKLYN RAILROAD COMPANY

## INVENTORY OF WORK AND EXPENSE ITEMS OF REPRODUCTION NEW AS OF AUGUST 31, 1909, OF INTANGIBLE PROPERTY ACQUIRED DURING PROMOTION PERIOD

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| *PROMOTER'S ORGANIZATION.* | *LEGAL DEPARTMENT.* | *TECHNICAL DEPARTMENT.* |
|---|---|---|
| **Preliminary** | | |
| Study of situation.<br>Preparation of general data.<br>General investigation of laws.<br>Interesting other parties.<br>Meetings and correspondence. | Conferences and correspondence with promoter covering general state and local transportation laws. | Conferences and correspondence with promoter.<br>General examination and memorandum on situation. |
| PROMOTER'S SYNDICATE | | |
| Formation.<br>Meetings.<br>Consultations with attorneys and engineers as to general plans and procedure.<br>Conferences and correspondence with engineers on report, revision of plans, supplementary reports, etc.<br>Conferences and correspondence with attorneys on legal procedure, etc.<br>Plans and estimates for early financing.<br>Outline of financial plans. | Conferences and correspondence with promoter as to plans for syndicate, proposed agreement, etc.<br>Draft of agreement and revision.<br>Attendance at meetings of syndicate.<br>Examination of and report on statutes, ordinances, etc., relating to street railways.<br>Consultations with promoter as to plans and legal procedure. | Formal report, involving:<br>Study of population, its growth, density and direction of movement, etc.<br>Study of traffic; other companies, competing and non-competing, and for this situation; possibility of development, etc.<br>Selection of route, with alternatives.<br>Selection of power house and car barn sites.<br>Estimates of cost of construction and equipment under different plans.<br>Estimates of gross earnings and operating expenses under different plans for a period of years.<br>Study of operating agreements with other companies.<br>Maps, profiles, plans, etc. |
| ARTICLES OF ASSOCIATION AND CERTIFICATE OF INCORPORATION | | |
| Consultations with attorneys.<br>Consultations with engineers.<br>Meetings of incorporators.<br>Meetings of directors.<br>Preparation of papers for filing with Secretary of State.<br>Collection of subscriptions of not less than $1,000 per mile and affidavits thereto. | Examination of statutes.<br>Consultations with promoter and engineers.<br>Organizing and conducting meeting of subscribers to articles of association.<br>Preparation of papers for filing with Secretary of State.<br>Preparation of minutes, by-laws, etc., and conducting regular meetings of directors and stockholders.<br>Attendance at Albany. | Conferences and correspondence with promoter and attorneys.<br>Preparation of papers for filing with Secretary of State. |

| *PROMOTER'S ORGANIZATION.* | *LEGAL DEPARTMENT.* | *TECHNICAL DEPARTMENT.* |
|---|---|---|
| **State and Local Authorities** | | |
| PREPARATORY | | |
| Conferences and correspondence with attorneys and engineers on form and procedure. | Conferences and correspondence with promoter and engineers on form and procedure. | Conferences and correspondence with promoter and attorneys. |
| Planning campaign and organizing force. | | |
| BOARD OF ESTIMATE AND APPORTIONMENT. (a) APPLICATION | | |
| Conferences and correspondence, formal and informal with members of Board and its engineers, other than at regular hearings.<br>Preparation of data and reports on local companies and comparisons in other cities relative to franchises.<br>Revision and amendments of application.<br>Conference and correspondence with attorneys and engineers relative thereto. | Preparation of application.<br>Conferences and correspondence, formal and informal, with members of Board, etc., other than at regular hearings.<br>Revision and amendments of application.<br>Conferences with promoter and engineers relative thereto. | Conferences with promoter and attorneys. |
| (b) FIRST PUBLIC HEARINGS | | |
| Publicity campaign, editing newspaper advertisements, circulars, etc.; attending meetings of property owners commercial bodies and others.<br>Attendance (reference to select committee).<br>Preparation for further hearings, additional data, etc., to meet objections.<br>Conferences and correspondence with attorneys and engineers relative thereto.<br>(The above items for each hearing.)<br>Securing attendance of experts for testimony. | Preparation.<br>Attendance.<br>Conferences and corespondence with promoter on results.<br>Preparation for further hearings. | Preparation of data and papers.<br>Attendance.<br>Conferences and correspondence with Board's engineers.<br>Preparation of additional data.<br>Conferences and correspondence with promoter and attorneys. |
| (c) MEETINGS OF SELECT COMMITTEE | | |
| Attendance.<br>Preparation of data.<br>Examination of proposed modifications and amendments to franchise, including:<br>Revision of estimates and plans and preparations of counter proposals, etc.<br>Conferences and correspondence with attorneys and engineers relative thereto.<br>Securing attendance of experts for testimony. | Appearance.<br>Preparation of data.<br>Examination of proposed modifications and amendments, etc.<br>Conferences and correspondence with promoter and engineers.<br>Conferences and correspondence with Corporation Counsel. | Attendance.<br>Revision of plans and estimates, maps, etc.<br>Conferences with promoter and attorneys. |
| (d) FINAL HEARING | | |
| (Same items as for first hearing.) | (Same items as for first hearing.) | (Same items as for first hearing.) |
| APPROVAL OF MAYOR. | | |
| Attendance before Mayor. | Attendance before Mayor. | Attendance before Mayor. |
| CERTIFICATE OF PUBLIC SERVICE COMMISSION | | |
| Preparation of petition and papers required.<br>Preparation for hearing.<br>Conferences and correspondence with attorneys and engineers relative thereto.<br>(At this hearing applicant must prove necessity, bona fides of enterprise | Preparation of petitions and papers required.<br>Preparation for hearings.<br>Conferences and correspondence with promoter and engineers. | Preparation of data and estimates.<br>Conferences and correspondence with promoter and attorneys.<br>Testimony and attendance at hearings. |

| *PROMOTER'S ORGANIZATION.* | *LEGAL DEPARTMENT.* | *TECHNICAL DEPARTMENT.* |
|---|---|---|
| and financial ability to carry out enterprise.)<br>Attendance at hearing.<br>Attendance at subsequent hearings (adjournments).<br>Preparation of further data and information.<br>Conferences and correspondence with commission, formal and informal.<br>Conferences and correspondence with attorneys and engineers relative thereto. | Appearances at hearings. | Conferences and correspondence with commission's engineers. |
| APPROVAL OF CAPITALIZATION BY PUBLIC SERVICE COMMISSION | | |
| Preparation of papers and data for hearing.<br>Conferences and correspondence with attorneys and engineers relative thereto.<br>Conferences and correspondence, formal and informal, with members of commission.<br>Attendance at hearing.<br>Examination of testimony and preparation of additional data and papers for further hearings.<br>Conferences and correspondence with attorneys and engineers relative thereto.<br>Attendance at subsequent hearings. | Preparation for hearing.<br>Conferences and correspondence with promoter and engineers.<br>Conferences and correspondence with members of Commission.<br>Appearance at hearing.<br>Examination of testimony and preparation of additional data.<br>Conferences and correspondence with promoter and engineers.<br>Attendance at subsequent hearings.<br>Attendance in payment of capital stock tax. | Preparation for hearing.<br>Conferences and correspondence with promoter and attorneys.<br>Conferences and correspondence with Commission and its engineers.<br>Attendance at hearing.<br>Examination of testimony and preparation of additional data.<br>Attendance at subsequent hearings. |
| **Property Owners' Consents and Options** | | |
| PROPERTY OWNERS' CONSENTS | | |
| Attending meetings of property owners.<br>Conferences and correspondence with attorneys.<br>Conferences and correspondence with chief solicitor.<br>Personal attention to large property owners.<br>General supervision of work.<br>Preparation and inspection of tax lists.<br>Conference with attorneys relative to legal proceedings to secure consents.<br>Preparation for and attendance at trials. | Preparation of petitions and releases.<br>Conferences and correspondence with promoter.<br>Tax lists and preparation, etc.<br>Attending meetings.<br>Preparation for legal proceedings to secure consent.<br>Conferences and correspondence with promoter.<br>Attendance at trials.<br>Organizing solicitors. | General maps showing owners and frontage.<br>Individual plans to accompany transfers. |
| RIGHT-OF-WAY OPTIONS | | |
| Conferences with engineers and attorneys on recommended private right-of-way routes.<br>Inspection of properties, investigation as to availability, names and location of present property owners, prices of real estate, etc.<br>Conferences and correspondence with attorneys and real estate brokers covering form and securing of options, etc. | Conferences and correspondence with promoter.<br>Form of options, etc.<br>Meetings with vendors' attorneys. | Conferences and correspondence with promoter, inspection of recommended properties, etc. |
| REAL ESTATE OPTIONS | | |
| Inspection of recommended car barn and powerhouse, etc., sites.<br>Conferences and correspondence with engineers. | (Same as for right-of-way.) | Surveys to determine availability.<br>Estimates of comparative economy. |

| *PROMOTER'S ORGANIZATION.* | *LEGAL DEPARTMENT.* | *TECHNICAL DEPARTMENT.* |
|---|---|---|
| Conferences and correspondence with real estate brokers.<br>Conferences and correspondence with attorneys on form of options.<br>Meeting with vendors.<br>(Option would probably be obtained on property not used in final design.) | | |
| **Other Rights and Consents** | | |
| COMMISSIONER OF BRIDGES | | |
| (The general right to operate over the East River bridges would be covered by Board of Estimate and Apportionment, but details of operation would be arranged and directed by the Commissioner of Bridges.)<br>Application to commissioner, with outline of proposed operation, type and weights of equipment, track and overhead construction.<br>Conferences and correspondence with attorneys and engineers relative thereto.<br>Meetings with commissioner.<br>Conferences and correspondence with other companies using bridges.<br>Examination of contracts. | Conferences and correspondence with promoter and engineers relative thereto.<br>Meetings with commissioner and his attorneys.<br>Conferences and correspondence with other companies using the bridges.<br>Examination and approval of contracts. | Study of bridge operating conditions, with recommended plans for operation, estimates of earnings, maps, plans, etc.<br>Conferences and correspondence with promoter and attorneys.<br>Meetings with commissioner or his engineers.<br>Conferences and correspondence with other companies using bridges.<br>Examination and report on contracts. |
| COMMISSIONER OF PARKS | | |
| Conferences and correspondence with commissioner to obtain consent to franchise, approval of proposed type of track construction, design and location of poles, paving, grades, etc.<br>Conferences and correspondence with attorneys and engineers relative thereto. | Conferences and correspondence with commissioner and his attorneys.<br>Conferences and correspondence with promoter and engineers. | Conferences and correspondence with commissioner and his engineers.<br>Conferences and correspondence with promoter and attorneys.<br>Plans and estimates. |
| BOROUGH PRESIDENT | | |
| Conferences and correspondence with borough president and his engineers to obtain approval of proposed type of construction, location of poles, paving, grades, etc., including submission of plans and specifications.<br>Conferences and correspondence with attorneys and engineers relative thereto. | Conferences and correspondence with borough president and his attorneys.<br>Conferences and correspondence with promoter and engineers. | Conferences and correspondence with borough president and his engineers regarding proposed construction, grades, paving, etc.<br>Conferences with promoter and engineers.<br>Maps, plans and estimates. |
| TRACKAGE AND OTHER AGREEMENTS WITH CORPORATIONS | | |
| Meetings with officials.<br>Conferences and correspondence with attorneys and engineers.<br>Consent of Public Service Commission and Board of Estimate and Apportionment.<br>Estimates of costs, rentals, etc.<br>Preparation and examination of agreements. | Attendance at meetings with officials of other corporations.<br>Conferences and correspondence with promoter and engineers.<br>Consent of Public Service Commission and Board of Estimate and Apportionment.<br>Tentative agreements.<br>Final agreements.<br>Attendance at execution of agreements. | Attendance at meetings with officials of other corporations.<br>Conferences and correspondence with promoter and attorneys.<br>Opinion on form of proposed agreements.<br>Preparation of data for use before Public Service Commission and Board of Estimate and Apportionment.<br>Attendance at hearings.<br>Estimates on equity agreements. |
| **Financing** | | |
| PROSPECTUS | | |
| Preparation of and editing.<br>Conferences and correspondence with attorneys and engineers relative thereto. | Conferences and correspondence with promoter and engineers.<br>Preparation of condensed opinion for use in prospectus. | Conferences and correspondence with promoter and attorneys.<br>Preparation of letter for use in prospectus. |

| *PROMOTER'S ORGANIZATION.* | *LEGAL DEPARTMENT.* | *TECHNICAL DEPARTMENT.* |
|---|---|---|
| NEGOTIATIONS WITH BANKERS AND INVESTORS | | |
| Detailed plans for financing.<br>Conferences and correspondence with attorneys and engineers relative thereto. | Detailed plans for financing.<br>Conferences and correspondence with promoter and bankers. | Conferences and correspondence with promoter and attorneys as to plans. |
| (a) STOCK UNDERWRITING SYNDICATE | | |
| Interesting investors.<br>Tentative agreement.<br>Meetings and conferences working toward final agreement.<br>Plans for carrying out provisions of agreement, collection of subscriptions, voting trusts, interim and participation certificates etc.<br>Conferences and correspondence with attorneys and syndicate relative thereto. | Conferences and correspondence with promoter.<br>Preparation of tentative agreement.<br>Attendance at meetings between promoter and syndicate.<br>Final agreement.<br>Conferences and correspondence on form of certificate and preparation of form.<br>Attendance in execution of agreement.<br>Participation certificates, interim certificates, etc. | Attendance with promoter at meetings.<br>Special estimates. |
| (b) BOND UNDERWRITING SYNDICATE | | |
| Interesting bankers.<br>Conferences and correspondence with their engineers.<br>Tentative agreement.<br>Meetings and conferences working toward final agreement.<br>Plans for carrying out provision of agreement, collection of subscriptions, voting trusts, interim and participation certificates, etc.<br>Conferences and correspondence with attorneys and syndicate relative thereto. | Conferences and correspondence with promoter and engineers.<br>Preparation of mortgage and trust deed.<br>Search of titles.<br>Preparation of tentative agreement.<br>Attendance at meetings between promoter and syndicate.<br>Final agreement; interim certificates, participation certificates, agreements.<br>Attendance in execution of agreement. | Attendance with promoter at meetings.<br>Conferences and correspondence with promoter and attorneys in regard to mortgage and trust deed.<br>Preparation of data for use therein.<br>Special estimates. |
| FORMAL ENDING OF PROMOTION PERIOD | | |
| Transfer of papers and documents.<br>Execution of releases, assignments, etc. | Transfer of papers and documents, execution of releases, assignments, etc. | |

## Inventory of Expenses During Promotion Period.

| PRELIMINARY | | |
|---|---|---|
| Assistants' time.<br>Stenographers' time.<br>General office expenses:<br>Rent, light, etc.<br>Postage, telephone and telegrams.<br>Books—record, statistical, legal, etc.<br>Files and office furniture.<br>Miscellaneous.<br>Traveling. | Typewriting.<br>Notary fees.<br>Recording fees.<br>Certified copies.<br>Traveling expenses.<br>Directors' fees.<br>Printing.<br>Miscellaneous.<br>Fees to state.<br>Copies of consents, decrees, etc. | Time and expenses of engineers, draftsmen and other assistants.<br>Typewriting and other expenses. |
| PROMOTER'S SYNDICATE | | |
| Chief assistant to promoter.<br>Assistant as to engineering.<br>Assistant as to accounting and statistics.<br>Record clerks (including bookkeeping).<br>Stenographers (including filing).<br>Chief consent solicitor:<br>Assistants. | Transcripts of minutes.<br>Tax lists.<br>Trustees' legal expenses.<br>Retainers in special suits.<br>Directors' and executive committee fees. | |

| *PROMOTER'S ORGANIZATION.* | *LEGAL DEPARTMENT.* | *TECHNICAL DEPARTMENT.* |
|---|---|---|
| | FRANCHISES AND OPTIONS | |
| Allowance to other members of promoter's syndicate for time and expenses.<br>General office expenses:<br>Rent, light, etc.<br>Postage, telephone and telegrams.<br>Books—record (minutes, etc.; accounts, etc.).<br>Filing system.<br>Office furniture (including typewriters, adding machine, etc).<br>Printing and stationery.<br>Miscellaneous.<br>Publicity expenses.<br>Traveling.<br>Expenses of promotion syndicate, including their attorneys and engineers.<br>Interest on money raised by promoters.<br>Premium on security bonds, employees and for franchise, etc. | Payments to property owners for consents.<br>Lump sum payments for franchise.<br>Payments for options of real estate.<br>Commission and expenses of real estate broker in securing options.<br>Payments to title company for lists of property owners and details in connection with properties.<br>Publication required by law. | |

INVENTORY OF COST OF REPRODUCTION NEW, OF INTANGIBLE PROPERTY ACQUIRED DURING CONSTRUCTION PERIOD. (EXCEPT TECHNICAL DEPARTMENT AND CONTRACTOR.)

| *PERMANENT ORGANIZATION.* | *LEGAL DEPARTMENT.* | *TECHNICAL DEPARTMENT.* |
|---|---|---|
| STOCKHOLDERS' MEETINGS | GENERAL COUNSEL | |
| Election of directors and officers; approval of stock and bond issues, agreements, by-laws, seal, etc.<br>DIRECTORS' MEETINGS<br>Reports of committees and officers; approval of contracts, specifications, etc.; considering and directing in matters affecting the company's plans, etc.<br>EXECUTIVE COMMITTEE MEETINGS<br>Practically same as above, but with greater detail and more frequent meetings.<br>PRESIDENT<br>Supervision and direction of all matters in connection with construction, such as:<br>Examination and approval of plans and specifications.<br>Execution of contracts.<br>Conferences and correspondence with city officials in securing permits and removing obstructions to company's plans.<br>Conferences and correspondence with officials of other companies regarding crossings and other matters of mutual interest (grade crossings, etc.).<br>Trips to other cities to examine types of construction, method of operation, etc.<br>Conferences and correspondence with financial syndicates. Unfavorable markets for securities might necessitate issuance of short-term obligations with attendant expense of Public Service Commission approval, selling, etc.)<br>Conferences and correspondence with attorneys and engineers on matters of construction. | Examination and approval of contracts.<br>Preparation of resolutions, etc., for meetings.<br>Advice and direction in matter of securing permits from authorities.<br>Conferences and correspondence with city officials in regard to permits.<br>Conferences and correspondence with other companies regarding construction, etc.<br>Temporary injunctions and other legal procedure against interference with construction, etc., by<br>City officials and departments.<br>Other corporations, street railway, steam railway, telephone, electric, gas.<br>Unions on strike.<br>Property owners.<br>Hearings and orders in the above.<br>Defending and instituting suits for damages to property.<br>Conferences and correspondence relative thereto.<br>Suits and other legal proceedings against contractors and others for non-fulfilment of obligations to company.<br>Conferences and correspondence relative thereto.<br>Suits and other legal proceedings in matters of disputed accounts, etc.<br>Conferences and correspondence relative thereto. | (Usual details.) |

*PERMANENT ORGANIZATION.*

Securing modifications of franchises, certificate of convenience and necessity and permits, such as extensions of time, alterations of layout and design, etc., including the approval of various city officials and departments.
Signing securities, checks, etc.
Hearing and investigating complaints.

SECRETARY-TREASURER

All duties usual to the office of secretary-treasurer.

AUDITOR

All duties usual to the office of auditor.

*LEGAL DEPARTMENT.*

Preparation of certificates of expenditures for trustees, etc.
Personal injury suits; employees; public.
Preparation for and appearances in securing modifications of franchises and permits.
Crossing and track elevation controversies and litigation with steam railroads.

*TECHNICAL DEPARTMENT.*

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INVENTORY OF EXPENSES DURING CONSTRUCTION PERIOD.

GENERAL

Fees to directors and executive committee.
Salaries of general officers.
Salaries of clerks.
Rent of offices, light, etc.
Consulting auditor developing accounting system.
General books and records.
Printing and stationery.
Filing system.
Traveling expenses.
Recording fees.
Traveling and other expenses in connection with securing appointive officers.
Traveling and other expenses of appointive officers.
Miscellaneous.

FINANCIAL

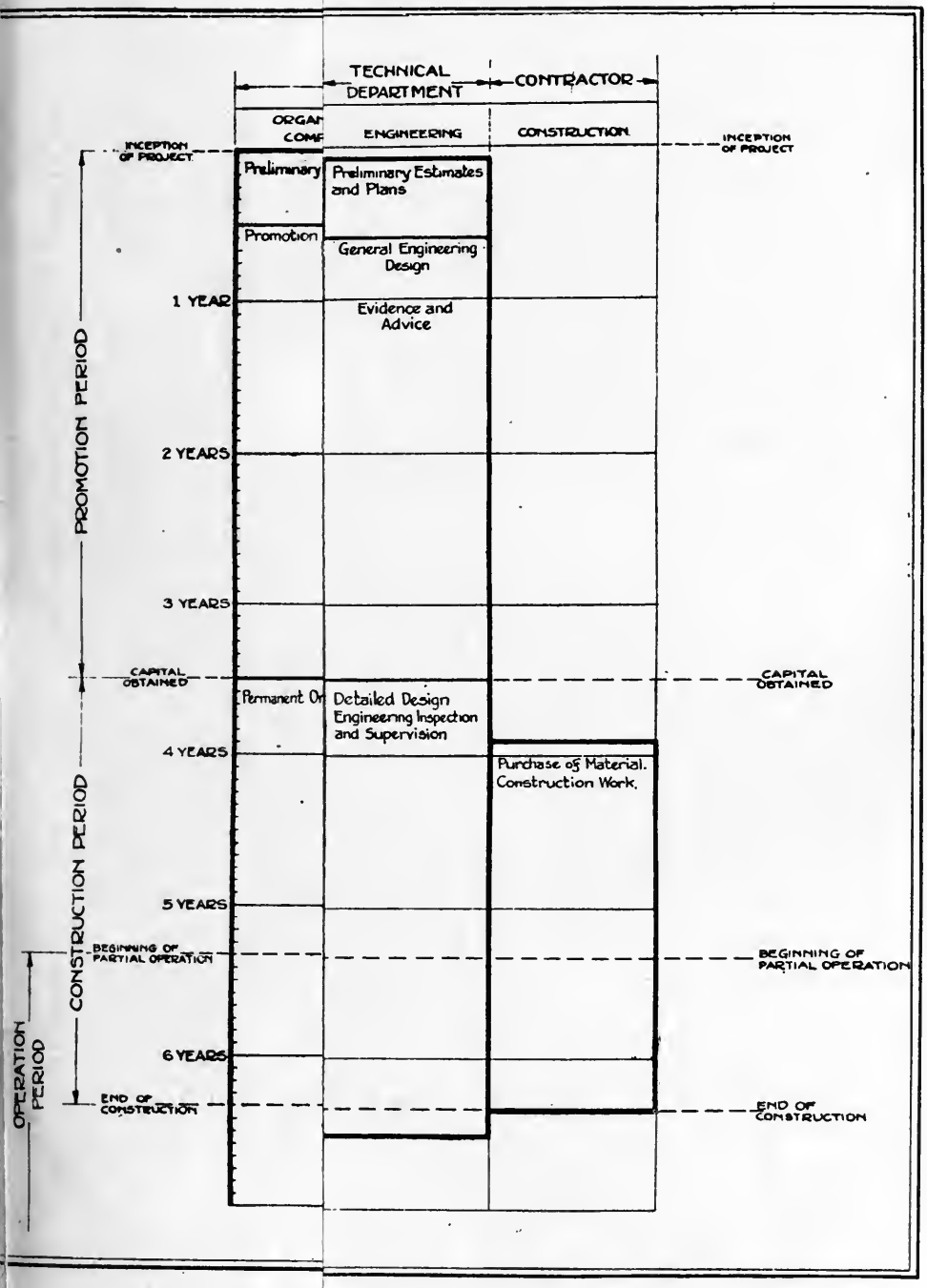
Engraving stock certificates including interim certificates and all expenses of delivery and storage.
Engraving bonds, including interim certificates and all expenses of delivery and storage.
Services of trustee in certification.
Obtaining subscriptions.
Registration books and records (in duplicate in company's and transfer agent's offices).
Issuing certificates.
Listing on stock exchanges.
Discount on securities.
Commissions to syndicates.
Cost of temporary loans.
Cost of short-term loans.
Exchange.

CITY PERMITS AND INSPECTION

Fees.
Inspectors' salaries.
Water charges.
Payments for special privileges.

Retainers and fees to special counsel.
Fees to experts for testimony.
Court costs and witness fees.
Notary services.
Expenses of special counsel and experts, including traveling.
Payments for damages.

(Usual details.)


TECHNICAL DEPARTMENT
CONTRACTOR
ORGAN COMP
ENGINEERING
CONSTRUCTION
INCEPTION OF PROJECT
INCEPTION OF PROJECT
Preliminary
Preliminary Estimates and Plans
Promotion
General Engineering Design
1 YEAR
Evidence and Advice
2 YEARS
3 YEARS
PROMOTION PERIOD
CAPITAL OBTAINED
CAPITAL OBTAINED
Permanent Or
Detailed Design Engineering Inspection and Supervision
4 YEARS
Purchase of Material. Construction Work.
5 YEARS
CONSTRUCTION PERIOD
BEGINNING OF PARTIAL OPERATION
BEGINNING OF PARTIAL OPERATION
6 YEARS
OPERATION PERIOD
END OF CONSTRUCTION
END OF CONSTRUCTION

TEM.

EXHIBIT 3.—ESTIMATED COST OF REPRODUCTION NEW OF THE PROPERTY OF THE CONEY ISLAND & BROOKLYN RAILROAD COMPANY AS AN ADEQUATE MODERN SYSTEM AT AUGUST 31, 1909.

| Item | Method of Estimate | Tangible Property | Intangible Property | Total Estimate |
|---|---|---|---|---|
| PROMOTION PERIOD. (Obtaining rights and capital). | | | | |
| 1. Promotion expense: | | | | |
| a. Promoter's organization - time and expenses | Inventory priced | | $231,100 | |
| b. Legal department - time and expenses | Inventory priced | | 103,500 | |
| c. Technical department - time and expenses | Inventory priced | | 86,600 | $ 421,200 |
| 2. Property owners' consents | Estimated | | 278,500 | 278,500 |
| Total, promotion period | | | $699,700 | $ 699,700 |
| CONSTRUCTION PERIOD. (Expenditure of capital to completion of construction.) | | | | |
| 3. Permanent organization - time and expenses | Inventory priced | $ 115,640 | $ 80,000 | $ 195,640 |
| 4. Cost of land: | | | | |
| a. Sites for power house, substations, car barns, shops, yards and terminals: | | | | |
| Assessed value | | 187,800 | | |
| Additional sales value (including contract for Coney Island terminal) | Appraisal | 266,300 | | 454,100 |
| b. Right of way on Coney Island Avenue: | | | | |
| Assessed value | | 290,000 | | |
| Additional sales value and cost of acquiring | Add 150 per cent | 435,000 | | 725,000 |
| 5. Cost of acquiring land (sites only) | 10 per cent of 4a. | 45,400 | | 45,400 |
| 6. Cost of construction and equipment (sub-contracts) as of Feb.1,1909: | | | | |
| a. Track (including construction on bridges and fill on Coney Island Ave. right-of-way) | Estimate of Public Service Commission's experts | 829,325 | | |
| b. Track, special work | | 219,893 | | |
| c. Paving | | 383,159 | | |
| d. Overhead trolley construction | | 132,696 | | |
| e. Overhead feeders | | 100,575 | | |
| f. Underground conduits and cables | | 305,750 | | |
| g. Power plants and substations (including power house cribbing and cold intake) | | 733,721 | | |
| h. Buildings | | 527,258 | | |
| i. Rolling stock | | 1,383,461 | | |
| j. Incidentals | Detailed estimate | 276,460 | | 4,892,298 |
| 7. General contractor's overhead charges and profit | 10 per cent of Item 6 | 489,230 | | 489,230 |
| 8. Engineering | 5 per cent of 6-7 | 269,076 | | 269,076 |
| 9. Interest and taxes, during construction | Detailed estimate | 561,345 | | 561,345 |
| 10. Miscellaneous stock, tools and fixtures: | | | | |
| a. Inventory | Estimate of Public Service Commission's experts | 103,680 | | |
| b. Incidentals | 5 per cent of 10a. | 5,184 | | 108,864 |
| 11. Working capital | Estimated | $ 250,000 | | $ 250,000 |
| Total, construction period | | $7,910,953 | $ 80,000 | $7,990,953 |
| Total cost of reproduction new at Feb. 1, 1909 | | $7,910,953 | $779,700 | $8,690,653 |
| 12. Additions and betterments from Feb. 1, 1909 to Aug. 31, 1909 | Actual cost | 39,549 | | 39,549 |
| 13. Additions and betterments necessary to produce an adequate, modern system | Detailed estimate | 569,696 | | 569,696 |
| Total cost of reproduction new at Aug. 31, 1909, of an adequate, modern system | | $8,520,198 | $779,700 | $9,299,898 |

# THE INDETERMINATE PERMIT AS A SATISFACTORY FRANCHISE

By William Osgood Morgan, Esq.,
Member of the New York Bar; Vice-President and Counsel, the Sheboygan Railway and Electric Company, Wisconsin.

The Wisconsin legislatures of 1905, 1907 and 1909 worked out and put into effect as laws of the State, a system for the control of public service corporations which appears to be more complete and practicable than has so far been developed by any other State in this country. One feature of this legislation is the "Indeterminate Permit." The law relating to the "Indeterminate Permit," taken together with the other legislation relating to public service corporations, provides a method for dealing with those matters heretofore attempted to be covered by the municipally granted franchise contract, which, in the opinion of the writer, approaches very nearly an entirely satisfactory solution of the franchise problem.

The Committee on Public Relations of the American Street and Interurban Railway Association in its annual report at the convention held October, 1907, refers to the Wisconsin "Indeterminate Permit" as "a most important provision and one far in advance of anything heretofore attempted in any legislation in this country." "The Outlook" for May 1908, commenting upon the bill pending in the New York Legislature in relation to franchises for subways, refers to the Wisconsin law as follows:

> The consistency and logicalness of the Wisconsin plan (whatever may be its practicability) is in the strongest contrast to the endless experimentations, reversals and legal blind alleys which have characterized the practice in the State of New York.

In the report of the New York Public Service Commission, First District, for the year ending December 31, 1908, appears a very discriminating and carefully considered article by the Hon. Milo R. Maltbie, one of the commissioners, entitled "The Indeter-

minate Franchise for Public Utilities." Commissioner Maltbie carefully weighs the advantages and disadvantages of the short-term franchise, the perpetual franchise and the indeterminate franchise, and concludes in favor of the latter form as the most satisfactory method of dealing with the problem.

The best way to secure an intelligent understanding of the merits of the Wisconsin legislation upon this question is to take up, one at a time, the considerations necessarily involved in any franchise and ascertain whether the Wisconsin method is better or worse than other methods which have been employed.

In the first place, the subject-matter of the franchise should be clearly understood. The right conferred by a State upon a group of individuals to do business in a corporate capacity is sometimes referred to as a franchise, and correctly so, being a special privilege granted by the State. The franchise which we are now considering, however, is the special privilege enjoyed by the electric railway corporation to occupy the public streets and highways with its rails, poles, wires and other equipment, and to run cars over and upon such streets and highways and collect fares from the public.

It should also be borne in mind that the right to use the streets of a city or other municipality is not an asset owned outright by the city. The control of streets and highways is primarily in the State and not in any municipal corporation. Cities, towns, villages, etc., are municipal corporations, created by the State for the purpose of enabling it to carry out its functions of government. They are agencies of the State for particular purposes. It has been usual for the States in our country to delegate to their cities and other municipal corporations general control and regulation of those streets and highways which lie within their boundaries, and statutes are in force in most of the States authorizing municipalities to grant to street railway corporations the special privilege of using the streets for the purpose of such street railways; but without such specially delegated power from the State a municipality has no right to grant to a street railway company any special privileges in the streets. This was early laid down by the Supreme Court of the United States in the case of *People's Railroad* v. *Memphis Railroad,* 10 Wall., 38.

The general nature of a franchise as a special privilege derived from the State was defined by the Supreme Court of the United

States in the case of *Bank of Augusta* v. *Earle,* 13 Peters, 519, where the Court said: "It is essential to the character of a franchise that it should be a grant from the sovereign authority, and in this country no franchise can be held which is not derived from the law of the State." It is important to bear in mind the nature of a franchise, because street privileges have very often been regarded by cities as assets to be bargained away for a consideration, and it is this *contract* view of street railway franchises which is at the root of most of the difficulties heretofore experienced by cities when considering franchise matters. The control of the streets, then, is primarily in the State, and a franchise to use the streets is a special privilege derived from the State, usually through the agency of the municipality.

The first and fundamental difficulty with the ordinary form of street railway franchise has been that it was entered into on the theory that it was a contract between the municipality and the street railway company. In fact, it contained all the ordinary elements of a contract and has been upheld by the Supreme Court of the United States as being a real contract, the obligation of which could not be impaired. (*City Railway Company* v. *Citizens' Street Railway Company,* 166 U. S., 557.)

The reason why this contract theory of a franchise has worked such harm is that it has formed the politician's opportunity to make favor with the people and take money from the corporations. In the early days of street railway building, the particular provisions of the franchises were not considered of great importance either by the companies or the municipalities, because, on the one hand, the cost of constructing a horse railroad was insignificant in comparison to the cost of constructing and equipping an up-to-date, high-grade electric railway, and, on the other, because the municipalities were eager for the service.

When the original grants expired, however, and the electric railways found themselves about to occupy the position of trespassers upon the streets unless their franchises were renewed, often facing bankruptcy as an alternative to procuring a renewal of their franchises, the era of franchise bargaining begun. Here was the opportunity of the corrupt politician, and this opportunity was availed of to the utmost. The public was taught to believe that the street railways had derived enormous profits from the use of the

streets, and an entirely erroneous value was placed upon the profitableness of franchises in the public mind.

Municipal ownership was agitated throughout the country, but in the end the franchises were usually extended after the political powers had been dealt with by the corporations. New contract franchises were entered into, imposing the greatest variety of obligations and conditions upon the railways. Often these obligations are utterly unenforcible, and while they perhaps serve the public as a club over the railways, on the other hand they afford an excellent argument for the railways to use against furnishing any needed additional facilities which might happen to have been left out of the contract.

Under the contract form of granting franchises, the railway companies are of necessity bound to negotiate and treat with the municipal authorities, and too often this must be done through the medium of some unscrupulous political power. There is not the slightest doubt, however, that the street railway managers, who are obliged to treat in this way for their very existence, do so with the utmost distaste, and would welcome any change in the law which would relieve them from the necessity of obtaining their essential rights in this manner. The trouble has been that the state governments have abandoned entirely to the cities the whole question of street railway franchises and regulation, and that in those municipalities where the power of the political bosses has been supreme the sole question about the franchise has been the amount of money that can be extorted from the railway company.

There are other fundamental objections to the contract theory of franchises. Many of these are economic reasons. In the first place, one of the terms about which a controversy almost invariably rages is the duration of the franchise. In many States the propaganda of limited franchises has been urged as if it were the sole remedy for existing conditions. Now, the question of the duration of an electric railway franchise is of vital importance both to the street railway and to the public. It is not of vital importance to the street railway that it should have a perpetual franchise, but it is necessary that it should have a franchise of sufficiently long duration so that, at the expiration of it, almost the entire investment shall have been refunded to the stockholders, or shall be in the form of an available sinking fund which can be refunded to them.

The scrap value of an electric railway taken up and sold, apart from its use in the conduct of the electric railway business, is but a small per cent. of its original cost, even though the property may have been maintained continuously in the highest state of efficiency. It is, therefore, obvious that if the franchise be not renewed at its expiration a tremendous loss will be sustained by the stockholders in the enterprise. This is an economic loss, by which no one profits. It does not do the public any good to have the stockholders lose their money, even if this loss could be put upon them.

This aspect of the limited term franchise is really not honestly faced either by street railway corporations or by the public in the majority of cases. It is felt that some arrangement will be made at the expiration of the franchise for its renewal, and that it really is not necessary to provide a sinking fund to pay back the capital invested at the termination of the franchise. The result of neglecting to provide such a sinking fund has been that in a great many cases corporations have been brought face to face with bankruptcy at the expiration of their franchises, and in one very notable case, that of the Cleveland Electric Railway Company, it was necessary to place the concern in the hands of a receiver for upward of a year, pending negotiations for the renewal of a franchise.

The provision of a sinking fund out of earnings necessitates the maintenance of a high rate of fare which must come out of the pockets of the railway patrons. It will ordinarily also require the limiting of operating expenses and extensions to the lowest possible point resulting in inadequate facilities for the transportation of the public. This is the price which the public pays for its insistence upon a short-term franchise.

There is ample evidence available to support these conclusions. Mr. Charles T. Yerkes, then president of the Chicago Consolidated Traction Company, stated in a public address before the American Street and Interurban Railway Association in October, 1899, that "The most important matter in regard to street railway securities is the length of the charter (meaning street franchise) under which they are operating. This question is of as much importance to the people as it is to the street railways themselves."

Mr. John I. Beggs, president of the Milwaukee Electric Railway and Light Company, at the same meeting summed up the case of the street railways most effectively as follows: "I want to know

what provision for the payment of these securities there is when our short-term franchises have expired? The franchise of our own property has a little over twenty years to run, and yet we are discussing it as they are in some other sections of the country, trying in advance to make calculations to know how much we are justified in putting into that property; how long we have in which to get a return from it. I do not know that it is being done so methodically by other companies—it may be. We have calculated, and I believe you will recognize that it is a proper charge against earnings, that you have a right to set aside this amount before the public can demand that you shall give a greater accommodation for the carrying of a passenger twelve or fifteen miles, to which Mr. Yerkes has alluded, or that the fare should be reduced. We are setting aside a certain amount for this purpose, and we want to know what is to be paid to those who may succeed us in our investment in these properties, and if, after the twenty years have expired, they will simply have turned over to them out of which to recoup the investment, a pile of junk on the streets, that the city wants removed in order that it may make a better dicker with some one else . . . I desire to throw out in connection with this paper the thought that we want to make some provision for the time that these bonds will mature. . . . I desire, gentlemen, to impress upon you the necessity, in order to make these securities safe, of having the public take them, as they do our water works and gas stocks, and in nearly all of which their charters are perpetual. The longer time our franchises have to run, the more you can afford to spend upon the betterment of your properties."

The standpoint of capitalists in relation to limited term franchises was expressed by Mr. August Belmont, of New York City, in an address before the Brooklyn League, delivered June 6, 1908, discussing the refusal of Governor Hughes to sign the Robinson Bill passed by the New York State Legislature granting long-term franchises for subways. Mr. Belmont said:

"Private capital cannot be invested with profit in any proposition under a short-term franchise agreement. You can put out of your mind any idea of private capital interesting itself in short-term franchise propositions. You must insure at least the return of the capital invested."

The dangers of limited term franchises have been exceedingly

well demonstrated in the case of the Cleveland street railways. The franchise of this company expired by limitation and a new franchise was granted by the Cleveland City Council on April 27, 1908. This franchise contained elaborate provisions relating to the regulation of the street railway by the city, but it was rejected by the voters in the referendum election held October 22, 1908; $2,000,000 of bonds were coming due in the summer of 1909, and with no definite plans ahead for adjustment of the franchise question, the company, in splendid operating condition, was forced into the hands of a receiver.

Another subject very frequently attempted to be covered by the ordinary municipally granted franchise contract is the rate of fare to be charged. The trouble with providing for rates of fare in this manner is that human foresight is limited. In this age of scientific development, it is utterly impossible to lay down a fixed charge for electric railway transportation which shall continue inflexible for a long period of years, and have such a fixed rate continue to be equitable to both the public and to the railway company. It is entirely possible that such improvements in the form of the service may be brought about that the public would gladly pay the increased cost for increased facilities. On the other hand, such technical improvements may be made in the method of furnishing the service that it can be given for a very much lower price. No one can possibly foresee these contingencies for a period of twenty or thirty years, and it is folly for a municipality and a street railway company to attempt to enter into a contract definitely fixing rates for a long term of years.

It is probable that no more careful study has ever been given to the fare question than has been expended in the city of Cleveland. For years Mayor Johnson, of that city, attempted to procure a three-cent fare. The franchise which went into effect February 17, 1910, and which was in the usual contract form, attempted by a series of most elaborate provisions to regulate street railway fares during the twenty-five-year period of the franchise. A sliding scale of rates was adopted, ranging from a maximum of four cents cash, seven tickets for twenty-five cents, to a minimum of two cents cash with one cent for a transfer and one cent rebate. The fare was to be adjusted from time to time, so as to allow a fixed return on the capital invested. The company had not been operat-

ing under this franchise a week before a suburb was annexed to the city, and the question was raised whether the fares fixed by the franchise should apply in this annexed suburb, or whether the company was entitled to maintain the old five-cent rate in the suburb.

The attempt to fix rates in advance for a long period of years is based upon an erroneous conception of the proper method of dealing with electric railways. It regards these companies as speculative enterprises, attempting to make large profits through the exploitation of the people, and necessitating a bargain, or, as Mr. Beggs puts it, a "dicker" every time a franchise is granted, and, while attempting to lay down a rule for the future, in reality it regards only the present.

Let us sum up the case which has thus been made against the municipally granted franchise. We have found, in the first place, that the contract theory is in itself wrong, because it allows the municipality to treat the granting of franchises in its streets as an asset to be bargained or dickered with, disregarding the fact that the streets belong to the entire public of the whole State and not merely to the inhabitants of the city.

This dickering or bargaining away of street rights becomes part of the stock in trade of the professional politician with whom the railway company is forced to deal, in order to preserve its very existence. The most important terms of such a contract, viz., the duration of the franchise and the rates of fare, are matters which experience shows cannot be dealt with and fixed in advance by any contract, however carefully drawn.

The limited term franchise stunts the growth of our street railway systems to the great disadvantage of the public, by making capital reluctant to embark in such a precarious enterprise both as regards the construction of new lines and the financing of necessary extensions and improvements. The public lose because of the necessity of keeping up fares and keeping down operating expenses, causing a lowering in quality of service in order to provide a fund to make good the possible loss to be sustained at the expiration of the franchise, because of the failure to procure a satisfactory renewal. A final objection is the possible bankruptcy of the company and loss of legitimate investment upon the expiration of limited franchises, where the companies have not been able, or have not had

the foresight, to lay aside a fund to repay the investors on the expiration of the limited franchise.

The general recognition of the disadvantages of municipally granted franchises has led to numerous attempts to find a satisfactory solution of the problem. The State of Massachusetts has instituted a system of franchise grants which has proved, on the whole, fairly satisfactory in operation. In this State street privileges are not treated as contracts. The word used is not "franchise," but "location," and the local authorities are authorized by statute to grant "locations" in the streets for street railway purposes. These grants are subject, however, to the supervision of the Board of Railroad Commissioners, and no street location is valid until the commissioners "after public notice and a hearing shall certify that such location is consistent with the public interests." These locations are not granted for any particular period, and are revocable by the local authorities, subject, nevertheless, to the approval of the railroad commissioners. The statute provides that the municipalities in granting the locations may prescribe how the tracks shall be laid, what kind of rails, poles, wires and other appliances shall be used, and may "impose such other terms, conditions and obligations incidental to and not inconsistent with the objects of the street railway company as the public interests may in their judgment require." It has, however, been the practice in Massachusetts to make these street locations very simple, without attempting to impose elaborate restrictions and burdens. The result of this method of conferring street rights has been most admirable. A committee appointed by the Legislature of Massachusetts reported in 1900, after a most elaborate examination of franchise conditions in the United States and in Europe, that the simple street location, perpetual but revocable, theretofore in force in Massachusetts was the most satisfactory form of franchise which they had found. This committee found that the service throughout Massachusetts was highly satisfactory, and that street railway securities had reached the level of investments and were not regarded as a speculation. The report says that the limited duration franchise has been productive of "dissensions, poor service, scandals and unhealthy political action."

The State of Wisconsin has, however, taken the most advanced ground in the field of street railway legislation and regulation.

After careful study and investigation a body of law has been enacted providing a comprehensive and logical scheme of legislation for the general control of electric railways. The legislature in placing this body of law upon the statute books has broken away from the old theory that a franchise is a contract between the municipality and the company, in which the relations between the two are to be fixed once and for all by the terms of the franchise (including the duration of the franchise, the rates of fare, the compensation to be made, and the innumerable other burdens and restrictions attempted to be placed upon the railways), and has substituted the rational theory that street privileges are grants from the States, and, being conferred for a public purpose, are subject to regulation by the public, when, and as such regulation shall be required.

The statute directly providing for the Indeterminate Permit is chapter 578, Laws of 1907, which went into effect July 13, 1907. This provides, first, that every license, permit or franchise thereafter granted to any street railway company shall have the effect of an Indeterminate Permit, and that such permit shall continue in force until the municipality in which the greater part of the street railway company's property is situated shall purchase that property, and that any such municipality shall have the authority to make such a purchase, and every street railway company shall be required to sell its property to the municipality. The price to be paid for the property is to be determined by the railroad commission. Second, that any street railway company operating under an existing license, permit or franchise shall have the right to acquire, in lieu thereof, an Indeterminate Permit by filing a written declaration that it surrenders such license, permit or franchise. The acceptance of such an Indeterminate Permit shall constitute a waiver on the part of the street railway company of the right to insist upon the fulfilment of any contract theretofore entered into with the municipality relating to any rate, fare, charge or service regulated by the railroad commission. Third, that the acceptance of an Indeterminate Permit shall constitute the consent by the company to the future purchase of its property by the municipality.

The great advance made by this particular portion of the electric railway legislation of Wisconsin is that it eliminates the necessity of fixing a term, either limited or perpetual, for the duration of street privileges. The street privileges continue until the prop-

erty is taken over by the city. This provision, it will be seen, eliminates all those very serious objections, stated above, arising in connection with a limited franchise. It is not necessary for the corporation to become involved in local politics and to deal with the local boss upon the expiration of the franchise. The company is not under the necessity of attempting to raise rates and decrease operating expenses, and consequently skimp on the service, in order to provide a sinking fund sufficient to make good the enormous losses likely to be sustained by the company when its franchise expires. This great charge, which otherwise would have to be met either by the traveling public or by the investing stockholders, can be used for lowering rates and improving the service. The company does not have to face the possibility of being required to take up its tracks and sell off its expensive electric plant practically as junk at the expiration of the franchise, because the franchise does not expire until compensation is made to the company for its property. The Indeterminate Permit, therefore, eliminates the necessity of political activity on the part of the company; it eliminates the possibility of the corrupt extortion and use of money for the renewal of the expiring privileges, and it avoids the enormous economic loss necessarily sustained in rendering it impossible to use the property of the company for street railway purposes. The statute providing for the Indeterminate Permit, therefore, solves the problem of limited term franchises.

But there is more to an ordinary franchise than the question of how long it shall last. There are the questions of rates of fare, method of operation, schedules of running cars, method of construction, the providing of proper terminal facilities, the safeguarding or elimination of grade crossings, and the providing of publicity in relation to the company's affairs. All these matters the Wisconsin legislation very wisely eliminates from the field of negotiation between municipalities and street railway companies. No attempt is made to lay down fixed and inflexible rules dealing with all these matters, as has been attempted with such unfortunate results in the municipally granted franchise. All these matters are placed in the control of a Board of Railroad Commissioners, who are empowered to deal with them from time to time when and as the necessity for action arises.

This railroad commission is, in the first place, a non-political

body. It is composed of three men appointed by the governor of the State for the term of six years. One of the commissioners is to have a general knowledge of railroad law, and the other two are to have a general understanding of matters relating to railroad transportation. They must not be financially interested in railroads, and they must not serve on any committee of any political party. They are to devote their entire time and attention to their duties as railroad commissioners. They receive a salary of $5000 per annum. They are authorized to employ a secretary at a good salary, and such clerks, stenographers, experts and temporary employes as they may require. They are also entitled to employ counsel to represent them and advise them. For the purpose of carrying out their duties they are entitled to make requisition upon any unappropriated moneys in the treasury of the State. It will be seen from the constitution of this commission and from the liberal provision made for necessary expert and clerical assistance, that it will be able to acquire information relating to street railways and experience in dealing with them which no single municipality could afford to provide for. In the new Cleveland franchises referred to above, a street railway commissioner at a salary of $12,000 a year is provided for, but though it is stated that he is to be the representative of the city, his salary is required to be paid by the street railway company, which puts him in the unfortunate position of serving one master and drawing his pay from another.

In the next place, the railroad commission of Wisconsin is authorized, empowered and required to obtain such information in relation to the electric railways as will enable them to act intelligently upon the questions presented to them. They are authorized and empowered to deal with the question of rates. In recent times it has come to be understood that the electric railway business, in cities at any rate, and, indeed, electric transportation throughout the country, is most successfully dealt with upon the theory that such businesses are natural monopolies, and that they cannot be made to compete by any statutory requirement. It has become evident that the economic law of supply and demand applicable to competing enterprises is not satisfactorily applicable to monopolies of this sort. In some of the most modern legislation, therefore, the interests of the public in the charges to be made for the service furnished by street railways have been safe-

guarded by limiting the amount of profits which the street railways shall be entitled to make. The old method of fixing the fare in advance by the franchise contracts has given way to the modern theory of regulating rates from time to time as the necessity for such regulation arises. This theory has received very complete and careful application in the Wisconsin legislation.

In order to enable the railroad commission to determine and fix proper rates for transportation, they are required to ascertain the cost of every railroad property in the State, and to enable them to do this, they are entitled to call upon the railways for the most complete information, including statements, reports, and the personal attendance of employes and officers for examination. The commission is required to ascertain also, through its experts, the amount it would cost to replace all the physical properties of every railroad in the State. It will be seen that the commission is thus able to ascertain both the cost and the value of the railway properties. It is well known that the actual cost of any railway property is likely to be very greatly in excess of the amount it would cost to replace it. This is because street railway builders have not been able to start their work fully equipped with all the information there is on the subject of building street railways. Mistakes have been made, and necessarily made, in order to acquire knowledge of the art of railway building. It would be grossly inequitable to allow profits only on the sum which the railways might have expended if they had twenty years ago known as much about street railway building as they now know, and this is recognized by the Wisconsin legislation. The commission is then authorized to ascertain the receipts and operating expenses of all railroads, and the railroads are required to file with the commission copies of all contracts which they have entered into relating to rates of transportation.

One most important provision in respect to the regulation of rates is the power lodged in the commission to supervise the issuing of stocks and bonds of electric railway companies. The statute provides that no stock and no bonds can be issued without a certificate of the railroad commission expressly authorizing such issue, and that if stocks and bonds are issued without the consent of the commission, such stocks and bonds are void. This will prevent sanguine promoters from capitalizing hoped-for future earnings

and enriching themselves by passing off securities of doubtful value upon the public. It will also prevent the distress so often created by the collapse of such inflated securities. The railroad commission, having the supervision of the issue of stocks and bonds, and also having the fixing of rates, will feel, and the writer has been personally assured by the Wisconsin commissioners, do feel that such rates ought to be allowed as will give a reasonable return on any stock and bonds which they have authorized to be issued.

With this data in hand, the commission is in a position to fix an equitable and just rate, which will provide a reasonable return upon the capital legitimately invested in the enterprise (even although some of it may have been unwisely invested), and, on the other hand, a rate which will provide as cheap and adequate service to the public as can be given under the circumstances.

In the matter of fixing rates, the commission may act upon the complaint of any person, or it may act on its own initiative. The spirit of the Wisconsin law is very aptly illustrated by the provision that the action of the commission in fixing or changing rates may be invoked also *by the railway companies themselves.* That feature of the franchise contract, therefore, which attempts to fix in advance for a long period of years the rates to be charged for the service is entirely eliminated by the Wisconsin legislation, for the rates being within the control of the commission cannot, of course, be fixed by municipalities in granting franchises. The Railroad Commission may also regulate the issue of street railway transfers, a matter frequently attempted to be regulated by municipalities.

The commission is also authorized and required, upon the complaint of any party, to examine any electric railway crossing, whether it be a crossing at grade, or otherwise, with a public street or highway, or a crossing with another electric railway or steam railway, and the commission is authorized to prescribe such changes as it deems necessary to be made in these crossings, and to determine who shall pay for the cost of the changes. All fatal accidents are required to be promptly reported by the companies to the commission, and the commission is required to make prompt investigation of such accidents.

All electric railway construction outside of cities is under the direct supervision of the commission. In the first place, no such

railway can be constructed without a finding on the part of the commission that the building of such railway is a matter of public necessity and convenience. All plans for the construction of the road must then be filed with the commission, and any changes in these plans required by the commission must be made. The road must then be constructed in accordance with these plans, and before operation is commenced the commission are to examine the completed road, and, if they approve, are to grant a permit to operate.

All railroads are required to furnish reasonable and adequate service and facilities. They are required to publish their rates of fare, and no change in the fare is allowed except after notice to the commissioners and notice to the public. Proposed changes in fare can be stayed by the commission until it has had an opportunity to investigate the justice of such changes. Free transportation to state officers is forbidden. All discrimination in the matter of rates or service furnished to different patrons is absolutely prohibited under severe penalties.

The requirements of the Wisconsin legislation upon electric railways, and the provisions of that legislation as to the authorities and duties of the railroad commissioners, and particularly as to the personnel of the railroad commission and the force of assistants which they are entitled to employ, deal in a most comprehensive and logical manner with all those relations between the public and the electric railway companies which separate municipalities have so long and so unsuccessfully attempted to deal with through the municipally granted franchise contract.

The Wisconsin legislation does not in terms provide that no conditions or burdens may be placed by municipalities on the grant of street privileges. This the writer believes is an important step which should yet be taken to complete the scheme of legislation. It would be well enough to permit municipalities to impose certain conditions which arise in connection with the particular circumstances and which are not of vital importance to the railways, but all such restrictions and burdens should be limited by a provision that they shall relate, in a reasonable manner, to the operation of the railways, and should be further subject to the approval of the railroad commission. But the great advantage of the Wisconsin legislation is that practically it does eliminate from municipal interference those matters which vitally concern the operation of

electric railroads, viz., the granting of limited term franchises, and the imposing of fixed and unalterable rates of fare over a long period of years. This Wisconsin plan, therefore, while it does not directly and in terms abolish the municipally granted franchise contract, does, nevertheless, practically do away with it by lodging in the railroad commission those regulatory provisions which have been attempted to be provided heretofore in franchise contracts. As these provisions are eliminated, the franchise becomes what, in theory, it ought always to have been, a grant by the public of rights in the streets, and not a matter of bargain and dicker between municipalities and the transportation companies.

It should also be observed that the Wisconsin theory of franchises, and of dealing with electric railway rates, practically eliminates the question of compensation for franchises. So long as the rates of transportation and the quality of the service to be furnished are within the jurisdiction of the railroad commissioners, and can be fixed and changed at any time by them when such change is reasonably required, and in view of the law of the land as laid down by the Supreme Court of the United States that legitimately invested capital is entitled to a reasonable return, it can be of no advantage to a municipality to exact a payment for a franchise. This payment at once becomes a part of the legitimately invested capital, and the corporation is entitled to charge a rate which will yield a return on this item of investment, and also a rate which will in time refund it to the investor. This added item of charge the company is entitled to receive from the traveling public in rates for transportation. The result is that any moneys which the municipality may receive in return for the franchise to use the streets, are contributed indirectly by the patrons of the electric railways, and this situation is further reducible to the proposition that electric railway patrons are being taxed for the benefit of the general public. There is no escape from this conclusion, and when it is thoroughly appreciated the clamor for a cash compensation for the grant of street privileges is likely to subside.

The Wisconsin legislation does not merely state the ideas of the legislators as to what ought to be done, as legislation frequently does, but provides most completely for the carrying out of the entire plan. Severe penalties are provided for the neglect of any

railroad company to comply with any provision of the law, or with any order of the railroad commissioners. The Attorney-General and the several district attorneys throughout the State are required to prosecute for any violation of the law, or violation of any order of the railroad commissioners, when requested to do so by the commission. The whole spirit of the legislation, however, is far from arbitrary, and any company aggrieved by any order of the commission may appeal to the courts. Such orders of the commission cannot, however, be indefinitely tied up in the courts, because such appeals are given precedence over all other civil cases.

The Wisconsin Indeterminate Permit, taken in connection with the remainder of the legislation adopted by the legislatures of 1905, 1907 and 1909 for the regulation of electric railway corporations, in the opinion of the writer, provides an exceedingly satisfactory form of franchise. This result is accomplished not by the discovery in Wisconsin of some unique form of franchise, but by the application of correct economic principles to the business of electric railway transportation, by practically doing away with the granting of franchises through contracts and bargainings with municipalities, and the political corruption and short-sighted policies which have so frequently characterized such municipal contracts. While this legislation might be improved by specifically prohibiting municipalities from imposing terms on the granting of franchises, except with the approval of the railroad commissioners, it is not improbable that such will be the practical result of the legislation as it now stands.

It should be noted here that the Indeterminate Permit in relation to street railroads does not provide for freedom from competition, as does the Indeterminate Permit in relation to other public utilities in Wisconsin. The public utilities law of 1907 dealing with gas companies, electric companies, water companies, etc., provides that where there is in operation in any municipality such a company holding an Indeterminate Permit, no franchise can be granted to a competitor, nor can the city go into the business without obtaining from the railroad commissioners a certificate that such competition or municipal operation is necessary for the public good. The provisions relating to the Indeterminate Permit for street railways are substantially identical with those relating to the other public utilities, except that freedom from competition is not

granted in the case of street railways. It is not improbable that the nature of the street railway as a monopoly will be directly recognized in future legislation, either by amending the law relating to the Indeterminate Permit for street railways so as to make it conform to that relating to other public utilities, or by requiring the approval of the railroad commissioners for all street railway franchises.

# STATE SUPERVISION OF ELECTRIC RAILWAYS IN WISCONSIN

By Hon. B. H. Meyer,
Member of Interstate Commerce Commission; Formerly Chairman, Railroad Commission of Wisconsin.

The mileage of electric railways in Wisconsin is comparatively limited. There are about five hundred and ninety-two miles of line and seven hundred and ninety miles of track, of which somewhat less than one-half is located within the limits of municipalities. Construction has been authorized for approximately two hundred and fifty miles more, and several more or less extensive projects are in various stages of development.[1]

Section 2, Chapter 362, of the laws of 1905, being the original Railroad Commission Act under which the present Commission is functioning, provides that the term "railroad" shall include "all corporations and their lessees that now or may hereafter own, operate, manage or control any railroad or part of a railroad as a common carrier in this state, or cars or other equipment used thereon." Subdivision A of said section extends the provisions of the act to the transportation of passengers and property between points within the state, and also to all railroad corporations that ". . . do business as common carriers upon or over any line of railroad within this state, and to any common carrier engaged in the transportation of passengers and property wholly by rail or partly by rail and partly by water."

Subdivision B of the same section provides that the act ". . . shall not apply to street or electric railroads engaged solely in the transportation of passengers within the limits of cities."

Soon after the enactment of this law the attorney for the Milwaukee Electric Railway and Light Company, the largest electric railway system in the state, inquired of the Commission whether or not a street railway company which transacted business as a common carrier partly within and partly without the limits of a

[1]For detailed statistics of the results of operation of electric railways in Wisconsin, see third annual report of the Railroad Commission of Wisconsin, part 3, pages 600 to 674.

municipality is subject to the provisions of Chapter 362 with respect to both urban and suburban business. Specifically, the question was whether the Milwaukee Electric Railway and Light Company was required to report accidents occurring on its lines within the city limits, it being apparently conceded that the statute required it to report accidents occurring outside the city limits.

The Commission concluded that any street railway company that is not solely engaged in the transportation of passengers within the limits of a city is subject to Chapter 362 of the laws of 1905, both as to its urban and suburban and interurban business, and that the reports of accidents should include both classes of business. The peculiar language of the law, the circumstances under which the statute was enacted, the probable intent of the legislature, and court decisions throwing light upon the construction of the statute, are discussed in the decision of the Commission officially disposing of the inquiry with the aforesaid conclusions.[2]

The law of 1905, as construed by the Commission, therefore gave the Commission the same jurisdiction over electric railways that it conferred with respect to steam railways. However, since there was some doubt regarding the extent of jurisdiction conferred, the legislature of 1907 amended the original law by making the act apply also to "all street and interurban railway companies." This amendment left no doubt regarding the complete jurisdiction of the Commission. It has never been questioned since.

In addition to the basic railway statute as amended, there are special acts applicable to electric railways relating to the heating of cars, waiting rooms, fenders, power brakes, the issue of securities, authority to construct, etc. These acts are supplemental to the general railroad law and together with the latter comprise a regulatory code which is as broad as the business. I assume that it is not intended that I should discuss the general principles of the railway legislation of Wisconsin in this place, but confine myself to certain aspects of the law as it has been applied to electric railways. While the mileage of electric railways in Wisconsin is relatively small, the legislation applicable to it is comprehensive enough, it seems, for a mileage as extensive as any that can be created within the boundaries of a state. The legislative and administrative problems are the same as they would be if the mileage in the state were the most extensive of any in the Union.

[2] 1 W. R. C. R., 178 to 191.

The first of the more important cases relating to electric railways was brought before the Commission during the fall of 1906, and embraced practically all the phases of the service within the city of Milwaukee and certain suburbs. A separate complaint related to the alleged discrimination in the arrangement of fare zones between Milwaukee and one of its suburbs. While the absolute reasonableness of the rate was challenged in each case, by stipulation the latter question was held in abeyance pending a valuation of the property of the respondent's lines and the necessary statistical investigation by the Commission. While the service cases were decided within the following year, the rate cases are still pending. The valuation has been completed, analyses made, and unusually voluminous proceedings terminated. The attorneys are at present engaged, we are advised, in the preparation of their respective briefs, and the matter will naturally come up again before the Commission for argument as soon as these preparations have been completed.

The service cases related to overcrowding, lack of cleanliness in the cars, improper routing of cars, failure to sell certain classes of tickets on cars, failure to install power brakes and properly guard certain crossings, and similar matters. All of these questions are disposed of in the decisions which the reader may find in 1 W. R. C. R. 662 to 688, and 1 W. R. C. R. 689 to 711.

Although many of the matters referred to in these first complaints had apparently been met by the Commission, complaint regarding certain minor matters relating to the service continued to come to the Commission with such persistence that it was decided to institute a comprehensive and thorough investigation of the service situation in Milwaukee by the Commission on its own motion.

The field work of this investigation was begun in October, 1908, and from this date to March, 1909, from two to five men were kept constantly in the field making observations upon service conditions. A final report covering the investigation was made in June, 1909. This report was directed to three chief phases of the problem, viz., (1) the extent of service given by the company, (2) the service required by the traveling public, (3) the necessary reroutings of the various lines in order to avoid present conditions

of congestion in the down-town district and to obtain better accommodations for certain classes of traffic.

Upon completion of the work in June, 1909, the following suggestions were made to the company for the improvement of the service:

(1) The adoption of re-routing schemes which were submitted in detail in the report.

(2) Providing a sufficient number of cars to take care of the traffic on the various lines which were overcrowded at periods shown in the report.

(3) Establishing definite stopping places at street intersections suitable for all conditions of travel.

(4) Making service stops on both sides of important transfer points.

(5) Soliciting the co-operation of the public through the medium of proper signs posted in the car.

(6) Exacting greater courtesy on the part of trainmen.

(7) Endeavoring to train the public to move on and off cars in a more systematic manner.

(8) Better supervision of cars at the various street railway intersections.

(9) Requiring the trainmen to be more alert in saving time at intersections and to act more promptly upon the supervisor's orders.

(10) Insisting that trainmen do not shirk by running their car so that the one ahead or the one behind will receive the passengers.

(11) Using more care in maintaining proper headway or spacing between cars.

It was also suggested that the public could co-operate with the company in improving the service as follows:

(1) By readily complying with the requests of conductors; for example, stepping forward promptly when requested, etc.

(2) By not unnecessarily crowding the vestibules and aisles of the cars.

(3) By exercising more promptness in leaving and boarding cars.

(4) By general co-operation in other details.

Proposals for the future were also made which involved new track upon various streets. The re-routing scheme also involved considerable new track as well as changes in the routing of some of the car lines in the down-town district.

The final report consisted of approximately fifty pages, and there were submitted in supplementary detail, about three hundred pages of field data, diagrams, schemes for re-routing, car demand curves, investigations as made in other cities, studies of transfer data, movement of passengers, etc.

After a few observations had been taken, it was noted that the times of greatest travel were 6.00 to 9.00 a. m., 11.00 a. m. to 2.00 p. m., 5.00 to 8.00 p. m., and from 10.00 to 11.00 p. m. These intervals were designated periods one, two, three and four. The observations were then confined mainly to the above periods of traffic, it being assumed that any scheme which would handle the periods of maximum travel would prove entirely adequate at any other period of the day. It was soon found that the travel during period four was not of such extent but that it could be easily handled by the routing system then in use, or any other which might be put in force. It was therefore omitted from the further investigations.

The fourteen main lines of the street railway system were then investigated in detail under each of the remaining periods. Inspectors collected data as to the number of passengers riding, the number of cars, the time of arrival of cars, and such similar information as would be of value in dealing with the traffic conditions. For a number of days traffic on one line would be observed in order to find the average number of people riding upon the line, the amount of overcrowding, if any, the destination of the passengers, and other matters of similar nature which would make the inspectors entirely familiar with the conditions.

From a total of nine thousand cars observed, it was noted that quite a number of the people riding preferred to stand even when seats were available, and this tendency seemed to follow a fixed law. In fact, observations showed that in 1,499 cars an average of two people stood by preference when only ten to fourteen people were on the car. In 1,483 cars observed, three people stood when there were only fifteen to nineteen passengers. In 1,411 cars observed, four people stood out of twenty to twenty-four riding.

Five were observed to stand in 1,137 cases where there were from twenty-five to twenty-nine people on the car. Six stood in 867 cases when the car contained thirty to thirty-four people. An average of seven remained standing in 703 cars observed which contained from thirty to thirty-nine people, and finally, in 392 cases, in which there were from forty to forty-two passengers on the car, eight of these stood by preference. Therefore, for a car having a seating capacity of forty-two people (the size of the street car in general use in Milwaukee), a "comfortable load" was taken as fifty passengers, on the assumption that if eight people preferred to stand, even if seats were provided for them, it was therefore unnecessary to provide seats for these eight people. A car which afforded seats for forty-two people could then be called upon to carry a load of fifty people "comfortably" under these conditions.

A number of reasons might be suggested as explaining this preference of a number of passengers to stand rather than to sit down in available seats. The passengers may wish to stand on the rear platform and smoke; they may prefer to stand on the front platform for observation, or they may have been sitting down all day and prefer to stand for that reason, or having only a short distance to ride, they may not care to go to even the slight trouble of searching for one of a number of available seats. In fact, there is a wide variety of reasons why a number of the passengers should prefer to stand rather than to avail themselves of seats, and this tendency, as shown above, seems to obey a general law.

Having determined a "comfortable load unit" for the car, the next question to determine was the number of cars required for the service. This was solved by observing the number of people riding during the maximum periods of travel upon each of the fourteen lines above mentioned. The average number of people on the cars for these periods was plotted, and where these averages exceed fifty people, it denoted that the cars were more than "comfortably" filled. From these determinations, the extent and duration of the overcrowding readily became known, and the number of extra cars needed was readily determined.

It was discovered that a considerable amount of overcrowding was due to the distorted headway or time-spacing between cars. If the line were operated upon a five-minute headway, the cars were each supposed to be spaced that time interval apart, or, in

other words, if one car passed a certain point on this line five minutes were supposed to elapse before another car would pass the same point. This headway was often considerably distorted, owing to the fact that various running speeds were observed; people in boarding or leaving would detain a car longer than was necessary; a drawbridge might be open, or the motorman himself might be careless in controlling the speed of his car so as to maintain a proper headway. The result of this was that two cars might follow each other just a square or so apart, while from eight to ten minutes might elapse before another car came along. The first and third cars, in this event, might become considerably overloaded.

After each line had been studied in considerable detail in the effort to ascertain just what the requirements of the traffic were regarding the proper number and headway of cars, the matter of the destination of passengers was then considered. The entire territory embraced by the various lines was divided into different districts. A study was then made of the character of the traffic, the districts served, etc. In an effort to ascertain the destination of the average passenger to further aid in this consideration, a complete set of transfers for the entire day was obtained, and by going over these in connection with the "car demand curves," the origin and the destination of the average passenger on each line were determined. This was necessary in order to ascertain the re-routing required to thus serve the demands of the public. As an example of some of the data which resulted from these latter observations, it was found that a very considerable percentage of the morning and evening traffic in the western and northwestern part of the city of Milwaukee had a final destination in the southwestern part of the city, or the other side of the Menomonee valley. It was necessary for these passengers to travel through the down-town congested district, across the Menomonee valley at West Water Street, and then proceed westward out along the National Avenue or some similar line. This necessitated a couple of miles of unnecessary travel with the consequent loss of time, which could have been saved if the traffic were routed across the valley direct at some more western point.

A large number of the car lines considered passed the important intersection at Third Street and Grand Avenue. This point

is the most congested part of the city, and with the teaming, pedestrian traffic, likelihood of drawbridges being open, etc., it forms a point where cars were very likely to be delayed a considerable period. To avoid this difficulty, it was proposed to re-route several of the lines in the down-town district so as to make it unnecessary to cross this intersection, but yet bring the cars to within a short distance of this point and thereby relieve the congestion.

Another point covered in the investigation was the movement of passengers in alighting from and boarding cars. It was noted that passengers in Milwaukee were slow in alighting from and boarding cars as compared with the average passenger in other cities. Observations were made in St. Louis, St. Paul, Minneapolis, Duluth, and Indianapolis. It was determined that during the evening peak in the down-town districts of Milwaukee, it required on the average one and a half seconds per passenger to board a car when ten passengers were getting on. This contrasted with 1.37 seconds in Duluth and St. Louis, where pay-as-you-enter cars are used, 1.25 seconds in Minneapolis, 1.20 seconds in St. Louis and St. Paul, and 1.02 seconds in Indianapolis. When five people boarded a car, the average in Milwaukee was also longer than in any other city. At Indianapolis five people would board a car in an average of 1.25 seconds per passenger, while at Milwaukee 2.12 seconds were required. And even when fifteen passengers were boarding a car, there was considerable difference in the time required by the average passenger between Milwaukee and other cities investigated. As a matter of fact, the best time made at Milwaukee was approximately 1.20 seconds per passenger, no matter how large the crowd, while the other cities attained an average of approximately .8 seconds per passenger when from fifteen to twenty people or more boarded the car.

At the first glance it would appear that this slowness was due entirely to the passengers themselves, but upon investigation it was ascertained that the company was partly to blame, due to its having no definite established stopping places for its cars. For instance, a car might stop exactly on the other side of the crossing, while the car following might stop a car length or so past this point. The people would generally congregate at a certain place, expecting to board the car there, and when the car proceeded thirty or forty feet past this point, it was necessary for them to walk

or run to it. This caused a delay, and thus required considerably more time in boarding the cars than would otherwise be the case.[3]

While this is a very brief statement of the Milwaukee investigation, it will probably serve to illustrate the manner in which the Wisconsin Commission endeavors to administer regulatory statutes relating to electric railways.

A large number of formal and informal complaints relating to electric railway systems in all parts of the state have been filed with the Commission from time to time, and decided in due course. These complaints involve all phases of rates and service, and scarcely deserve enumeration in detail.

In the case of one complaint alleging the abandonment of a branch line of a street railway system within the municipal limits, it was shown that the enterprise of the respondent had been a losing proposition from its inception, and that especially on the branch line in controversy operating expenses exceeded the revenue. The Commission took the position that if a railway system does not earn sufficient revenue to cover the cost of operation and maintenance because one or more branches of the system cannot be operated except at a loss which more than counterbalances the profits of the rest of the system, the interests of the public may be best subserved by the abandonment of such branch or branches. The Commission concluded that the respondent in this case was unable to assume any greater financial burden than it was then carrying, and that this and other facts in the case forbade any action on the part of the Commission looking toward a restoration of service on the abandoned branch. (4 W. R. C. R. 757-765.)

A complaint emanating from another city alleged that an ordinance allowing the respondent to abandon and take up its tracks on a certain street and providing for an extension to take the place of such abandoned track, is unreasonable, in so far as it allows the respondent to abandon and take up said track. This track was taken up prior to the filing of the petition. The Commission held that it had no authority to authorize the construction or extension of any electric railroad within a city, or prevent the abandonment or change of location of any part of such a railroad instituted under a franchise granted by the common council, after the consent of the council had been obtained. (3 W. R. C. R. 292.)

[3]Third Annual Report, R. R. Com. Wis., pp. 117 to 127.

In a recent decision declaring the construction of a certain electric railway to be a matter of public convenience and necessity, the Commission gave notice that it would not authorize the construction of fragments of a larger system for the purpose of crippling existing enterprises or exploiting the most profitable parts of a route, but that only the whole of such systems could receive the sanction of the Commission. (*In re* application of M. & F. R. V. Ry. Co. for certificate of convenience and necessity.)

The purpose of these paragraphs has been to describe, without detail, the state supervision of electric railways in Wisconsin. The methods followed in this state, and the results accomplished, may be of aid to other states.

# THE FRUITS OF PUBLIC REGULATION IN NEW YORK

By Hon. Milo R. Maltbie,
Member of the Public Service Commission of New York, First District.

In his first message to the legislature, transmitted in 1907, Governor Hughes called attention to the fact that adequate control of public service corporations did not exist in the State of New York. He recommended that certain boards then in existence be abolished and that a new commission be created with enlarged powers, so that the interests of the public might be properly safeguarded. This recommendation was so widely and heartily endorsed throughout the state that the legislature passed a law to make effective the recommendations of Governor Hughes, with only six dissenting votes. Under this act, upon July 1, 1907, two public service commissions, each of five members, came into existence, one having jurisdiction in Greater New York, the other in the remainder of the state. The former, with which this article deals, succeeded to the functions within its area of the Railroad Commission, the Commission of Gas and Electricity, the Inspector of Gas Meters and the Rapid Transit Commission. In addition, many new powers were conferred which greatly extended the scope of public regulation. It has been asserted that no state board has greater powers or functions. A brief résumé will suffice to show the extensive authority enjoyed by these commissions:

*Powers and Duties*

1. To examine into the general condition, capitalization, franchises and management of public service corporations; to compel the production of all records, documents and papers, and to summon witnesses.

2. To establish a uniform system of accounts and records and prescribe the form of annual, quarterly and monthly reports.

3. To order repairs or changes in corporate property, the

use of additional facilities, or the adoption of improved methods of operation, in order to secure safe and adequate service.

4. To test gas and electric meters, approve types of meters, and establish standards of quality for gas and electric service.

5. To fix just and reasonable rates to be charged by public service corporations, to prevent unjust discrimination, and to require two or more carriers to establish through routes and fix joint rates for through service.

6. To entertain complaints and after due hearing make such order as will remove the cause of complaint.

7. To grant or withhold the certificate needed by a public service corporation before it can begin new construction or exercise a franchise or right not already exercised.

8. To approve or disapprove the transfer of a franchise, or the making of a contract relating to a franchise.

9. To give or withhold permission for the issuing of corporate securities, or for the merger of existing companies; but not to permit the capitalization of any merger or franchise itself.

10. To grant or refuse permission for the transfer of stock in a public service corporation to a similar corporation, or for the acquisition of more than ten per cent of such stock by any corporation.

11. To grant, subject to the approval of the Board of Estimate and Apportionment, franchises for rapid transit railroads, whether subways, tunnels, elevated roads or continuations of trunk lines, such as the recent Pennsylvania Railroad extensions.

12. Subject to the approval of the same board, to lay out municipal rapid transit routes, prepare plans, obtain contractors, supervise construction, and secure operators for such routes, or under certain conditions to operate them directly.

All freight and passenger tariffs, including joint tariffs and the names of participating carriers, and all contracts or arrangements relating to transportation, must be filed with the Commission. The Commission has also required the rate schedules of all gas and electric companies to be filed.

### *Utilities Controlled*

The jurisdiction of the Commission for the First District—that is over Greater New York—extends to all railroads and street

railroads lying wholly within the city, to such portion of railroads extending from one district to the other as lies within the First District, to all street railroads any portion of whose lines are within the city, to all common carriers so far as concerns operations exclusively within the city, to all gas and electric plants and to all the corporations or persons owning, leasing, operating or controlling these agencies.

The public utilities in Greater New York are gigantic. They serve not merely the 4,767,000 persons who live in the metropolis, but the many thousands from New Jersey, Connecticut and the North who come to the city daily. The gas companies supply more than one-fifth of the entire volume of gas produced in the United States, and the electric companies produce about one-thirteenth of the electricity produced in the United States for light and power. The transportation lines carry upwards of twice as many passengers as the steam railroads of the whole United States. One-third of this enormous traffic is carried during two hours in the morning and two hours in the evening, resulting in congestion and crowding which beggars description. Upon the average, each day of 1909-10 saw 340,000 passengers apply for transportation over and above the number carried upon the corresponding day the preceding year.

One would naturally infer that such a field would be the richest in the world. It is somewhat staggering to learn, therefore, that practically all of the surface lines in the very heart of this fertile field have been in the hands of receivers for about three years. When the Commission took office, all the lines in the boroughs of Manhattan and the Bronx were being operated by one company, the New York City Railway Company. The system was in a woeful state of disrepair, the result, in part at least, of decades of "high finance." Leases, bond and stock issues, and dividend guaranties had been piled on each other in a bewildering fashion. Dummy companies had been saddled with the responsibility of operating great systems. Funds which should have been used for maintenance were used to pay exorbitant rentals and dividends on fictitious capitalization. The system was tottering to inevitable bankruptcy, for it could no more continue than a pyramid can stand upon its apex. The real facts were

at first not generally known, but after the Commission turned on the light, the entire system went into the hands of receivers.

There are those who blame the Commission for this collapse and the subsequent decrease in stock exchange prices. But the Commission was no more responsible for the conditions it found than the doctor who examines a patient, reports the existence of a virulent disease and proceeds to prevent the repetition of an epidemic. The investigation paved the way for the rehabilitation of the system, which has been begun but not yet completed.

### *Improvement of Equipment*

Among the first orders adopted by the Commission was one requiring the companies in Manhattan and the Bronx to overhaul and repair all of their cars, and to make them clean, safe and efficient. The Commission has found that in Manhattan about twenty per cent of the cars were run into the barn for minor defects every day. Of the cars inspected one-fourth had flat wheels, one-half needed painting in whole or in part; one-half "rattled;" two-thirds had "gear noises;" one out of every six was operated without headlights, and one in every sixteen was "filthy." In many cases the companies had neglected so small an expenditure for public convenience as suitable signs showing the routes over which cars were operated and their destination. In compliance with the Commission's order, the rolling stock was put in first-class operating condition, resulting in greater comfort to the public, fewer breakdowns and greater economy in operation.

The conditions were not so bad in other boroughs, but from time to time other companies have been required by order or informal request to overhaul their cars, to improve the ventilation of certain types of cars, to maintain the proper temperature in cars, to install guard rails to prevent passengers entering or alighting on the wrong side, to put vestibules on cars for the protection of employees, to maintain shelters for waiting passengers at connecting points, to lay new or heavier rails, to lubricate curves and remove corrugations from the surface of rails in order to prevent noise and vibration, to double track certain of their lines, to lay or repair pavements between tracks, and to remove snow and ice from tracks and adjacent pavements.

*Safety Devices*

The investigation of the Commission developed the fact that practically all of the surface lines were being operated without adequate devices for saving life. During the year 1906-07, the companies incurred expenditures for injuries, damages and legal expenses amounting to over $3,500,000 and killed scores of persons. Yet it was found that the cost of equipping all the lines with suitable wheel-guards and fenders would not exceed $300,000. Believing that nothing is more important than the saving of human life, the Commission made extensive and scientific tests of life-saving devices under conditions closely resembling the various street conditions obtaining in New York. Ninty-two different devices were submitted and 1,801 separate tests were made, which showed that there were several types of wheel-guards and fenders far superior to most of the contrivances then in use in New York, and less expensive to maintain. Representatives from many cities in the United States, Canada and Europe attended.

Upon the completion of these tests, the various street car companies were heard. Many of them opposed the introduction of new and improved devices, but after thorough consideration all companies were ordered to equip their cars anew, and the work has just been completed for the entire city. Of course full results have not yet become apparent, for the cars of several large companies have only recently been equipped, but from the moment of introduction, the new devices reduced the number of fatal and serious accidents and decreased the amount paid for injuries, damages and claims. The annual number of persons killed on the surface lines in New York was reduced from 248 in 1908 to 161 in 1909, and the number during the first six months of 1910 has been 74, a reduction of 35 per cent last year and a further reduction of 8 per cent for the first half of this year. Many cases have been reported of persons picked up by these improved fenders and wheel-guards with little or no injury, under circumstances which would have meant certain death or serious injury under the old system of operation. One of the companies, the Union Railway Company, in violation of the orders of the Commission, operated a few cars without a proper wheel-guard and killed a man. His life doubtless would have been saved if the orders had been obeyed, yet

the judge dismissed the suit brought against the company on behalf of the people of the state on technical grounds.

All accidents occurring on any transportation line in Greater New York must be reported to the Commission. Immediate notice must be given by telephone to the office of the Commission, which is open between the hours of 8 a. m. and 11 p. m. to receive notices and complaints of any nature. The Commission investigates the causes of accidents and issues orders to prevent their recurrence.

Steam railroads have been required, whenever two or more employees are working on the tracks to station a man to warn them of the approach of trains; and through the Commission's recommendation there has been increased activity by railway and city officials in keeping trespassers off railroad tracks. An investigation and a suggestion to the operating company have caused a large amount of inflammable material to be removed from the subway. A system of locomotive boiler inspection is maintained, extending to all locomotives over which the Commission has jurisdiction. The plans and specifications of new cars are examined. An investigation of brakes on the elevated cars of the Brooklyn Rapid Transit Company resulted in the voluntary equipment by the company of all of its cars with an improved type of air brake. The Long Island Railroad Company has been ordered to equip its local trains with platform trapdoors and gates, or vestibule doors, and to keep them closed between stations. In addition, this company has been ordered to man its electric trains so as to have an employee at each car opening during station stops, and to raise certain station platforms to the level of car platforms.

Particular attention has been given to the dangers of grade crossings. In scores of cases the Commission has required more adequate planking of crossings, the installing of gates, maintaining of flagmen, erection of warning signs, operation of signal bells, placing of additional lights, or the building of overhead foot bridges. The New York Central has been required to station more flagmen at its dangerous Eleventh Avenue crossings and cease the operation of trains during certain hours. An investigation is now being made of about two hundred grade crossings in Brooklyn, Queens and Richmond.

*Improvements in Surface Transportation*

The transportation problem is more acute in New York than in any other city in the world. More passengers are carried per 100,000 of population and during a shorter period of time. As already indicated, there are two directions in which the Commission may improve conditions: (*a*) by requiring the existing companies to improve their service, and (*b*) by the construction of rapid transit lines either with city money or by private companies under the direction of the Commission. Both methods have been effectively utilized, and many orders have been issued directing various improvements. At certain hours in the day, it is physically impossible to operate a sufficient number of cars to give every one a seat, or even to prevent indecent crowding. But the general standard set by the Commission has been that during rush hours all lines shall be operated to their maximum capacity, and that at other times a sufficient number of cars shall be run to provide seats equal to the number of passengers in every interval of fifteen, twenty or thirty minutes, as observed at a point at or near the center of maximum loading. In certain cases a stricter rule has been enforced. Thus on certain lines the Commission has required a ten-minute schedule at night, holding it unreasonable, especially in winter, to require passengers to wait longer for a car, even though fewer cars would provide seats for everyone.

The result has been a marked improvement in service, although conditions are still far from ideal, and full relief can only be secured by the construction of new lines. An investigation of conditions in Manhattan prior to and after the issuance of these orders showed that upon only one line far out had the result been a decrease in the number of cars run, that even there the new service was adequate, and that upon all others the service had improved from eleven to fifty-seven per cent. Similar comparisons in the other boroughs would show similar results. It is worthy of note in this connection that improved service has not been followed always by a decrease in net earnings. In many instances the readjustment of the service resulted in better service, and also in larger financial returns.

It would hardly be possible to enumerate in detail the many improvements in service that have been ordered. A few may be cited to show their general character. At certain connecting points

companies have been required either to erect shelters or to keep a stationary car for the accommodation of waiting passengers. The ventilation, heating and lighting of stations and cars have been the subject of numerous orders; and in 1908 a general order was made, applying to all transportation lines in the city and prescribing the limits of temperature to be maintained in the cars. The giving and acceptance of transfers has often been required by the Commission in cases in which such action might legally be taken. Additional tracks have been ordered to facilitate the operation of cars. In scores of cases cars have been ordered run further toward the end of the line, for they were often improperly turned back, passengers being ordered to take "car ahead" or "next car," with much crowding and delay as the result.

### *Service on Rapid Transit Lines*

The subway service has also been improved in many ways. A new signal system has been installed, upon the initiation of the Commission, to facilitate the operation of more trains by reducing the headway. The cars are being equipped with center side-doors to enable persons to enter and leave the cars with greater comfort and speed. The station platforms are being lengthened to permit ten-car trains to be operated instead of eight as at present. When all the changes are completed, which have been ordered by the Commission, it is expected that the carrying capacity of the subway will be increased from twenty to forty per cent. Already the headway between trains during rush hours has been reduced sixteen seconds, and during non-rush hours from three minutes to two and one-half minutes—equivalent to an increase in service of from thirteen to twenty per cent. A further reduction of eighteen seconds is expected when all the improvements have been completed.

Many minor improvements have also been made, such as additional stations, stairways, elevators, escalators, guard rails, station signs and car destination signs. The ten-candle-power lights furnished in the cars have been ordered replaced with sixteen-candle-power lights for the benefit of subway readers. Other improvements are under consideration.

Service has been improved on the elevated railroads in much the same manner as on the surface and subway lines. More cars

are being operated in longer trains. Through service has been substituted for stub-end operation. One company has installed an improved type of air brake on its cars. New stations have been erected and conveniences added at existing stations, such as additional platform space, better station signs, better coverings for stations, increased number of stairways, the widening of stairways, the installation of escalators, etc. The third tracking of certain lines, making possible better express service and extensions, are now being considered.

The steam railroads, particularly on Staten Island and Long Island, have been ordered to improve their service, to run their trains more regularly and to adjust their schedules to the schedules of other transportation lines at connecting points. For example, the Commission found it necessary to order that trains be scheduled to connect with the municipal ferry boats running between St. George and Manhattan, that stations and platforms should be properly lighted at numerous places, and that unnecessary noises and smoke nuisances from engines and shops be suppressed.

The vast majority of matters are handled without formal hearings and orders. If it can be adjusted by letter, telephone or personal consultation the case is closed. Thus in the three years ending July 1, 1910, the transportation bureau made about 3,000 service investigations, about one-fourth of which were based on complaints. The Commission issued nearly 150 orders as a result of investigations relating to service and general improvements. During 1908 transportation service in the city was increased by about 850,000 seat-miles, and in 1909 by more than 1,800,000 seat-miles, as was shown by observations made both before and after suggestions or orders for the improvement of service.

### *Matters Relating to Gas and Electricity*

The activities of the Commission in the regulation of gas and electric service originate chiefly from complaints from consumers, and probably in no other field has the action of the Commission been more immediately and visibly helpful to the millions of people in Greater New York. The complaints have reference to inaccuracy of meters, poor quality or inadequate supply of gas or electricity, objectionable forms of contracts presented by the companies, dis-

criminations in charges, failure to compute charges according to the proper rule under the contract, failure to make connections with premises, failure to supply "breakdown service," improper discontinuance of supply, the requiring of unreasonable deposits by consumers, failure to extend gas mains or electric lines, too small service pipes or street mains, and many other matters of a similar nature.

Every gas meter is now tested before being put into use. Under the practice established by the former State Inspector of Gas Meters, meters had been stamped and approved without being tested, only a few samples from a lot of new meters being actually tested. Also the brass tag, indicating approval, was so attached that the meter might be changed, repaired, or completely overhauled without disturbing the evidence of approval; and a wrong method had been employed for computing the percentage of inaccuracy. All of these defects have been remedied and the work is now efficiently performed.

From July 1, 1907, to July 1, 1910, the Commission's inspectors tested and sealed 991,924 gas meters, more than three-fourths of all the gas meters in use in the City of New York. Of the remainder (less than 300,000) none have been in use untested more than seven years, for the Commission has ordered the removal of all meters that had been in use seven years or longer. Of course, the greater part of these tests were of new or removed meters which had to be tested before installation, but 15,563 were tested upon complaint of inaccuracy from consumers. In 1908, 7,346 were tested on complaint; in 1909, 4,068; the falling off being probably due largely to the increased general accuracy of meters caused by the large number of previous tests, the removal of all meters more than seven years old, the eighty-cent gas case decision giving the first actual reduction to many consumers, and the practice recently adopted by certain companies of making meter tests upon request of consumers without the necessity of application to the Commission. The Commission also tests electric meters on complaint.

The general attitude of consumers toward the gas and electric companies seems to have improved, a result doubtless due in large measure to the increased interest taken by the companies in complaints since the Commission began its investigations.

Aside from complaints with reference to meter tests, the Commission handled, through its bureau of gas and electricity, 961 complaints in the three years ending June 30, 1910. Each complaint is first taken up with the company affected, by telephone or by letter; and if necessary an inspector of the Commission is sent to investigate the facts. If, after correspondence on the subject, the matter is not adjusted to the satisfaction of the parties, an informal hearing is held before a Commissioner. His recommendation practically without exception has been accepted by both parties. The adjustment of these miscellaneous disputes goes far toward preventing similar disputes in the future; for when it appears that the methods of the company are at fault, it is advised to reform its practices.

Early in 1908, a general investigation was undertaken of all electric companies. One important matter taken up was the refusal of certain electric companies to give "breakdown" or auxiliary service to consumers having their own electric plants. One company had for two years refused to contract for this service, and the few old contracts still in force were expensive to consumers. The Commission considered this class of service reasonable and necessary, and finally a voluntary adjustment was made by which the company undertook to render the service at a cost much lower than that formerly charged, but, of course, somewhat in excess of the rates for regular consumers.

The Commission found the retail lighting contracts in use by the electric companies complicated and in many respects burdensome upon consumers. At its suggestion a much simpler form has been put in use, which can be terminated by the consumer on three days' notice instead of binding him for a year, as was often the case formerly. Five out of nine companies have also left out the provision for a guaranteed minimum payment per month.

The wholesale electric contracts were also complicated, various in form and in many cases apparently discriminatory or unfair, through the existence of riders or special contracts not known to all consumers. The Commission issued an order requiring all schedules of electric rates and forms of contracts to be filed with the Commission and posted for public inspection, and making illegal all discriminations, rebates and special rates. In many other respects, the practices of the companies have been remodeled to the benefit of the companies as well as the public.

The Commission found a great variety of electric meters in use, some of which were not satisfactory. After an investigation and report by an expert specially employed for the purpose, the Commission adopted an order prescribing certain specifications for all electric meters thereafter to be installed within the district. At the same time an order was adopted certifying certain types of meters as conforming to the specifications adopted. These were particular types of meters made by the various manufacturing companies; and additions have been made to the list of approved types of meters by amendatory orders from time to time. In October, 1909, the Commission adopted an order prescribing rules and regulations to be observed by the companies in testing their electric meters for accuracy and in making monthly reports of all such tests to the Commission. It is to be noted that the statute does not require, and the Commission has not yet required, that no electric meter should be put in use without being tested by the Commission's inspectors, but merely that no meter shall be installed whose type has not been approved by the Commission.

### *Gas and Electric Rates*

Just prior to the creation of the Public Service Commission, the rates for gas and electricity had been scrutinized by a legislative commission and a state board. As a result, the legal maximum for nearly all of Greater New York had been fixed at eighty cents per thousand cubic feet of gas and ten or twelve cents per kilowatt hour of electricity. The electric companies accepted the reduction without litigation, and so did certain of the gas companies, but the Consolidated Gas Company and its subsidiaries resisted the law, and when the Commission took office, an injunction suit was being tried in the federal court. The Commission actively defended the legality of the rate, carrying the case to the United States Supreme Court. A final decision was obtained in January, 1909, upholding the statute, and the consumers of gas were refunded their overpayments.

These reductions naturally made extensive rate investigations unnecessary, and only recently have any applications been made to the Commission for the reduction of gas or electric rates. Three cases have recently been begun—two relating to gas and electric rates in the Fifth Ward of Queens, where reduction had not been

made by the statute above referred to; and the other relating to the price of gas in a section of Brooklyn where the rate is higher than elsewhere.

Many minor matters affecting rates have been adjusted in a manner which practically amounts to a lowering of charges. The required re-establishment of "breakdown service" by the Manhattan electric companies has resulted in a reduction of expense to many office, shop, theatre and apartment buildings. Minimum charges and guarantees have been dropped by several companies. Fees for service connections have been held to be improper. Refunding on fast electric meters has been standardized. Gas meters must now be tested more frequently. Numerous complaints about overcharges have been adjusted by informal action.

### *Street Car Fares and Transfers*

The number of formal complaints against the rates of common carriers has been much larger; and until a few months ago, the Commission could not institute a rate case on its own motion. The question of the proper fare to be charged to Coney Island—the great seaside pleasure resort—has been the one to attract most attention. In 1907, the legislature passed a bill reducing fares to Coney Island from ten cents to five cents. Governor Hughes vetoed this bill on the ground that the matter was one which ought to be investigated by the Public Service Commission before action was taken. Soon after two residents of Brooklyn filed complaints with the Commission alleging that the fare of ten cents charged by the Brooklyn Rapid Transit Company was excessive and unreasonable. The Commission caused an appraisal to be made of the property of the various lines; and after investigation and extended hearings, a decision was reached dismissing the complaints.

The same citizens who presented complaints against the Brooklyn Rapid Transit lines also complained of the rate charged by the Coney Island and Brooklyn Railroad Company, which operated surface lines by six different routes from various points in Manhattan, Brooklyn and Queens to Coney Island. At that time this company charged ten cents on Saturdays, Sundays and holidays, and five cents on other days. The complaints alleged that a ten-cent rate was unreasonable and that the fare should be uniformly five

cents. While investigation of the case was in progress, the company raised its rate to ten cents at all times. The Commission dismissed the complaints, finding that a fare of five cents on all days would not be sufficiently remunerative. One of the complainants promptly instituted proceedings against the new rate of ten cents, urging the restoration of the old rate of five cents on days other than Saturdays, Sundays and holidays. The case is now pending.

The surface lines in Manhattan and the Bronx had been charging five cents for transportation in each borough with a system of transfers that enabled a passenger to ride from any point in either borough to nearly any other point in the same borough for a single fare. This was one of the benefits of consolidation of the lines. In 1907 and 1908, with the approval of a judge of the federal court, this system was broken up into several separate and distinct systems, receivers being appointed for each. Transfers at junction points were abolished between the separate systems, and the routing of cars was greatly altered. Thus it came about that thousands of persons suddenly found it necessary to change cars frequently and pay ten or fifteen cents when for years they had been paying five cents for a through ride.

The Commission began proceedings to determine what action should be taken and took up the most pressing case first. It soon became obvious that the proper remedy was to compel the re-establishment of through routes and joint fares with a proper division of the fare between the company giving a transfer and the company accepting it. The Metropolitan lines and the Fifty-ninth Street line were ordered to exchange transfers, the former being allowed three and three-fourths cents and the Fifty-ninth Street line one and one-fourth cents out of every five-cent fare. The receivers took the case into court on the ground that the Commission had not been given power to order transfers and to divide the fare. To remove all doubt upon this point, the legislature last spring amended the law and specifically conferred the power to compel the establishment of joint fares by transfer from one street car line to another. An order was subsequently issued by the Commission requiring the establishment of through routes and transfers between the lines of the Metropolitan system and the Fifty-ninth Street line. At the time of this writing the date for compliance with the order had not been

reached. But the Commission now has power to deal with the question, and the whole subject will need to be carefully studied and rearranged. The present condition is unfair to the public, and perhaps the old was so greatly abused as not to be fair to the companies.

Several other cases have been decided. In one, the Commission required two companies to exchange transfers at certain points in Staten Island as apparently required by law. The company brought suit to prevent the enforcement of the order, the lower court upheld the order, and an appeal has been taken. In another, the complaint was dismissed because the receipts did not pay operating expenses. In other cases, reductions were secured while the complaint was pending. A company was ordered to cease the collection of excess fares between two points and excess fares on other lines were discontinued voluntarily.

### *Approval of Securities*

Since the Commission came into being, applications have been made for the approval of securities having a par value of nearly $300,000,000. Of this amount, about $80,000,000 have been authorized. Every application is subjected to a searching investigation into the condition of the company's finances, and often an appraisal of its physical property has been made. The purposes for which the securities are to be issued are carefully scrutinized to see that no charges are made to capital that should go to operating expenses.

The order of approval states the purposes for which the money may be expended, the rate at which the securities may be issued, the period within which any discounts, commissions and expenses of the issue shall be repaid and often the method of amortization. It usually provides also for periodic reports to the Commission, the audit of the accounts by employees of the Commission and public sale to the highest bidder, unless a certain price is realized at private sale.

In certain instances, the Commission has allowed considerable leeway in the purposes of expenditure, but in such cases has required the company to submit the audited vouchers for approval before the amounts are paid out of capital. If the issue is secured by mortgage, the mortgage must also be approved according to the statute, and

care is taken that the security offered shall be as good as the company is able to give.

Among the most important applications that have been made are those relating to the reorganization of the Third Avenue Railroad Company, which has been operated by a federal receiver about three years. The first application of the bondholders' committee called for the issuance of about $64,500,000 in securities; and the second, for about $55,000,000, the corresponding securities of the old company being about $53,500,000, not including other debts to be paid. Both applications were denied, the principal reasons being, omitting legal questions and defects in evidence and procedure:

(1) The capitalization of franchises will not be allowed, directly or indirectly, except so far as permitted by statute.

(2) Overcapitalization leads to inferior service and unwarranted exactions. The people of New York have too vivid evidence upon this point to forget its importance.

(3) The mere fact of investment does not establish a perpetual value not only because a mistake in judgment may be made, but also because property may be allowed to deteriorate, because progress in the arts may make it obsolete, and because a change in economic conditions may decrease the use made of it by the public. It is a well-known fact, and was stated in evidence, that the physical property of the Third Avenue system was allowed to fall into disrepair. Certain lines are still operated by horses, certainly an obsolete method of transportation. Other lines have ceased to be of value, and their operation has practically been abandoned. To assert that because a company at one time put money into property which has become useless, wornout and obsolete, a successor company which purchases that property at foreclosure sale should be allowed to capitalize for the amount originally expended is so absurd as not to require further discussion. Investment may be evidence of the good intentions of the investor, but it is not an infallible standard of perpetual value. *The Commission believes the proposition to be sound that capitalization should have a direct relation to value.*

(4) The present value of the property, as shown by a careful appraisal, allowance being made for contractor's profit, engineering, administration, development expenses and other legitimate expenses, was several million dollars below the proposed cap-

italization. In arriving at this conclusion, the Commission adopted the principles (*a*) that the present value of property is not determined by the original cost, (*b*) that allowance must be made for appreciation and depreciation, (*c*) that its actual condition, its age, its adequacy, its fitness to the needs of the community are most important and fundamenal considerations, (*d*) that property that has ceased to exist, although originally a legitimate charge to capital, should not be capitalized in perpetuity, and (*e*) that charges for maintenance, replacements and supercessions are prior claims to dividends.

(5) The net earnings for any single year or series of years are not a proper basis for determining the capitalization of a company, particularly when the rates charged for the service rendered may be regulated by the state. An ordinary business corporation fixes its own charges; it is not subject to state regulation; but a public service corporation does not have such privilege. The fundamental factor in rate regulation is a fair return upon the value of the property. Hence, if a company issued stocks and bonds upon the basis of earnings for a given year or period, and if it were found that the rates then charged were too high and were reduced by the state, resulting in the reduction also of net earnings, the capitalization once justified by earnings would be no longer proper. This is illogical and unsound.

(6) The amount of capital represented by bonds should not be in excess of the amount upon which there is definite certainty that interest may be earned. It would obviously be unwise and useless to approve a plan which might easily mean another foreclosure and reorganization in a few years. This is the second time within ten years that the Third Avenue Company has been in the hands of a receiver. It is time that a conservative plan were adopted, and upon such sound principles that another cataclysm will not be necessary.

(7) The applicants admitted that the present earnings were not sufficient to pay interest and dividends upon the proposed issues, and the Commission found that the prospective earnings were so uncertain that approval should not be given.

The plans for the reorganization of the other systems have not yet been perfected and submitted. Nearly all of the companies

operating surface lines in Manhattan and the Bronx must be reorganized, and when this has been done upon a sound and conservative basis, the street railways will be in a position to serve the public better and offer to investors securities that represent actual property and definite prospect of continued earning power.

In another case, during the course of the investigation by the accountants of the Commission, it was found that items amounting to nearly $1,500,000 had been improperly charged. The accounts were corrected before approval was given. The company, having a limited loan of certain property, was required to set aside annually a sinking fund to pay off the bonds within the period of the loan.

The position of the Commission upon certain other matters is shown by the decision in the application of the Long Acre Electric Company for permission to issue $50,000,000 in bonds and $10,000,000 in non-voting stock, the proceeds to be used to establish a competing electric plant in Manhattan. The Commission refused the application because:

(1) The company's title to the franchise was clouded, and the expenditure of such sums under uncertainty would be unwise.

(2) The amount of bonds of the new issue was very much too large as compared with the amount of voting stock.

(3) The construction contract did not adequately protect the interests of the company or of the public.

(4) The applicant did not prove that the existing companies were not properly conserving the public interest and convenience, and that it would be to the advantage of the community to have a new company authorized to enter the field.

(5) If a competing company were allowed to begin operation, it did not seem likely that it would continue to operate independently for any considerable period.

(6) Competition would cause inconvenience and expense to the public, would cause duplication of plant, would lead to waste, and ultimately be urged as a reason why rates should not be reduced to consumers.

(7) Practically all of the advantages claimed by the applicant as the probable results of competition can be secured through the powers of this Commission, and until it has been demonstrated that these are ineffective, it would be unwise to adopt a method which has proved to be ineffective in the past.

*Uniform Accounting*

The establishment of uniform and scientific accounting by public service corporations has long been recognized as necessary to the solution of public service problems. The former Board of Railroad Commissioners was unable to secure complete and accurate reports from companies because it lacked the power to prescribe a system of accounts and records. The Commission has the power and established some time ago complete accounting systems for railroad companies, street railroad companies, gas companies and electric companies. From these prescribed accounts the companies make up their reports to be filed with the Commission, which now show practically everything which the books themselves would show. The reports are carefully scrutinized before being made public.

The Commission has also standardized the traffic records kept by transportation companies, and the reports of the companies of their traffic operations have become of great assistance in regulating service. Certain companies formerly kept no adequate records; great diversity also existed. The Commission has introduced a new traffic account unit—the car-seat-mile—obtained by multiplying the number of miles traveled by the number of seats in the car. It is more exact and allows comparisons to be made that are of greater value than formerly compiled.

Within the limits of a brief paper, it is impossible to describe the excellent work that has been done by the various departments, such as the bureau of accounts and statistics, the bureau of franchises and the legal department. The compilation, analysis and publication of the financial and operating statistics of the public service corporations in the First District have proved of great benefit to companies, investors, officials and the public. The franchises of the various corporations have been classified, arranged, indexed and charted for the first time in the history of the state or city. When it is remembered that there have been incorporated about seven hundred railroads and street railroad companies whose proposed routes lie wholly or partly within the First District, and more than three hundred gas and electric companies, and that the local franchise rights have been derived from no less than forty different municipal corporations and political sub-divisions now consolidated in the

Greater City, one gets a glimpse of the time and effort required. This work has been of special value to the Commission in various cases, and particularly in connection with its decisions upon franchises submitted for approval, and in its efforts to have unused tracks removed from the surface of the streets and unused franchises surrendered. Suits for the annulment of franchises are now pending.

### *Rapid Transit*

The rapid transit construction work of the Commission, while not so varied as the functions of regulation, consumes about two-thirds of the annual appropriation, not including the cost of construction itself. When the Commission came into office, it found the "Interborough" subway approaching completion and contracts just let for the "Loop" connecting the Williamsburgh and Manhattan Bridges with City Hall Park. A study of the plans showed that important changes should be made, such as a reduction in grades, the provision of greater headroom to allow the operation of surface or suburban cars, and an increase of about twenty per cent in the line's capacity. These were made and the line is awaiting the completion of the terminal by the Department of Bridges. The construction cost of this Loop line will be about $10,000,000.

The Rapid Transit Commission had prepared plans for an important subway in Brooklyn, the so-called Fourth Avenue route, to extend from the Manhattan terminal of the Manhattan Bridge, across the bridge, through streets to Fortieth Street, and thence by means of two separate branches to Fort Hamilton and Coney Island. The Commission reviewed the plans, made certain improvements similar to those made on the Loop lines, and in May, 1908, submitted contracts to the Board of Estimate and Apportionment for final approval, covering the route as far as Forty-third Street. Action on the matter was delayed for more than a year, but finally, in the fall of 1909, the Board of Estimate and Apportionment approved the contracts. The work is now under way and will be completed, it is expected, next fall. The cost will be about $16,000,000.

The nearness to the constitutional debt limit (ten per cent of the assessed value of real estate) has prevented the construction of

other subways. Appreciating the necessity of an amendment to the constitution, the Commission repeatedly urged and finally secured an amendment by which city bonds devoted to self-sustaining enterprises, such as docks and subways, should not be included in the ten per cent to which the city's debt is limited. The amendment was passed by the legislature in 1908, approved by the succeeding legislature in 1909, and ratified by the people at the fall election in 1909.

In the meantime, the Commission was at work preparing a comprehensive scheme for rapid transit development, and contracts and plans for the most important lines. It decided to build a through route between Manhattan and the Bronx, to complete the Loop lines in Manhattan and Brooklyn, and to extend the Fourth Avenue line to Fort Hamilton and Coney Island. This big route, known as the Triborough system, will cost when completed about $125,000,000. A considerable portion is now under construction, and bids are to be opened this month (October) for most of the remaining portions.

Negotiations have been conducted for some time, but have not been completed, relating to extensions of the Interborough system down Seventh Avenue, up Madison Avenue, in the Bronx and in Brooklyn. The company has also submitted propositions for adding express tracks to their elevated lines for constructing extensions and for the operation of the Steinway tunnel, which has been idle for several years. If all the plans now under consideration could be carried out under conditions that would protect the interests of the public, congestion of population would be relieved, transit conditions would be greatly improved, new areas would be opened for development and the city would have made up for the many years when nothing was done. Yet transit facilities would even then not be in excess of the demands. The city is growing at a rapid pace, and the problem is not only how to provide for transportation already necessary, but how to prevent the recurrence of indecent conditions and how to meet the demands of the immediate future. Rapid transit lines cannot be built in a day, and no line has yet been operated in advance of the needs of the community. In 1909-10, the local transportation lines carried over 130,000,000 more passengers than they carried in 1908-9. In three years this growth would exceed the capacity of the present subway, which seems to support the assertion made by some that a rapid transit line should be built every three to five years for some time to come.

# SUPERVISING ENGINEERS AND STREET RAILWAY SERVICE:

## The Value of a Board of Supervising Engineers in Securing Efficient Street Railway Service

By George Weston,
Representing the City of Chicago and Assistant Chief Engineer, Board of Supervising Engineers, Chicago Traction.

Supervision of the affairs of public utility companies in the interests of the general public has become necessary in order to insure correct financing, proper maintenance of physical property, and adequate service at reasonable rates.

Supervision of public utility companies, in general, has been provided for in several of our States; in some instances by increasing the powers of the state railroad and warehouse commissions, as, for instance, in Massachusetts and Wisconsin, or by creating public service commissions, as was done in the State of New York.

The United States Government has taken up the supervision of steam railroads through the Interstate Commerce Commission, and also is conducting investigations into various public service corporations and combinations of corporate interests to ascertain if their operation is strictly within the law.

The functions of railroad and warehouse commissions, public service commissions and the Interstate Commerce Commission are general in their scope. The services rendered by the national and state commissions to the communities over which they exercise jurisdiction have been of notable value. Public carriers and public utility corporations of all classes have felt the chastening influence of those bodies, and have been led to correct abuses which have developed. The work of the state commissions in the regulation of street railways has been extensive and of the highest order of efficiency. The careful and far-sighted control exercised, for example, by the Massachusetts commission over the capitalization of public service corporations under its jurisdiction, and the progressive and enlightened administration of the Wisconsin and New York commissions have brought credit upon these bodies and satisfaction to the public at large.

The growth in the size of our large cities and in the complexity of transportation problems resulting therefrom has brought upon the state commissions an enormous amount of work of a highly specialized character, requiring the devotion of a large amount of time and the possession of special knowledge and skill.

The result has been that in many States, possessing large cities, the state commissions have found their time largely monopolized in considering the transportation difficulties of a relatively small portion of the area under their jurisdiction. The enormous amount of detail work which is involved in the investigation of traffic conditions, the settlement of fare and franchise controversies, and in the many other questions surrounding city railways, has resulted in delay in settling cases arising in other portions of the State. The feeling, therefore, has grown up that the state commission should either be augmented or relieved from handling the transportation problems of our large cities.

The methods used in administering the affairs of street railways in large cities are various. New York, for example, has created two commissions with coincident powers, one exercising exclusive jurisdiction over Greater New York City, and the other controlling the balance of the State. This plan has worked admirably. The objection which was raised at the time the law was in a formative stage, that there would be a clash between the two commissions, has not, so far, materialized.

The State of Illinois for many years has been engaged in the regulation of corporations conducting "business affected with a public interest." For many years the State Railroad and Warehouse Commission possessed broad powers and exercised an extensive influence over quasi-public corporations. The work of the commission, however, has been largely centered upon disputes concerning facilities and charges. The commission possesses no power over the capitalization of corporations, and has never engaged extensively in the work of what might be termed "constructive regulation," such as, for example, the analytical criticism of the transportation service, with suggestions for its betterment.

As a result of the prolonged controversy between the city of Chicago and its street railways, and the litigation arising therefrom, an important step in the development of an efficient system of public regulation of this type of common carrier has been made. "The

Board of Supervising Engineers, Chicago Traction," was created by the ordinances of the City Council of Chicago, granting to the Chicago City Railway Company and the Chicago Railways Company, which own and operate street railway lines within the corporate limits of the city, the municipal rights under which they now operate. These ordinances were passed on February 11, 1907, and in addition to conferring the franchise rights upon these companies, create and define the powers of the Board of Supervising Engineers.

The Board of Supervising Engineers is the outgrowth of a long and illuminating struggle between the city of Chicago and its street railway companies for the establishment of a practical relationship. The readers of THE ANNALS are already familiar with the history of this controversy, through the articles by Dr. Willard E. Hotchkiss, of Northwestern University, upon "Chicago Traction: A Study in Political Evolution," and "Recent Phases of Chicago's Transportation Problem," appearing in the November, 1906, and the May, 1908, issues of THE ANNALS, respectively. It will, therefore, only be necessary for me to review briefly those circumstances which are responsible for the creation of the Board of Supervising Engineers, Chicago Traction.

Street railways in Chicago were originally constructed under various ordinances passed by the city in or about 1858. Under these ordinances the companies were given the right to operate horse railways in certain specified streets for a period of twenty-five years, and thereafter until the city of Chicago should purchase the tangible value of the company at its appraised valuation. The ordinances provided that the city could exercise the right to purchase after six months' notice, and by a series of court decisions, rendered at later dates, it was held that this right was assignable to any third party which the city might select. Numerous subsequent laws and ordinances were passed, designed to extend the franchise privileges of the street railways in Chicago. Under these ordinances, and particularly those passed in 1865, the street railway companies later set up the claim that their franchises were inviolable for a period of ninety-nine years from the date of the original grant. Ugly charges of improper influences exerted upon the City Councils and state legislature were publicly made, and, as a result, the relations between the municipality and the companies became extremely bitter. In spite of the friction, however, which was always more or less evident,

the city continued to grant from time to time the right to build extensions to the various companies occupying its streets, usually providing, however, that the rights to these extensions should terminate in twenty years from the date of the passage of the ordinance.

The expiration of the tweny-five-year period in 1883 found neither the companies nor the city ready to test their relative rights, and after considerable negotiation it was decided to extend the grants for a period of twenty years, without prejudice to the rights of either party. When the extension expired, in 1903, the majority of the people of Chicago had come to believe that a radical revision in the relations of the companies and the city should be made. The request of the companies for a further extension upon the terms heretofore prevailing was refused, and it was evident that no compromise was possible. A legal battle, notable for its importance and stubbornness, was begun. The franchise rights of the companies were first reviewed by the state courts, which held that the Act of 1865 extended the franchise of the corporation for ninety-nine years. The case was appealed to the Supreme Court of the United States, where the claims of the companies were substantially demolished. (Blair *vs.* Chicago, 201 U. S. 400.)

During the litigation the existing status had been preserved by ordinances reserving all of the city's right, but granting to the companies a license to operate until such time as the dispute might be finally settled.

While the legal battle was progressing, the city had not been idle. Confident in ultimate success, the advocates of public participation in street railway matters had secured the passage of a statute by the legislature of Illinois, in 1903, authorizing municipalities to construct or acquire street railways, and to provide funds therefor by the issue of special certificates, secured solely by the properties and revenues of the street railways themselves. The proposition to take advantage of this statute was ratified by a popular vote in the city of Chicago by an overwhelming majority. An ordinance was passed, authorizing the issue of $75,000,000 of special certificates for the purpose of acquiring all of the street railway lines in the city, including those in litigation. The validity of the ordinance was upheld by the lower courts, but the value of the statute was practically destroyed by the Supreme Court of Illinois, which

decided that the certificates would constitute a debt of the city, and could not be issued, because the city had already reached its constitutional debt limit.[1]

This defeat, however, did not give to the street railway interests more than a brief respite. The strong public sentiment, as shown at the election authorizing the issue of special certificates, made it likely that a constitutional amendment could in time be forced to adoption which would raise the debt limit or exclude this class of security from the computation. There could be no dispute, moreover, of the right of the city to assign to any successor company the privilege, reserved under the Act of 1858, of purchasing the street railway properties at their appraised value.

When the Supreme Court of the United States upheld the Act of 1858, the companies, therefore, found themselves in an exceedingly weak position, which necessitated that they deal fairly and generously with the city.

The nature of the situation which presented itself has been admirably analyzed by Walter L. Fisher, special traction counsel, in his brief in the so-called "Venner Case," before the Supreme Court of Illinois, as follows:

> It must be apparent that there was but one basis possible for an adjustment between the companies and the city. The city already had the right to terminate all of the unexpired grants of the companies, except those under the comparatively few unexpired ordinances passed after 1887. It could clearly take possession of all the streets upon which the franchises had then expired, and could turn over its right to purchase the physical property on all the remaining important streets to any corporation formed for this purpose, with which satisfactory arrangements could be made. This corporation could thus acquire, by purchase, or by construction, the entire principal parts of the railway systems, leaving the few unexpired term grants to be turned over to it upon the best terms that the old companies could obtain or to be acquired by it as they expired thereafter from time to time. This new company could hold and operate the property upon such terms as might be agreed upon between it and the city, and subject to the right of the city to take it over whenever it desired to do so, and had established its legal authority and its financial ability to undertake the enterprise.
>
> If the city chose to wait until it had first established its legal and financial ability to undertake municipalization without resorting to the agency of an intermediate corporation, it could, of course, have followed this policy and have permitted the railway companies to continue to operate, at the sufferance of the city. This policy, however, was involved in serious public dis-

[1] Lobdell *vs.* Chicago, 227, Illinois, 218.

advantage. During the prolonged and bitter controversy between the city and the companies, the street railway equipment and service had deteriorated, and comprehensive reconstruction, re-equipment and extension were imperatively necessary. The right of the city to purchase was a right which could be exercised at any time, on six months' notice, by paying the appraised value of the property then constituting the street railways to be acquired.

The power of the city to exact compensation from the companies for the use of its streets had been established by decisions of the Supreme Court of the State. The companies had accepted ordinances exacting large payments of money to the city as compensation. This money had been used by the city for street lighting and constructing viaducts and subways. In any new grant to an intermediate corporation, or in any extension or continuation of the rights of the existing companies, the city proposed to insist upon this right to substantial compensation, so that it might thus acquire funds to be used for the ultimate purpose of acquiring the properties, for constructing central subways for street railway use, or for the care and maintenance of the streets, or any appropriate purpose.

There were three forms in which the payment to the city might be fixed —an annual fixed sum, a percentage of the gross receipts, or a portion of the net receipts. The fairness and superiority of the third plan was apparent, and has long been generally conceded by those who have studied the public utility problem. The difficulty in its adoption, however, has been the refusal of public utility corporations to consent to that degree of supervision of their receipts and expenditures that is absolutely necessary to furnish an adequate guarantee to the public that its interests will be protected under such an arrangement. A plan of measuring the city's compensation by a percentage of the net receipts would obviously not be fair to the companies, unless they were given reasonable assurances that their principal investment would be fairly estimated and adequately protected.

The right of the city to insist at all times that the companies shall furnish adequate street railway facilities had always been recognized, in theory at least, by the company; and the right to make reasonable regulations by ordinances for this purpose had been conclusively established in the courts. In practical operation, however, this power of regulation had been found unsatisfactory and inadequate. Many disputes had arisen from time to time, as to the reasonableness and as to the wisdom of municipal legislation and requirements of this character. It was recognized that the city could not, if it would, part with its power of future legislation by any contract ordinance; *but it was felt that the establishment of a competent Board of Engineers to supervise the rehabilitation of the properties and give their expert judgment upon such differences of opinion as might appropriately be referred to them, would result to the mutual advantage of the company and the city.*

The general principles just discussed were embodied in the ordinances of February 11, 1907. They do not change in any particular any of the fundamental provisions of the company's charter. Neither the character nor the objects of the corporation had been changed in any respect. Before

the ordinance was passed the city had the power to purchase the street railway properties upon a portion of the streets occupied by the companies, or to turn over that right of purchase to another corporation. The value to be paid was merely the value of the physical property at the date of the appraisement. Under the ordinances of February 11, 1907, this right of purchase remains substantially unchanged and the obligation unimpaired. The only change in this respect has been that the value of the properties on June 30, 1906, was fixed by an appraisal then made by three eminently qualified appraisers, in whom both the city and the company had entire confidence.

To this valuation is to be added the actual money expended by the companies hereafter for additions to the property and for such renewals as are properly chargeable to capital account, together with an allowance of ten per cent. as a construction profit, and five per cent. for brokerage upon all such expenditures. The total price thus fixed to be paid in the event of future purchase, must, in the very nature of the case, exceed the value which would, at any future time, be placed by appraisal upon the then existing physical property of the companies. To meet this excess, and to assure the future maintenance and renewals of the system, the ordinance provides for the establishment and maintenance of special reserve funds of six and eight per cent., respectively, to be used, so far as may be, to cover maintenance, repairs, renewals and depreciation. That the companies may have no incentive to fall short of their obligations in this respect, it is provided that any unexpended balance of these funds shall never be returned to the companies, but shall pass to the city or its licensee in the event of future purchase. This provision is not only justifiable on the ground of wise and fair protection of the public interests, but may be considered as a part of the compensation which the city is entitled to exact as a condition for the continued use of the public streets. If the companies are to be protected in their legitimate capital investment, they must certainly be required to protect that investment in the interest of the city, so that at all times the properties shall be kept up to their highest efficiency by adequate expenditures for maintenance, repairs and renewals, and that there shall be an adequate reserve fund to cover depreciation.

Having adopted the theory that the city's compensation should be a percentage of the net receipts, it was necessary to fix fair provisions for determining what should be considered as the net receipts; hence the provision in the ordinances for keeping the accounts in a form to be approved by the city comptroller and for an annual audit and account; hence the provision for paying, out of the gross receipts, the operating expenses, including the expenditures for taxes, insurance, maintenance, repairs, renewals and depreciation; hence the provisions for reasonable limitation of the salaries of officers, agents and attorneys, the sale of worn-out or unnecessary property, and the payment of personal injury claims. Having taken care of all these items, the ordinances provide that the company shall be entitled to reserve an amount equivalent to five per cent. upon the capital investment as an annual interest charge. Not until all these allowances have been made is the amount to which the city is entitled ascertained. Then, and not till

then, is the city entitled to fifty-five per cent. of what are then the net receipts, the remaining forty-five per cent. going to the companies, in addition to the annual interest charge of five per cent. upon its total capital account.

In other words, once having fixed the present value of the property of the companies, and provided that the city must, before it purchases or authorizes a purchase, pay or have paid to the companies this value, together with the cost of subsequent additions, every requirement of the ordinances of February 11, 1907, will be found, upon examination, to be simply a fair and reasonable provision for protecting both the companies and the city, as to the character and cost of these additions and the maintenance and extensions of the properties. Every provision which does not relate to this subject will be found to be a fair and reasonable provision for assuring that the companies shall carry out their obligations to render the public service, which is the only justification for their existence and occupation of the public streets, and for removing or lessening the customary friction between the city and the companies in the fulfillment of their necessary and proper relations to each other.

The ordinances under which the Board of Supervising Engineers is created provided a plan of municipal regulation of a quasi-public corporation organized for individual profit, the municipality participating in the profits without assuming any responsibility, and eventually may become the owner of the property. The regulations prescribed in the ordinances are based upon fair dealing between the public and the corporations, and the production and maintenance of a property and equipment that will make possible the best of service. It is the duty of the Board of Supervising Engineers to see that certain of the provisions of the ordinances are properly carried out.

The ordinances do not confer upon the Board of Supervising Engineers the direct authority to control or regulate the service, except as to a few specific matters; but they do authorize and require the board to exercise the most detailed supervision of the physical property of the street railways upon which the service immediately depends. Good service cannot be rendered without good tracks, good cars and good equipment. Good tracks, good cars and good equipment naturally and powerfully tend to produce good service.

Nevertheless, good service may not be rendered even with the best of railway construction and equipment; and in this event the remedy must be the enactment and enforcement of public regulations under the police powers of the city (which, under these ordinances, are properly reserved), acting through the elected representatives

of the people, the city councils and the mayor. This distinction must be constantly borne in mind in locating responsibility—both credit and censure—for the existing service rendered by the street railways of Chicago.

In order to give good street railway service, the first essentials are:

(1) Good track, properly laid out and connected.

(2) Good cars and equipment in sufficient numbers to properly take care of the riding public.

(3) Commodious car stations, properly designed and equipped, together with proper facilities for inspecting and cleaning the cars daily; and located with respect to the lines operated and the headway of traffic so that the "dead car mileage" will be a minimum for the entire system.

(4) A power system that will insure a minimum first cost of production, and a distribution system that will be the most economical in supplying ample power to all parts of the system in accordance with the demands and within the limits of a predetermined minimum average drop.

The Board of Supervising Engineers, Chicago Traction, since its organization in May, 1907, in addition to having kept a close supervision over the accounts of the companies, has been principally engaged in the design and supervision of the construction of tracks, cars, car stations, sub-stations and an electrical distribution system, to properly put the railroads in condition to furnish first-class service.

The peculiar value of a board of supervising engineers in securing efficient street railway service, to my mind, depends upon two factors:

(1) That its members may consist of engineers who have specialized in street railroad work, and that their entire time and energies may be expended and concentrated on the work of the individual properties under their jurisdiction.

(2) And that the street railway companies, as well as the city, are in direct touch with the work through their representatives on the board, which insures to the city a supervision over the companies that will protect the interests of the general public, and enables the street railway companies to fully protect their individual interests as well.

The Board of Supervising Engineers, Chicago Traction, is composed of a representative from each of the companies, as indicated in the ordinances, a representative of the city, and the third engineer, the latter representing both the city and the companies as chairman of the board. The personnel of this organization, it will be seen at a glance, gives full representation to all of the parties interested.

By the organization of this board, a sort of clearing-house has been established as between the city, the companies and the general public, and at its meetings all problems that arise are discussed and determined at once, or such progress made as will lead to a better and fuller understanding between the parties.

A competent force of engineers and accountants is employed, which, under the direction of the chairman and chief engineer of the work, keeps independent check upon the expenditures of the companies in accordance with the provisions of the ordinances, and in the manner prescribed by the Board of Supervising Engineers. In addition, the engineering force makes plans and specifications, inspects materials and supervises the work of construction, thus placing the board, as an independent organization, in direct contact with the receipts and expenditures of the companies, and the extensions, betterments and renewals of the property.

In brief, I might say, the value of a board of supervising engineers in securing efficient street railway service is plainly evident to any one familiar with the situation in Chicago, where, to-day, after little more than three years of supervision by the board, there are in operation systems of street railways equal in technical and operating efficiency to any in the country. It has been stated, and rightfully so, that the so-called "traction settlement ordinances," together with the Board of Supervising Engineers, have blazed the way for successful regulation of local transportation facilities by the municipality, and the co-ordination of the efforts of the street railway companies with the city and with the street-car riding public toward the achievement of an ideal street railway service.

The city of Chicago, like every other large municipality, will, within a short period of time, be face to face with a very important problem involved in the decreasing financial return on street railway investments, due in part to the increased cost of operation, resulting both from the higher technical standards of track, equipment and service, the increasing average length of ride, and also from the

decreasing average rate of fare due to the more general use of transfers.

The situation which confronts the transportation companies throughout the country is serious, and, unless some satisfactory solution can be found, contains the possibilities of grave dangers. The greatest difficulty which surrounds the satisfactory solution of this matter is the total non-acquaintance of the public at large with the nature of the problem.

I believe that one of the most valuable services which the state commissions, and other organizations intrusted with the duty of supervising street railway service and charges, can perform is to conduct a campaign of education which will place before the public the real facts of this problem.

The influence of such a board is toward good service—the best that can be afforded for the rate of fare paid. The street railway business, like any other business, must be a commercial success in order to permit it to live and give efficient service.

Much agitation has appeared in recent years, particularly in some large cities, over the question of a reduction in the rate of fare. The flat rate of 5 cents for a street-car ride in one general direction within the city limits regardless of its length, including transfers when necessary, has been the almost universal practice in American cities. In some instances six tickets for 25 cents, and other rates of fare during certain hours, have been in force; and a 3-cent rate of fare has been agitated, and is still being talked and argued, particularly in the cities of Cleveland and Detroit. This agitation for lower fares has resulted largely from incorrect information which the general public has acquired, through improper accounting on the part of the companies, which have in many instances used the earnings of the road to pay high dividends instead of applying a proper proportion of such earnings to repairs and renewals. The result has been an erroneous showing of high net earnings at the expense of a depreciated property or an inflated capital account, or both.

In many instances where the 3-cent fare agitation has taken tangible form it has been made a political issue, and the local street railway question has been used by politicians for their political advancement rather than for the purpose of adjusting the issue upon a fair and equitable basis as between the city and the company.

The income of street railway companies and kindred transporta-

tion companies is being constantly reduced per passenger carried, due to the granting of transfer privileges, free rides, etc.; and the net profits have been still more reduced by the increased length of average haul and the higher rate of wages and increased cost of materials. It is now a debatable question whether the rate of fare for pay passengers should not be increased rather than diminished, and whether it would not be practicable and more equitable to have a sliding scale of fare based upon the distance a passenger is carried rather than a flat rate of fare, requiring, in reality, a short-haul rider to pay a part of the cost to furnish service to the long-haul rider.

The ability of the suface lines to meet these reductions and live is due to superior technical efficiency and more economical operation, an increase in the density of population in the territory served, and an increased percentage of short-haul riders.

As a city grows in population and area, the street congestion increases, and high-speed roads, such as elevated roads and subways, become necessary. The cost of such lines per mile of track operated or per passenger carried is greatly in excess of the cost per mile of surface track operated or per passenger carried. All of these problems involve questions of financing and capital charges, a fair return upon the investment, and the responsibility of the municipal government in the premises, as well as the obligation of the transportation company.

Local transportation in the larger cities is a very complex and much involved question, requiring the services of experienced and competent men, actuated by the highest motives.

COMMUNICATION

# INDUSTRIAL ARBITRATION IN AUSTRALIA

By PHILIP S. ELDERSHAW, B.A., and PERCY P. OLDEN, B.A.,
Law School, University of Sydney, New South Wales, Australia.

## *Introduction*

In modern history there is no more interesting and important phase than the relation the state has borne to industry. More particularly is this the case with regard to the last seventy years. During this period the state has changed its position and is hastening to regard industrial activities from an opposite viewpoint. At the beginning individualism was at the height of its influence, and at its dictates industry and trade were left untouched by legislation—interference of any kind was deemed harmful, searching interference fatal. At the end state activity, in large part, is concerned with the regulation and control of industry—regulation that becomes more general, control that becomes more stringent with time. The fundamental change in point of view may be regarded, abstractly, as due to the political theories which replace individualism. Socialism which embraces such a multitude of diverse theories in politics is at least definite in placing the community before the individual. Liberalism has enunciated that the progress of the community must be fostered through the welfare of the individual. State interference has been demanded by both: it extends further and further with sureness that is absolute, with speed that varies according to the obstacles it meets. In the Old World obstacles are many and severe. Dense populations, fixity of long-continued conditions, the prejudice of the past, together constitute an inertia that is incalculable. On the other hand, the statesmen of Australasia have had no such difficulties to overcome. A civilized life of one hundred and twenty years has not developed like conditions. It is not to be wondered, then, that here legislation goes further along the path of the world trend and achieves ends whose attempts in another, older,

community would be deemed experimental in a wild degree. Success must lead to the adoption of like principles elsewhere, adapted, of course, to meet special needs and circumstances. This is true in one direction particularly.

Modern-day industry is all too familiar with unrest. The conflicting interests of employers and employees provide ceaseless opportunity for disputes, with their attendant evils—crippled production and lost trade, far-reaching poverty with its accompanying crime. The direction of state activity to the source of these miseries has always formed a complex problem in statesmanship. On one hand stand the operatives, the great component of a community upon whose standard of moral and physical well-being depends the life of the whole body. On the other stands the body of employers, of as vital importance in industry, whose untrammeled activity is a prime necessity if a people is to progress on its economical side. Outside a given community stand its neighbors, competition with whom is a factor that can never be neglected. How, then, is state authority to proceed?

The interference of the state in industrial unrest has been very gradual. At first no general lines of action were laid down. The state proceeded of necessity with the great caution; it played a negative part. Individual cases of dispute were at first allowed to settle themselves, when necessarily victory went to the stronger of the opposed forces. Both such struggles were so crippling to both sides that each perceived the advantage of speedy settlement, even at a loss, to either or both, of previously held advantages. Industrial arbitration first makes its appearance when the counsels of an outside, disinterested authority are heeded by the disputants. Under certain circumstances the state supersedes the private arbitrator, but its offices are only exercised when quarrels have arisen and after failure of other attempts at reconciliation.

A close analogy is here to be noted with the first activities of the state in reconciling the differences of individuals—the beginnings of legal systems. From the attempts of the state to reconcile industrial disputes as they arise, obedience to whose suggestions for pacification is optional, it is a long step to the erection of tribunals to which quarrels may be brought by the parties of their own free will, but whose settlement, once invoked, is compulsory. The pro-

vision of such tribunals is a great advance, but may be rendered useless by the refusal of one party to submit its case. Industrial arbitration reaches the final stage it has presented when, in overcoming this difficulty, it becomes compulsory. In this stage disputes *must* be submitted to state arbitrament; further, even before open conflict springs into life, likely causes of future difference may be submitted by one party alone, for adjustment. In both cases the decision of the tribunal is binding.

Such is compulsory industrial arbitration in theory. In practice it is confronted with difficulties. The reconciliation of the conflicting interests of employers and employees is ever a question of the nicest delicacy; it is hardly possible to conceive a case in which the terms of settlement will be mutually acceptable. One party must make a sacrifice; and the question of inducing that sacrifice gives rise to the greatest difficulty that confronts compulsory arbitration—the means to be adopted for the enforcement of its authority. With regard to employers the matter seems easier of solution. They are, in comparison with the working population, few in number and more likely to be possessed of property that may be penally distrained. But with employees the matter is more difficult. If an award be given against them, obedience in the last resort can only be enforced by personal distraint. And the governmental body has yet to be discovered that would dare to seek enforcement of its dictates against a resisting community. Physically, obedience never could be enforced; it is only to be procured through moral suasion.

Compulsory arbitration, in this respect, stands on the same footing as the dispensing of state justice in its beginning, and must make good its position as the latter has done—by an educative process. Another difficulty is that which confronts all legislation for the amelioration of the working condition of the masses. Decrease of hours of labor, increase of wages means increased cost of production; and an advantage gained in the former recoils on the heads of the workers through the latter. Any action of the state to regulate directly the profits of capital and secure to the workers the benefit of bettered conditions will, it is said, lead to an evil great enough to prohibit the adoption of compulsory arbitration. This is advanced in the often used argument that capital will fly the country where the principles of compulsory arbitration are adopted.

That such difficulties as these are in great part academical, that they may be met in practice, a consideration of Australian legislation and its results will serve to show.

### *State Legislation*

Before 1890, no attempt had been made by the government of any colony to cope with labor troubles by means of legislation. All that had been done was that official approval had been given to certain voluntary boards of conciliation set up by the Newcastle coal owners and coal miners. But in that year the Commission on Strikes in New South Wales reported as follows: "No quarrel should be allowed to fester if either party be willing to accept a settlement by state tribunal. . . . The state has a right in the public interest to call upon all who are protected by the laws to conform to any provisions the law may establish for settling quarrels dangerous to the public peace."

On the whole, these voluntary boards had failed as they have failed in other parts of the world under similar conditions. It was in 1890 and the following years that over the whole of Australia (and New Zealand) it was seen that urgent action of a new kind was necessary. Strikes and lockouts were growing in numbers and in cost, and the pressure of public opinion and the establishment of optional conciliation boards were of no avail in stemming the tide.

The great maritime strike of 1890 involved the whole of the colonial sea trade in Australia and New Zealand. For the first time in this part of the world street disturbances occurred in all the colonial capitals—in some the military were called out to intimidate the strikers. Destruction of property was a common occurrence, and at the Newcastle coal pits and at the Broken Hill silver mines work was stopped by sympathetic lockouts. As a result the owners were unconditionally victorious, but at great cost, considerably over £1,000,000.

Closely following this came the shearers' strike of 1891, beginning in Queensland and involving 10,000 men—the cause the same as that of the maritime strike, the refusal of the employers to countenance unionism and its principles. Arson and violence became common and the whole pastoral trade was dislocated. A similar strike occurred two years later, affecting the banking crisis

of 1893, whose evil effects were long felt, and this had been preceded by another Broken Hill strike.

These strikes were those that had the most far-reaching effects, but in every trade was felt unrest, evidenced in strikes, petty and important.

Legislative action was taken by most of the colonies. Queensland contented herself with a mere abstract resolution as to the advisability of state interference, combined with an act which was practically a dead letter. The wages board system was afterwards adopted by an act of 1908. South Australia and Victoria each passed acts providing for compulsory arbitration under certain conditions, which however were easily evaded by those whose interest it was to do so. These two colonies then turned their attention to the perfecting of a system of wages boards.

But in New South Wales, despite the principles laid down by the Commission on Strikes, all that was done was the establishment of state conciliation boards with an appeal to a state arbitration court, this by an act of 1892. But these boards entirely failed in their purpose—there was no compulsion and employers merely refused to appear. The same defect was apparent in the conciliation act of 1899, and at last in December, 1901, was passed a compulsory arbitration act, founded mainly on the New Zealand act of a similar nature which had, since 1894, been doing good work. A commissioner was despatched to New Zealand by the New South Wales government with the object of finding out exactly the merits and demerits of the system of compulsory arbitration in existence there. His report was completely favorable. Compulsory arbitration had by actual experience been productive of good in the following ways:

(1) It had prevented strikes of any importance, and had conduced to better relations between employers and employed.

(2) It had enabled employers to know with certainty the conditions of production and so to fulfil contracts.

(3) It tended generally to a more harmonious feeling among the people.

In addition the adoption of compulsory arbitration had by no means the effect of decreasing the material welfare of the colony.

So it was definitely decided to introduce such a system into New

South Wales. The prosperity of the state, temporarily under a cloud, was reviving, and with this the number of labor conflicts was again beginning to grow.

Under the new act there was no provision for conciliation boards. The arbitration court was to do the whole work of the law. Briefly the provisions of this act, which was to last till 1908, were as follows:

The court was to be composed of a judge and two assessors, one representing the employers and the other the trade unionists. Provision was made for security of tenure. Industrial unions were made into corporations. Trade unions would be included in the awards whether they registered themselves under the act or not. Only trade unions could be registered under the act as industrial unions.

Strikes and lockouts were prohibited during the reference of a dispute to arbitration. Violation of this section was attended by fine up to £1,000, or imprisonment for two months. No worker, under penalty of £20, was to be dismissed from his employment on account of being a unionist. Power was specifically granted to fix a minimum wage, and the court could order preference to be given to unionists. Power was also given to the court to make a common rule, that is an award could be given *in rem* and applied to the whole industry throughout the state. Exceptions could be made to this rule for the sake of aged and infirm workers. Penalty for a breach of an award, by either an employer or a union, was £500. Agreements made between employers and unions by order of the court or not, were not to last longer than three years. Power was also given to the registrar of the industrial court to intervene in a dispute and make it the subject of an award, though neither of the parties invoked the aid of the court.

*Wages Boards.*—Sweating and similar industrial evils became very pronounced in the Australian colonies after 1890, when financial depression was universal. The efforts of the legislatures to cope with these by compulsory arbitration have already been noticed. But certain colonies preferred to deal with them by another method. This was by the establishment of wages boards. The principle of a fixed minimum wage had been adopted by the Victorian House of Representatives in 1893, and in 1896 the shops and factories act had

been passed. By this act special boards could be appointed to fix wages and piecework rates for all trades and for certain factories. These boards were to consist of members, between four and ten in number, representing equally the employers and the employed. In default of their election, the governor in council appointed them (always so appointed the board in the case of the furniture trade to exclude the risk of Chinese representatives). Not only could the boards fix the minimum wage, but could deal with such matters as hours, overtime and apprentices. Provision was made for aged workers to be excluded from determinations. Child and female labor was also regulated by this act.

In 1899 the governor in council was authorized to appoint a special board to fix the minimum wage in any industry, and this provision has been largely taken advantage of.

On the whole it may be said that the system of wages boards has worked well. The determination of a wages board could only be questioned in the Supreme Court and had practically the force of law. Compulsory arbitration seemed to be scarcely necessary. So well did the system work that, in 1900, South Australia adopted it from Victoria almost in toto, expressly authorizing special rates for infirm workers.

The wages boards deal with the subjects of most strikes—rates of pay and number of working hours, but they still leave the risk of labor disputes, and the functions of the various wages boards must remain narrower than those of an arbitration court. They do not make strikes or lockouts illegal, nor do they take special account of labor unions. In the system of wages boards, too, as seen in Victoria, the initiative, the enforcement and even the overruling of awards rest with the minister of labor, the only appeal from whom is to the government. This might perhaps seem to be too paternal to be of lasting good. The main advantage they possess is that by them industry can be regulated without the semblance of any dispute or ill feeling. Although trade deputations have waited on the government requesting the introduction into Parliament of an arbitration bill, the acts of 1905, amended 1907 and 1909, are still in force in Victoria, and in South Australia there seems to be no tendency to change this system, amended as it is by a series of acts to 1909.

*New South Wales Industrial Disputes Act, 1908.*—At the expiration, in 1908, of the arbitration act, the industrial disputes act was passed combining the leading features of the wages boards system and that of compulsory arbitration. The preamble of this act is of interest as showing how far public opinion had advanced since the tentative resolution of the Royal Commission in 1890. It runs as follows: "An act to provide for the constitution of boards to determine the conditions of employment in industries, to define the powers, jurisdiction and procedure of such boards, and to give effect to their awards, and to appoint a court to prohibit lockouts and strikes and to regulate employment in industries; to preserve certain awards, orders, directions and industrial agreements, and for purposes consequent thereon or incidental thereto." The act provides the most complete regulation of the matters likely to lead to labor problems of any passed within the commonwealth.

Provision is made for the appointment of a registrar, who may register under this act any bona fide trade union or branch. A refusal to so register is subject to an appeal to the industrial court. Industrial unions duly registered under the act of 1901 are saved. The cancelling of a registration shall not relieve the industrial union from any penalty incurred. Industrial agreements as made under the act of 1901 are to continue to be so made enforceable in the same way as an award of a board under this act.

The industrial court shall consist of a judge, with or without assessors, appointed for seven years.

The minister shall, on the recommendation of the industrial court, following on the application of a trade union, industrial union, employer of at least twenty workers, or any twenty employees, direct a board to be constituted. This may even be done on the recommendation of the industrial court alone without any application. Such a board consists of not more than four members equally representing employers and employed, and a chairman. The representatives of the employees must be bona fide workers, but this qualification is not insisted on in the cases of certain special industries. All members of the wages board are appointed for a term of two years by the governor on the recommendation of the industrial court, which also nominates the chairman if the parties can agree upon such. A penalty is provided for the non-fulfillment of his

duties by any member of a wages board. Upon his appointment each members takes an oath not to divulge trade secrets or financial situations which shall come under his notice. The constitution of a wages board cannot be challenged by a prohibition or otherwise.

Such boards have jurisdiction over disputes referred to them by the industrial court, by a trade or industrial union, by an employer of more than twenty workers, or by at least twenty operatives in any industry. Though the union is considered as the economic unit, yet the privileges of labor legislation are not confined to members of these alone. It is not obligatory by the act that preference should be granted to unionists. More particularly the matters dealt with by these boards concern wages, overtime, holidays, the limitation of apprentices, and special rates for old and infirm workers. The awards are to be for periods not exceeding three nor less than one year, and are considered binding on publication in the Government Gazette. The chairmen of the boards have the fullest powers of inspection as well of premises as of the books of any industry. They may dismiss any application as trivial if the facts so warrant. Appeal lies from the boards to the industrial court by leave of the latter. The minister of labor may bring an appeal from an award of a board or intervene during the course of a sitting if he thinks that public interests may be affected.

As to the enforcement of awards, the act provides: Any person working in an industry for which the wages have been fixed by a board, by an industrial agreement, or by the court, shall be paid in money the full amount due to him, and this may be recovered although there be an agreement to the contrary.

The instigation or taking part in a lockout or strike renders the offender liable to a £1,000 fine or two months imprisonment. If a person convicted under this section belongs to a union that union is liable to the extent of £20 unless all reasonable means have been used by it to prevent the offence. This term of imprisonment has been increased by an act of 1909 to a period of twelve months. By this act, passed during the course of the late Newcastle coal strike, in the face of strong and bitter opposition by the labor representatives in the New South Wales Parliament, such a term of imprisonment may be inflicted as the result of a trial before a judge alone.

There are other provisions in this act, too, which cause it to be

regarded with extreme dislike by the political labor party. Thus, if any sergeant of police believes that a building is being used for a meeting to instigate a strike or lockout, he may enter such building by force and seize documents suspected to relate to such contemplated strikes or lockouts. A meeting of two or more persons is declared unlawful when it assembles to instigate or direct a strike or lockout, when such is in respect of a necessary commodity, this latter is defined as including coal, gas, water and any article of food, deprivation of which may endanger human life. Persons taking part in such a meeting, where they believe that the probable result of a strike or lockout will be to deprive, to a degree, the supply of a necessary commodity, are liable to imprisonment for twelve months. The penalty for a contract or combination in restraint of trade is £500, while the penalty for monopoly or attempt at monopoly, with the intent to control the price or supply of a necessary commodity, is the same.

Returning to the act of 1908, the penalty for the breach of a wages board award or order of the court of arbitration (made under the 1901 act) is £50, while an employer is forbidden to dismiss an employee for being a member of a board or a trade union, or for being entitled to the benefit of an award, under a penalty of £20 for each employee so dismissed. Proceedings for such offences against the act are to be taken in the industrial court, the penalties attached to be recoverable in any court of summary jurisdiction. Any decision of the industrial court is final and cannot be challenged by any court of judicature. Provision is also made for the compulsory keeping by the employers of time sheets and pay sheets; for the appointment of inspectors under the act; for the taking of security for the due performance of an award; and for a continuance of the present conditions of labor during proceedings before a board.

In Western Australia, acts on similar lines to the New South Wales Act of 1901 were passed in 1902-9, but in these laws provision was made for the establishment of boards of conciliation. These latter do not work well and the tendency is to go direct to the arbitration court under the acts.

Thus in New South Wales and in Western Australia industrial arbitration has been relied on to obtain peaceful conditions; but in the former state a system of wages boards has been conjoined. In

Victoria, Queensland and South Australia the wages boards appear to be working well, as industries there show. In Tasmania no legislation on the subject has been attempted.

### *Commonwealth Legislation*

With different systems of industrial arbitration prevailing in different states, it is evident that the terms of awards by the tribunals of one state may differ greatly from those of awards in relation to the same trades in another state. From this difference, the manufactures of one state would naturally enjoy an advantage over those of another, despite the tendency towards similar awards which was a result of the uniform customs tariff under which the states came in 1901. It was with a view to avert this possibility that the Arbitration Court of New South Wales, under the act of 1901, refused to raise the rate of wages in a certain trade above those awarded to the operatives in the same trade in Victoria. An attempt has been made to meet properly the lack of uniformity by a bill introduced into the federal parliament to provide for the establishment of an interstate commission—a permanent quasi-judicial body having for its object the settlement of matters of mutual interest to the states. In this proposed act provision is made for a federal court to adjust differences arising between the awards of the arbitration tribunals of the states. Pending the establishment of such a court as an adjunct of the interstate commission, the Commonwealth parliament can go no further than to provide a court for disputes extending beyond the limits of one state (constitution sec. 51, subsection xxxix). Under this authority were passed the Commonwealth Conciliation and Arbitration Act 1904, and the Amending Act 1909.

The objects of the main act as distinctly set forth are: to prevent strikes and lockouts; to constitute a federal court of arbitration with power to provide for the amicable settlement of disputes; and failing of such settlement to make an award; to make and enforce agreements between employers and employees; to enable states to refer to it; and to encourage organizations of employers and of employees, who may approach the court with disputes. It will be noted that the provisions of the chief federal act correspond to some extent with those of the New South Wales acts of 1902-9.

The federal court of arbitration established by the act consists of a president, who is to be a judge of the high court of Australia, who may appoint assessors and a deputy, if necessary, It is endowed with very large powers. Thus its decisions prevail over those of the state courts, which are also required to cease dealing with any dispute at its request. Its awards are not challengeable by any other court, though the president may state a case for the opinion of the high court. The jurisdiction of the court is very wide, extending to the settlement of all industrial disputes, these, of course, must reach beyond the limits of any one state to come within the jurisdiction of the court. But it is to be noted in this connection that the term "industry" is not to include agricultural, dairying and domestic pursuits. The jurisdiction extends to the reconciliation of disputes of which the court has not official cognizance. Reconciliation is to be affected by unofficial suggestions made by the court. If, as a result, settlements are come to, these if the court is satisfied have the force of an award, save as to continuance, as under the state system.

If the parties fail to adjust their differences, these may be settled by reference to the court. The court is to have cognizance of a dispute on the certificate of the registrar under the act, on submissions by an industrial organization or by a state. Reference of a dispute to the court by an organization without the approval of the president is not allowed unless the registrar certifies to the submission of the dispute by an organization, such submission being made by resolution of the members of the organization and given in writing. The court is to hear every dispute of which it has cognizance. After hearing, the court proceeds to make the award. These awards, which are to continue until altered, but in any case no longer than five years, are binding on the parties before the court, on all organizations of employers and employees which are declared to be bound by a "common rule," and, necessarily, on all the members of the organizations bound.

Organizations may enter into industrial agreements between themselves, which, subject to supervision by the court, may continue in existence for three years. These are only to affect the organizations concerned. They may be rescinded or varied by the parties, or by the order of the court in accordance with a common rule. These,

as is the case with awards made by the court, are to be filed at the registries, and are to constitute evidence of an award when sealed by the registrar.

Besides these powers the court has, in addition, certain special powers. In relation to its informal reconciliation of parties, the court may refer disputes to conciliation committees of employers and employees in equal number, to a local industrial board which may consist of a state industrial authority or a board constituted by the federal court for report. The court further has power to fix and impose penalties, to declare a "common rule," dismiss disputes dealt with by state authorities, to vary its orders, to declare a minimum wage, and order preference to be given to members of organizations by employers. Further features distinguish the federal arbitration court from other tribunals. Thus it is not to regard technicality, legal forms, or the rules of evidence; no party is to be represented before it by counsel save by the consent of all parties or of the president; it may vary its orders, or correct or waive any error.

The act forbids in express terms strikes or lockouts under a penalty of £1,000. Persons refusing to accept an award of the court are deemed guilty of striking and so brought within reach of this penalty, as are organizations directing their members to refuse an award. In proceedings for the recovery of this penalty, which can only be brought by the permission of the president, the onus of proof lies on the defendant.

The organizations are industrial unions created by the act, inasmuch as they alone can approach the court in reference to a dispute. To take advantage of this capacity the organizations have to fulfil various conditions. The most important of these are that organizations, whether of employers or of employees, must consist of 120 members; they must be registered; and their funds must not be used for political purposes. The political purposes for which such funds are not to be used are declared not to include the prosecution of such aims as the preservation of life, regulation of hours of labor and of rates of pay, and conditions of employment generally. Organizations are also endowed with the capacity of acquiring property, and of recovering fines and penalties under the act.

With respect to registration the act provides for the establishment of industrial registries, at which organizations may be regis-

tered and to which they must make returns of members, accounts, etc. Registration may be refused if there is already registered an organization on similar lines to the one making application. After being registered industrial unions may be struck off the lists by the court on its own initiative, or after hearing application by the registrar. Such application for cancellation of registration may be made on the grounds of an organization being wrongly registered, of its rules no longer complying with the provisions of the act, of its rules not making provision for the admission of new members or of its having neglected the orders of the court. Apart from the provisions for registration the governor general may proclaim organizations.

Due provision is made that the authority of the court shall be upheld. The court has the power to make orders for the observance of its awards, failure to comply with which involves liability to a penalty of £100, or to three months' imprisonment.

Penalties imposed by the court may be filed in the state courts by the registrar and they then take effect as judgments of the latter. Process may be issued against the property of an organization, and where this is insufficient to meet the penalty the members of the organization are liable. An organization committing a breach may be sued before the courts of summary jurisdiction, and the penalty is recoverable by the registrar or a member of such organization. A wilful default to observe an award by a member of an organization may be visited with a deprivation of rights under the act, with direction to cease being a member, and to lose rights of payments out of the funds of the organization.

### *Operation of the Industrial Arbitration Laws*

During the last decade Australia has enjoyed a far greater measure of industrial peace than the countries of the West. Without doubt the greatest factor in producing this result is her industrial legislation. This is not to say, however, that industrial disputes have ceased—such an end is as yet visionary; but the provision which has been made for the peaceful settlement of industrial differences has had its effect. Ability to have resort to such provision is preventive of strikes and lockouts in a measureless degree. Where such resort is made not only are incipient disputes nipped in the bud, but the ill-feeling consequent upon opposition is averted. These are

the lines on which industrial arbitration is leading industry in Australia—strikes are becoming of rare occurrence, and the interests of industrial units, formerly antagonistic, tend to a closer mutuality. It cannot be laid down that, during the period of the adoption of arbitration in Australia, a definite number of open quarrels were prevented. But indirectly the measure of industrial peace that has resulted may be gauged from the resort made to the provisions of the various statutes in that connection.

First, as regards wages boards: The wide use made of these institutions may be gathered from the following table, which, except in the case of Queensland, includes results to the end of 1908:[1]

| | Total registered trades. | Trades under boards. | Employees under boards. | No. of determinations. |
|---|---|---|---|---|
| Victoria ..... | 162 | 59 | 88 per cent | 49 |
| Queensland[2] ..... | 56 | 29 | .. | 23 |
| South Australia[3] .. | 74 | 24 | 62 per cent | 20 |

Secondly, with regard to the Industrial Disputes Act of 1908, in New South Wales, embodying results from the inception of the act to the beginning of June, 1910:

| | |
|---|---|
| Number of applications for boards ..... | 155 |
| Number of boards appointed ..... | 139 |
| Number of boards dissolved ..... | 26 |
| Number of determinations: | |
| (*a*) Of boards ..... | 90 |
| (*b*) Of boards re-enacting awards of court of arbitration | 20 |
| (*c*) Of boards varying or amending awards of boards.. | 42 |
| Number of boards now sitting ..... | 17 |
| Number of hearings not yet begun ..... | 10 |

Thirdly, with regard to the arbitration acts of New South Wales and Western Australia to end of 1908: In New South Wales, 86 agreements were registered under the act of 1901, affecting 38,000 employees. Here, too, 252 industrial disputes were filed; 130 awards were made and the remainder of the disputes were withdrawn or removed. Fifty-five awards have been made common rules.

In Western Australia, 54 industrial agreements were made up to

[1]From Official Year Book of Commonwealth, 1909.
[2]Metropolitan area only.
[3]As at 31st October, 1909.

the end of 1908, affecting 16,000 employees. Of industrial disputes, 252 were filed, in which 71 awards were made.

It can thus be seen, from the number of peaceful adjustments of differences that have been made, how very greatly the systems of arbitration in vogue in the different states make for industrial peace. The position of the operative has been improved beyond all measure throughout the centres of industry. It would be too lengthy a process to quote concrete instances of this betterment; it is sufficient to say that the aim of insuring to the worker a "living wage" has been, and is still being, maintained in Australia, together with the procuring of better conditions of labor.

Yet the question of securing industrial peace indirectly does not embrace the question as to whether industrial arbitration, in Australia, is really compulsory. From a survey of strikes which have occurred during the last ten years, there cannot be said to have been a struggle having for its vital issue the ability of a state authority absolutely to prohibit strikes and lockouts. The last strike in New South Wales, that of the Newcastle coal miners, which, regarded in a particular light, may have seemed a victory for the community, as opposed to a recalcitrant adversary, was really no more than an indication of the advance of the educative process by which the whole community will ultimately condemn striking. That there has been no struggle on the vital issue is due to the wise hesitation, conscious or unconscious, of those in authority to risk prematurely the whole compulsory arbitration movement.

In the meantime public opinion is growing, fostered in many ways. In the first place it has been made clear to every operative that better and more permanent conditions of labor can be obtained by a peaceful award than by a strike. The tribunals before which the disputes come can be relied on as being utterly impartial—they are either presided over by a judge or subject to judicial appeal.

Secondly, what is perhaps of most importance in this connection, the labor party in Australian politics exhibits great and increasing prominence. In some states labor ministries are in power,[4] while in the commonwealth parliament itself, as the result of the 1910 elections, the labor party has a sweeping majority in both the Senate and the House of Representatives. In states where non-labor min-

[4]As a result of the last elections, October, 1910, a labor ministry is now in power in New South Wales.

istries hold power, the labor minority is sufficiently strong to exercise a loud voice in public affairs. The members of these labor parties are tried upholders, where not actually members, of the very industrial unions encouraged by the various arbitration acts in Australia. And the presence of such men in the houses of legislatures, educated by the responsibility which devolves upon them as holders of office, or as members of an important party in opposition, is the strongest guarantee of industrial peace generally, and of the final enforcement of the prohibition of striking. In the late Newcastle coal dispute the weight of the labor members of parliament was against the strike; that the trouble did not extend to other industries was due to the exertions of members of the political labor party. It is true that the representatives of labor in the New South Wales parliament bitterly opposed the Industrial Disputes Amendment Act of 1909. It is true that they have the repeal of this act in their platform for the forthcoming state elections. But it is also true that they attack it because of the large amount of discretionary authority it leaves in the hands of subordinate police officers; and because it derogates from the system of trial by jury. There is no reason to suppose that the aspect of the New South Wales labor party on the question of the coercion act indicates any tendency towards retrogression as regards the prohibition of striking. The danger that may seem to work upon the rise into power of labor majorities in the legislatures—that they may become the creatures of the electoral majority—has not yet shown itself insofar as experience goes. Nothing but good, so far at least as compulsory arbitration is concerned, would seem to be likely from increased labor prominence in politics.

So the education of public opinion proceeds. Considering the industrial peace of the last ten to fifteen years, and the present outlook, its progress has been rapid indeed. It is not altogether vain to visualize the day when compulsory arbitration shall have proved its name.

Considering the objection to industrial arbitration that improved conditions of labor increase the cost of living, the attempts made to insure that the position of the worker shall not be prejudiced through the latter are worthy of note. In some of the arbitration acts and in the Commonwealth Anti-Trust Act provision is made for the preven-

tion of "combinations in restraint of trade"—an indirect attempt to decrease the profits of capital. A direct attempt at the same end was made in the Commonwealth Excise Tariff Act, 1906. By this act an excise duty of one-half the duty payable on imported agricultural machinery was imposed upon similar machinery manufactured in Australia. But it was provided that the latter should be exempted from excise if manufactured under conditions in accordance with an award under the Commonwealth Concilation and Arbitration Act, 1904. By the Customs Tariff, 1906, a maximum price at which such manufactured machinery should be sold was fixed, with a proviso that if sold at a higher rate the commonwealth executive should have power, by reducing customs duties, to withdraw the tariff protection. These acts together embrace what is known as the "New Protection," but their provision has been declared invalid by the High Court of Australia. It is worthy of note that there is a possibility of a referendum being taken with regard to the amendment of the constitution of the commonwealth to render the new protection operative.

There is not the slightest cause for doubt on the question of capital having been diverted from Australia on account of the adoption of compulsory arbitration. Industrial peace is a stronger magnet than the results of "*Laissez faire*," as investments in Australian ventures show.

## *Conclusion*

On the whole compulsory arbitration in Australia has been an undoubted success in so far as results can be judged during the comparatively short time the system has been in operation. In New Zealand, where it has been in vogue longer than anywhere else, the success has been unqualified. True the strength of the system has never been tested. There has been no decisive struggle between masters and men. But the absence of such a struggle is in itself a sign of efficiency, and of the satisfaction given to both the factors in industrial prosperity.

In New South Wales and the other states of Australia strikes have not been prevented, but certainly their number has been diminished, and, most important of all, the condition of the workers has been improved. This improvement continues, and with it it is

certain that arbitration as a part of daily life will grow to be more and more an accepted fact in the minds of the community.

Of course the reason for this success may lie in the fact that, in Australia, industry is centralized. It is notable that the conditions of agricultural laborers are the only ones that the commonwealth act does not profess to touch; and it is in the ranks of these workers that sweating and similar evils exist to a large extent. It has been found extremely difficult to get anything like a uniform rate of wage and number of hours of employment suitable for this class.

There can be no doubt that compulsory arbitration with its concomitant awards rests on a sound basis. It is the business of law in every department of life to see that reasonable expectation is fulfilled. The employer has the right to expect that the conditions under which he contracts are likely to have some continuance; just as the employee has the right to expect that the conditions under the expectations of which he makes out his scheme of life will have some degree of permanence. That the legislature in providing means for the satisfaction of each of these reasonable expectations is going beyond its sphere of action will hardly be maintained by the most ardent opponent of state interference.

# BOOK DEPARTMENT

## NOTES

**Alvarez, A.** *American Problems in International Law.* Pp. vi, 102. Price, $1.00. New York: Baker, Voorhis & Co., 1909.

In this little book, Dr. Alvarez has given an interesting historical résumé of the various international law questions which have concerned the American continent. He makes this study the basis for the formulation of the principles which have governed the states of America in their international relations, and reaches the conclusion that the American hemisphere has certain factors peculiar to itself, which have given rise to distinct views on questions of international law; in other words, that there is an American international law, or certain principles which are recognized by the states of America in their dealings with one another. In their relations with Europe, the states of America have attempted to maintain certain of these principles. This interesting thesis is treated in a scholarly manner. The notes are full and instructive; the arrangement and table of contents make up for the lack of an index.

*American Railway Association, Proceedings of the,* 1907-1909. Volume V. Pp. xli, 1073. New York: American Railway Association.

*Bibliography of Economics for 1909.* Pp. xiii, 282. Price, $2.50. Chicago: University of Chicago Press, 1910.

This is a cumulation of bibliography appearing in the "Journal of Political Economy" from February, 1909, to January, 1910, inclusive. Those familiar with the bibliographic feature of the "Journal of Political Economy" will need no commendation of this book. Its 7,000 to 7,500 entries include most of the economic titles of permanent value issued in 1909. Exceptions are the publications of the various states of the Union, and many labor union, trade and technical journals. The compilation and indexing of the book is excellently done.

**Brace, H. H.** *Gold Production and Future Prices.* Pp. viii, 145. Price, $1.50. New York: Bankers Publishing Company, 1910.

**Bruce, P. A.** *The Institutional History of Virginia in the Seventeenth Century.* 2 vols. Pp. xix, 1904. Price, $6.00. New York: G. P. Putnam's Sons, 1910.

**Cunningham, W.** *Christianity and Social Questions.* Pp. xv, 232. Price, 75 cents. New York: Charles Scribner's Sons, 1910.

In this volume the author has attempted to indicate the relation which should be maintained between Christianity and economic and social problems. To prove his point, he has covered almost the entire field of science, beginning with the physical conditions of life among animals and men, race differentia-

tions and the enforcement of civil authority, continuing with a discussion of the functions of government, the rewards of service and the chief fallacies in economic doctrines, and concluding with a strong plea for the development of Christian character through some form of secularized or applied Christianity. In the course of such a broad survey it is inevitable that the author should misstate some of the modern scientific concepts. To the student of race problems, for example, his discussion of superior and inferior races clearly fails to express the modern view regarding race characteristics and policies. So to the economist the statement of the Malthusian doctrines and of the principal fallacies underlying political economy in general is interesting, if not accurate. The purpose of the book is good, its moral is excellent, but in its execution the author has erred by seeking to include more than can normally be included within the scope of a single volume.

**Davis, W. S.** *The Influence of Wealth in Imperial Rome.* Pp. xi, 340. Price, $2.00. New York: Macmillan Company, 1910.

**Dryden, J. F.** *Addresses and Papers on Life Insurance and Other Subjects.* Pp. 330. Newark: Prudential Insurance Company of America, 1909.

**Eaves, Lucile.** *A History of California Labor Legislation.* Pp. xiv, 461. Berkeley, Cal.: University Press, 1910.

The author of this volume has compressed into some 400 pages a record of the labor movement of California from its inception to the present time. In a prefatory chapter, "for the purpose of giving an understanding of the social forces back of the labor legislation," the history of the labor movement in San Francisco is traced. Then the slavery question as incident to labor in California, is treated. This is followed by a history of legislation relative to the regulation and later exclusion of the Chinese, 1852-1906; the length of the work day; the protection of wages; the relation between employer and employee; the labor of women and children; the protection of the life and health of the worker; Sunday laws; employment agencies, and the regulation of convict labor. The work of the State Bureau of Statistics and the State Board of Arbitration is discussed and the part played by the union label, the boycott, and the injunction in unionism is also considered.

The author maintains that the chief objects of labor legislation in California have been the prevention of race associations objectionable to the working classes, protection from cheap competition, wholesome conditions and decent hours of labor, security for payment of what is justly due, and the right to promote the interests of the working classes.

**Eliot, C. W.** *The Future of Trade-Unionism and Capitalism in a Democracy.* Pp. v, 128. Price, $1.00. New York: G. P. Putnam's Sons, 1910.

This little book is composed of two lectures with the above titles delivered last year at Kenyon College by the former president of Harvard. The book partakes of the nature of prophecy, since it aims to show what changes must be made in both trade-unionism and capitalism before either is in complete harmony with the democratic ideal pictured by the author. On the whole,

his arraignment of modern unionism suggests a viewpoint rather unsympathetic to labor. His remedy for the present unsatisfactory labor conditions is academic in its adherence to the possibility of restoring competition as a regulator of many, if not all, industrial ills. His program of restoring competition is to be furthered by a policy of publicity in all matters affecting either trade unions or manufacturers' associations. "The duty of capital to resist the monopolistic features of trades-unionism assumes that trades-unionism no longer needs to resort to strikes, attacks on non-union men, boycotts and union labels in order to obtain fair wages, reasonable hours of labor, and the wholesomeness of the places where work is done. Publicity will accomplish these and all other reasonable ends which trade-unions have proposed for themselves."

The treatment of the future of capitalism in a democracy suggests the reign of a benevolent despot. "When the capitalist class as a whole is strongly influenced by the desire to promote the real welfare and happiness of the workmen they employ, they will invariably take thought for the means of providing their workmen with permanent homes which are not only wholesome, but cheerful, and suitable for the bringing up of a family." The lectures are interesting and the style easy, though one feels in places that they lack the ring that comes with contact with men rather than books.

*Everyday Ethics.* Pp. 150. Price, $1.25. New Haven: Yale University Press, 1910.

"Everyday Ethics" is a second collection of addresses delivered in the Page Lecture Course before the Sheffield Scientific School of Yale University. It treats of certain problems of modern business life such as transportation, speculation, journalism, accountancy, law practice in their ethical aspects. The ethics of to-day or rather the "ethical values" here presented are not, however, deduced from the usual *a priori* premises. The authors are high-grade experts, intimately acquainted with the technique of modern industry, rather than moralists. They accordingly maintain that the moral principles in business are largely the logical, natural and inevitable parts of the industrial organism itself. To do away with these "practices" the entire industrial institution in question would have to be abolished. The conception that industry is an organism does not lead necessarily to the justification of every kind of "practice." On the contrary, it enables its advocates to separate "the roses from the thorns" and to suggest improvements which, if in the line of organic continuation and development, can be easily executed and therefore of permanent value.

The addresses have been primarily intended for young business men; yet the wide scope they cover and the particular information they contain make them of interest to a student of social psychology and ethics. The value of the book is increased by a carefully prepared index.

**Fess, S. D.** *The History of Political Theory and Party Organization in the United States.* Pp. 451. Price, $1.50. Boston: Ginn & Co., 1910.

Dr. Fess has attempted to give us a work of which we stand in great need,—a study of the effect of political theory upon actual politics. For the general

reader who has not studied civil government and whose United States history is confined to a high school course, the book furnishes the sort of supplement adapted to the small amount of time he can devote to the subject. The earlier chapters are well written and deserve the attention of students whose interest is more thoroughgoing. There is a good appreciation of Jefferson, and a better one of Hamilton, though his monarchial tendencies are minimized. The estimate of Marshall is the best chapter of the book. After the early period the discussions are not so satisfactory, due to an attempt to do too much in small space. Political developments are traced chronologically and at the same time an effort is made to give brief biographies of the chief characters and to bring together the thread of the theories they advocate. Such a method necessitates many repetitions and criss-crossings which leave the reader confused. Some of the subjects, in spite of the manner of treatment, are presented with tolerable clearness, notably the breakdown of the legislative caucus and the rise of the convention. In most cases the result is choppy.

The weakest point of the book, especially if it is to be used as a text, is the total lack of aids to further investigation. A text is more a series of guide posts than the journey's end, and the omission of all references to collateral reading and all citations even to the great cases which are landmarks in our constitutional history is decidedly disappointing. In spite of these serious defects of omission and arrangement, the book is a step in the right direction. There is no great importance in a theory which is unrelated to practice, and Dr. Fess has done a service in emphasizing the extent to which the relation has existed in the history of the United States.

**Frankel, L. K., and Dawson, M. M.** *Workingmen's Insurance in Europe.* Pp. xviii, 477. Price, $2.50. New York: Charities Publication Committee, 1910.

Whether or not the uncertainties of life have increased with modern industry, it is unquestionably true that there was never a time when more attention was paid to the elimination of industrial uncertainty than to-day. In 1908 the Russell Sage Foundation authorized the authors to investigate workingmen's insurance in Europe, and the results of this investigation have amply justified whatever appropriation was made for the purpose. The authors have divided the problem into insurance against industrial accidents, against sickness and death, against invalidity and old age, and against unemployment. This series of specific insurance problems is followed by a discussion of complete insurance systems. In each case the general theory underlying the problem is stated, and the most important European laws discussed. It is made apparent, first, that the progressive countries of Europe have taken many important steps toward guaranteeing the certainty of the working life, and second, that unless some similar steps are taken, the United States may look forward in the not far distant future to a serious curtailment of labor efficiency.

**Frazer, J. G.** *Totemism and Exogamy.* 4 vols. Pp. xxxiii, 2181. Price, $16.00. New York: Macmillan Company, 1910.

**Gephart, W. F.** *Transportation and Industrial Development in the Middle West.* Pp. 273. Price, $2.00. New York: Longmans, Green & Co., 1909. This volume is evidently the result of painstaking research. The material presented is systematically arranged. The author's style is easy and direct. The purpose of the book is "to correlate the development in transportation with the industrial development" of Ohio. The volume begins with an account of primitive routes of travel and trade and then considers in turn the settlement of the state, early roads, water transportation and industrial development down to 1830. The latter half of the book deals with the construction of highways, railroads and interurban railways; with the improvement of the Ohio, and the construction of harbors on Lake Erie; and with the industrial progress made by the state from 1830 to 1900. The text is illustrated by several maps and diagrams. There is a good bibliography at the end of the book. In some instances the discussion has to do with a larger section of the country than the State of Ohio; but that is the exception rather than the rule, and it would have been more accurate to have used "Ohio" instead of "The Middle West" in the title of the volume. The author correctly considers Ohio typical of the Middle West, but it is hardly synonymous therewith.

**Gompers, S.** *Labor in Europe and America.* Pp. xi, 287. Price, $2.50. New York: Harper & Brothers, 1910.
The American Federation of Labor sent its president, Mr. Samuel Gompers, on a tour of inspection of European trade unions. This book is an interesting, well written, but somewhat superficial, account of European conditions as seen by the author. Throughout Mr. Gompers reveals the typically self-satisfied American. European conditions are described at their worst, while in contrast, American conditions are painted at their best. The book purports to show that the working man in America is infinitely better cared for than the working man in most of the countries of Europe. While the statement may be true, it is certainly unjustified by the facts which Mr. Gompers adduces in its support. It is fair to describe this book as a pleasant narrative of travel, bitterly anti-socialistic in tone, avowedly favoring the American trade union methods and conditions, and written from a distinctly biased viewpoint.

**Hill, R. T.** *The Public Domain and Democracy.* Pp. 240. Price, $2.00. New York: Longmans, Green & Co., 1910.

**Jessup, H. H.** *Fifty-three Years in Syria.* 2 vols. Pp. 382. Price, $5.00. New York: F. H. Revell Company, 1910.

**Johnston, H. H.** *The Negro in the New World.* Pp. xxix, 499. Price, $6.00. New York: Macmillan Company, 1910.

**Joyce, H. C.** *The Law of Intoxicating Liquors.* Pp. cx, 840. Price, $7.50. Albany: Matthew Bender & Co., 1910.
Few subjects are of such general and far-reaching importance from a social and legal standpoint as the regulation of the manufacture and sale of intoxi-

cants. The author aims to expound the law without discussing causes, tendencies or effects. The presentation of authorities is exhaustive and gives a clear idea of what the law is at the present time. The constitutional limitations are well discussed and the various forms of legislative control are reviewed in detail. The discussion of the effect of the Wilson act upon state legislation is especially well brought out and a review of the various methods of controlling the granting of licenses and of the rights acquired under them presents the latest legislative expedients which have been applied under the vague extra constitutional development called the police power.

**Kelly, E.** *Twentieth Century Socialism.* Pp. xix, 446. Price, $1.75. New York: Longmans, Green & Co., 1910.

This volume, left practically complete at the death of Mr. Kelly, and subsequently edited by Mrs. Florence Kelley and the author's son, Shaun Kelly, is a discussion of the more elementary phases of socialism from the standpoint of a late convert.

In Part I the author shows that socialism is not anarchism or communism, and that it will not suppress competition, destroy the home, abolish property or impair liberty. Part II is given over to a condemnation of capitalism, the author contending that it is anarchistic, wasteful and disorderly, and the direct cause of overproduction, unemployment, prostitution, labor troubles and adulteration. The closing chapters of the book are devoted to an enumeration and discussion of the possible benefits to be derived from the existence of a socialistic régime.

The volume has all the earmarks of having been written by a person new to the subject, unacquainted with its literature and ignorant of the finer, more important points of its philosophy. The only redeeming features of the book are the enthusiasm and sincerity of the author and the lucidity of his style.

**Leupp, F. E.** *The Indian and His Problems.* Pp. xiv, 369. Price, $2.00. New York: Charles Scribner's Sons, 1910.

A trained correspondent, for twenty-five years in personal contact with the Indians, for nearly five years commissioner of Indian affairs, Mr. Leupp was unusually qualified to tell Americans about the Indians. The volume stands in a class quite by itself. It is not a study in ethnology and its chief quality is the sympathetic appreciation of the Indian's humanity. It is the simple story of the Indian and his relation to the government and should be widely read.

The Indian is a man. Treat him, then, as a man. Do not pauperize him, do not take away all incentive for effort. Recognize that conditions vary from tribe to tribe, man to man. Extend a helping and protecting hand until it is clear that he can stand alone. Then make him stand, letting him learn by experience life's lessons. Even let him pay taxes and thus become as one of the rest of us. There is little race prejudice towards the Indian, so that amalgamation is sure to come. The problem is therefore executive. Private agencies should co-operate, not spend most of their time in criticism. Educate the children near their homes and in the things necessary to their future success.

In most interesting fashion we are shown the various policies of the government and the difficulties encountered by the officials. Altogether an unusual book to be highly commended.

**Luffmann, C. B.** *Quiet Days in Spain.* Pp. xii, 318. Price, $2.00. New York: E. P. Dutton & Co., 1910.

Unlike most books on Spain this is not written by a traveler or a sojourner of a few months. Mr. Luffmann has the unusual advantage of having lived not simply among but with the Spanish. He knows their daily life, their characteristic contradictions in character. Few other writers have succeeded so well in portraying Spain of the present day. There is no attempt to picture the past glories of the country in world affairs, in learning, or in art, but a successful effort is made to portray the life seen in the third class railway coach, the small towns, and the wine plantations. Most of the book describes the provinces of the southeast. Among the points of usual interest to the tourist, most emphasis is laid on Granada, Seville and Leon. The capitol and Cadiz are not touched and one can but feel that Barcelona, in many respects the most interesting town of Spain from the human side, is neglected.

**McCrea, R. C.** *The Humane Movement.* Pp. vii, 444. Price, $2.00. New York: Columbia University Press, 1910.

**Mozaus, H. J.** *Up the Orinoco and Down the Magdalena.* Pp. xiii, 439. Price, $3.00. New York: Appleton & Co., 1910.

Most of us feel that the days of adventure are past and that there is little left to discover. Dr. Mozaus' narrative reaches vast regions still practically untouched by the white man and of almost inestimable possibilities for future development. The author is a globe trotter who felt that he had almost exhausted the pleasures of travel, but found himself in a region full of varied experiences. The narrative is easy and at times thrilling. The style tends frequently to become profuse and the title, especially for the first hundred pages, has little reference to the subject matter. One of the best characteristics of the book is the historical touch given in every chapter. The author is familiar with many half-forgotten histories of the conquistadores which give his story the flavor of the original conquest.

**Nogaro, B., and Moye, M.** *Les Régimes Douaniers.* Price, 2.50 fr. Paris: Armand Colin.

**Ostrogorski, M.** *Democracy and the Party System.* Pp. viii, 469. Price, $1.75. New York: Macmillan Company, 1910.

Shortly after the appearance of his work on "Democracy and the Organization of Political Parties," Mr. Ostrogorski was requested to publish separately the portion treating of the United States. This work is an abridgment of that material with additions which bring the work down to date. A new chapter is inserted, showing the extent to which the legislative caucus still continued to be a factor in party government in America, even when its nominating functions were taken over by the convention.

The style of the present work is to be commended. In the condensation much of the repetition which marred the larger work is avoided. It must be admitted, however, that the short chapters treating the development of legalization of parties, especially the primary election laws, are inadequate. There are some curious estimates of present political movements. The position assigned to Mr. Hearst as a political prophet is extraordinary. The proposals for reform are many of them unique but hardly practical. In the senate associate senators are to work with those regularly elected, and a non-partisan system of elections to all offices is advocated. Some of the suggestions are already a part of the political system in some of our states. The short ballot, the recall, proportional representation, preferential voting, and the initiative and referendum, receive commendation.

There is probably no better short account of the convention system, but the later political developments receive inadequate treatment, a fact which limits the availability of the work for use as a text.

**Paltsits, V. H.** (Ed.). *Minutes of the Commissioners for Detecting and Defeating Conspiracies in the State of New York.* Volume III. Pp. 268. Albany: State of New York, 1910.

An excellent analytical index of persons, places and subjects referred to in the previous two volume text on the attempts to control toryism in New York during the Revolution.

**Quaife, M. M.** (Ed.). *The Diary of James K. Polk.* 4 vols. Pp. xxxii, 1962. Price, $20.00. Chicago: A. C. McClurg & Co., 1910.

**Redway, J. W.** *All Around Asia.* Pp. xiv, 313. Price, 60 cents. New York: Charles Scribner's Sons, 1910.

As the title indicates, this little volume is a reader designed to supplement the study of Asia as it is presented in the usual text-books of geography. Like all carefully prepared books of this sort it is interesting reading even to one already familiar with the essential facts presented. The journey all around Asia is as comprehensive as the title suggests, though about half the space is devoted to China and Japan, with Asiatic Russia and India decidedly subordinated. This division of space, while open to criticism on some grounds, is perhaps justifiable on the ground of greater immediate interest in China and Japan.

There is little reason for criticism of the material presented. Much of it is hardly geography, but the author frankly admits this fact at the outset. His object apparently has been to present for young readers an interesting account of the essential things concerning Asiatic countries and their people. In this he has succeeded fully as well as anyone else who has attempted a similar task in this field.

**Richards, Ellen H.** *Euthenics.* Pp. xii, 162. Price, $1.00. Boston: Whitcomb & Barrows, 1910.

For a generation we have been seeing more clearly the truth that poverty and disease are largely preventable. The little book by Mrs. Richards is a

popular treatise based upon the scientific literature of the day, setting forth a "plea for better living conditions as the first step toward higher human efficiency." Euthenics deals with race improvement through environment. The author maintains that while Eugenics is important, Euthenics is a more fundamental factor in securing race progress.

**Shaw, G. B.** *Socialism and Superior Brains.* Pp. 59. Price, 75 cents. New York: John Lane Company, 1910.

This is a little essay prompted by a so-called attack in "The Times" by Mr. W. H. Mallock on Mr. Keir Hardie in which the former accuses the latter of ignorance of political economy. The point at issue between the two lies in the right of the laboring class to share in the remarkable increase in the national income of England. Mr. Mallock's contention is that this increase has been produced by the exceptional ability of the employers and inventors and that therefore there is no reason to claim any share of it for the employee class. Mr. Shaw comes to the defense of Mr. Keir Hardie, at the same time attacking the position of Mr. Mallock. The author contends that the great advance in the world's progress has been rather due to a class of persons, inventors, discoverers and the like, who have proverbially died poor and that the stock dividends are going to a quite different class of persons. He, moreover, contends that even were Mr. Mallock's contention true, it is a false social ideal to endeavor to guarantee to superior brains all the benefits that may flow from their efforts. An author is granted a copyright for a limited number of years only. Likewise the patent of the inventor is limited. After a time their work is common property—part of the social heritage of the race and, contends Mr. Shaw, this is as it should be.

The book is forceful and if not convincing at every point, at least interesting and rather stimulating.

**Snedden, D.** *The Problem of Vocational Training.* Price, 35 cents. Boston: Houghton, Mifflin Company, 1910.

**Solar, Domingo A.** *Las Encomiendas de Indijenas.* Volume II. Pp. viii, 272. Santiago de Chile: Imprenta Cervantes, 1910.

**Surface, G. T.** *The Story of Sugar.* Pp. xiii, 238. Price, $1.00. New York: D. Appleton & Co., 1910.

**Taft, William H.** *Presidential Addresses and State Papers of.* Pp. xii, 612. Price, $1.80. New York: Doubleday, Page & Co., 1910.

This volume contains seventy-one speeches and addresses by President Taft, beginning with the Speech of Acceptance at Cincinnati, Ohio, on July 28, 1908, down to and including his speech on "Governmental Expenses and Economics," Newark, N. J., February 23, 1910. These speeches cover a wide range of subjects,—political, religious, biographical and economic. They contain much valuable information which is readily accessible by means of an admirable index to the volume.

**Thum, W.** *A Forward Step.* Pp. vi, 235. Price, $1.50. Boston: Twentieth Century Company, 1910.

A high school education for the many and not for the few alone; self-sup-

port for such students, in the form of half-time employment either on public works or in industry under private management; tuition charges, paid by the pupils, to meet the operating expenses of the schools after their erection and equipment by the public,—this is the program set forth by the author as the next "forward step" for the "democracy of to-morrow."

While one can hardly agree with all the details of the scheme proposed, yet the soundness of his contention can hardly be questioned, that if "we are to have any further progress, except in a slow, laborious and wasteful way, every young person with sufficient capacity should be given an opportunity to obtain a secondary education." What the nature of that education should be, and whether the present secondary school curriculum meets the social need, the author does not discuss.

**Van Hise, C. R.** *The Conservation of Natural Resources.* Pp. xiv, 413. Price, $2.00. New York: Macmillan Company, 1910.

**Viallate, A.** *La Vie Politique dans les Deux Mondes.* Pp. 616. Paris: Felix Alcan, 1910.

Reviews of the national developments of various countries are apt to be superficial, but such a charge cannot be made against this the third volume reviewing political developments, which is brought out under the supervision of Mr. Achille Viallate of the School of Political Sciences, Paris.

Judging from the discussion of affairs in the United States there is displayed a peculiarly thorough grasp of current political developments. Supplementing our monthly reviews a work of this sort is especially valuable in outlining the progress of events both international and municipal. The authors treating the various subjects are scholars of wide reputation and the summaries given are clear though brief. Unfortunately for Americans, public opinion seems not as yet to have developed to the point where the financial return makes a review of this character possible in this country.

**Watson, D. K.** *The Constitution of the United States.* 2 vols. Pp. xlii, 1959. Price, $12.00. Chicago: Callaghan Company, 1910.

**Wilbur, Mary A.** *Every-Day Business for Women.* Pp. xiii, 276. Price $1.25. Boston: Houghton, Mifflin Company, 1910.

The increased development and specialization of the factory system is requiring women to take an ever-increasing share in work outside of the home, and to specialize more and more their work within the home. The desirability of system in business affairs has been generally recognized, but until recently no effort has been made to systematize domestic economy. In order to better fit women to maintain their place efficiently in the world, it is necessary, first, that they should recognize their responsibility, and, second, that they should understand the fundamentals of business. The author has made an elementary though able, attempt to further this end.

**Wilcox, D. F.** *Great Cities in America.* Pp. xi, 426. Price, $1.25. New York: Macmillan Company, 1910.

REVIEWS

**Balch, Emily G.** *Our Slavic Fellow Citizens.* Pp. xx, 536. Price, $2.50. New York: Charities Publication Committee, 1910.

For many years the author has been studying the Slavs in their home country as well as in America. Much of the material in this volume was published in "Charities and the Commons," four years ago. Hitherto little has been done to introduce the Slavs to Americans save by Dr. E. A. Steiner. Speaking various unknown tongues, coming only yesterday, settling in colonies, they have remained almost unknown. There was an excellent opportunity for such a study and it is a poor compliment to our appreciation of social questions that for several years the publishers looked askance at the manuscript on the ground that the public cared nothing about the Slavs and would not buy.

The work is excellently done. The first part describes the Slavic immigration at its source and gives an account of the home life and conditions of the various groups. Here, too, attention is called to the marked influence America is having on European conditions through the returning emigrants. In the second part the history of the Slav immigration is treated and their economic and social life in America is described. At the end of the book are some fifty pages of appendices of data together with a bibliography and index.

The volume contains many good illustrations. Altogether it is one of the most sympathetic and interesting studies of the immigrant the reviewer knows, and it is heartily commended to all who wish to know more of the stranger within the gates.

CARL KELSEY.

*University of Pennsylvania.*

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**Eastman, Crystal.** *Work Accidents and the Law.* Pp. xvi, 345. Price, $1.50. New York: Charities Publication Committee, 1910.

Investigations in various social fields are continually emphasizing the need of more specific data bearing on social conditions. No recent investigation has done more to emphasize this need than that conducted by Miss Eastman into the causes and results of industrial accidents in Allegheny County (Pittsburg).

Taking the accidents of one year, Miss Eastman has prepared a careful summary, first, of their causes, and secondly, of their economic cost. Neither the employee nor the employer can be blamed for all the accidents. Defective machinery or the absence of safety appliances may often be responsible for some of the accident cost, but on the other hand, the reckless handling of even the most carefully constructed machines results disastrously to the worker.

The real value of Miss Eastman's study appears in her analysis of the social cost of work accidents. Her statements regarding the income loss are

most instructive, showing conclusively that the employer does not in any way bear the loss of industrial accidents, but that the loss is borne first, by the worker in loss of wages, second, by the home in the loss of its economic support, and third, by the community in that it is forced to maintain the injured workingmen or their families. To this statement of the problem of work accidents, as it appears in the abstract, the author has appended an excellent summary of the employer's liability, with a discussion of the law and the possibilities of liability legislation. Few more effective studies of social problems have appeared in recent years than the accident study which Miss Eastman has made and presented so effectively.

SCOTT NEARING.

*University of Pennsylvania.*

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**Gregory, H. E., Keller, A. G., and Bishop, A. L.** *Physical and Commercial Geography.* Pp. viii, 469. Price, $3.00. Boston: Ginn & Co., 1910.

The authors have adopted a three-fold division of the subject: Part I, The Natural Environment; Part II, The Relation of Man to Natural Conditions; and Part III, Geography of Trade. The triple authorship corresponds to these three parts. In the book as a whole there is much to commend, while in individual respects there are many defects.

Part I, The Natural Environment, sets forth in 120 pages, the salient features of physical geography—such as, ocean, coast line and harbors, topographic forms, soil, waters of the land, atmosphere and climate. The limitations of space render it impossible for this part to stand in any way as an adequate substitute for the usual text on physical geography. It is simply an introductory section to the two which follow. In any circumstance, however, it is difficult to see the reason for giving to sand dunes half as much space as is accorded to plateaus. It is also somewhat surprising to find valleys considered as a topographic form; to find a discussion of the growing season and types of rainfall in the United States under topography instead of under the atmosphere and climate; while one is led to question sharply restriction of the term *alluvial plain* to cover only *alluvial fans* and *cones.*

Part II, which covers about the same amount of space, is devoted to two main topics: (1) Human adaptation and the effect of environmental influences; and (2) the development of trade, under the headings, agents of trade, trade routes, historical sketches and trade manipulation. This part is the best portion of the book. In many respects it is a real contribution to the field of geographic texts, since it unites in clear, concise form many of the most fundamental principles of human geography. The only real criticism which can be raised against Part II is the fact that however important the question of trade manipulation may be to the understanding of *commerce,* it is, as discussed here, hardly to be considered as geography.

Part III is the unfortunate part of the book, for in spite of being accorded approximately one-half the total space, it falls distinctly below

the standard of the first two parts. Part III is devoted to a discussion of the three leading commercial nations; one hundred pages to the United States; fifty-eight pages to the British Empire; and eleven pages to the German Empire. Under the British Empire, India, with a trade equal to Canada and Australia combined, is accorded less space than either of the latter countries.

The German Empire, the commercial rival of the United Kingdom, has no more space than either Canada or Australia, while three out of the eleven pages on Germany are devoted to a discussion of rye and sugar beets. From the standpoint of German agriculture these two crops are admittedly important, but they are comparatively unimportant in Germany's commerce. These points give an idea of the shortcomings of Part III. In addition there are frequent inaccuracies of statement and sins of omission, among which may be mentioned: the statement (p. 316) to the effect that the Southern cotton mills in the United States produce the finer goods; no mention of any centers of the cotton textile industry; and the statement (p. 309) that there has been no "serious absolute decline in production" of petroleum from the Appalachian field. As a matter of fact the five years preceding the one for which the authors' statistics are taken show an actual decline of over 25 per cent. Part III is not enough of an advance beyond the older books to outweigh these shortcomings.

For a place where only one course in geography can be offered this book is the best single text yet available. Where more than one course is offered it can hardly find a place, except in the use of the really excellent Part II for reference reading.

WALTER S. TOWER.

*University of Pennsylvania.*

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**Haney, L. H.** *A Congressional History of Railways in the United States.* Volume II. Pp. 335. Madison, Wis.: Democratic Printing Company, 1910.

In this, the second volume of his congressional history of railways, Dr. Haney considers the period 1850 to 1887. His sources, as in the earlier volume, are the Congressional Globe, Executive Documents, Presidential Messages, and other public documents; and his purpose is to trace the history of railways as shown in the activities of congress, and to trace the activities of congress in so far as they dealt with railways. Mr. Haney pronounces it a "history of action and reaction between railways or railway companies and the government. A congressional history of railways is a study in the activities of our federal government in regard to transportation by rail."

The relations between congress and the railways were twofold,—first "aid" and second "regulation." Book I contains an account of federal land grants, the attempts made by congress to make and enforce stipulations as to the free carriage of troops, mails, etc., by land grant railways, and the

attempts to modify the duties on railway iron. Since the same sources had been used by previous writers there was little opportunity to add materially to the history of land grants.

Book III deals with regulation. Among the various subjects discussed are the early mail service, the movement to break state monopolies, federal regulation of bridges, the granger movement and congress, live-stock transportation, and early safety regulation. Two chapters deal with the evolution, passage and provisions of the Interstate Commerce Act of 1887. The Cullom Report is referred to as the most influential document in shaping the act, but no further mention is made of it. It would seem that at least as much prominence might have been given to it as to the earlier Windom Report discussed in the chapter on the granger movement.

Book II deals with the relations of congress to the early "Pacific Railways," and in a way connects Books I and III. It contains a handy summary of the land grants and provisions for financial aid as finally made by congress. The discussion of the Union Central Pacific route and the lines comprising the route further south is detailed and contains much interesting congressional data. Detailed mention of the Credit Mobilier Construction Company in congress is doubtless omitted advisedly. A very brief account of the Northern Pacific is added.

Though the period from 1850 to 1887 is hardly covered as thoroughly as is the earlier period, the volume is an addition to the literature on railway history. The laboriously compiled footnote references in themselves offer opportunity for further research.

G. G. Huebner.

*University of Pennsylvania.*

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**Holdich, Thomas.** *The Gates of India.* Pp. xv, 525. Price, $3.25. New York: Macmillan Company, 1910.

Access to India has come to be so exclusively a matter of water routes that any but those who are interested in the problem of protecting India from the northwest are apt to overlook the land routes by which various civilizations have introduced themselves to the peninsula in past ages. Colonel Holdich leads us far back in time as well as far away in distance. He takes us to the land gates of India in the hinterland of the peninsula, Tibet, Afghanistan and Baluchistan, and shows the importance that these have had in affording access to invaders and merchants. Greek, Persian and Assyrian relations with the Indian frontier—the lands west of the Indus—are shown in their dependence upon the travel routes. The chapters dealing with the explorations of Alexander are especially illuminating in the portions which describe the physical characteristics of the country through which he traveled and the difficulties which he must have encountered. The middle portion of the book treats of the less familiar but perhaps even more interesting points of access used by the Chinese from the north and the Arabs from the Makran coast. A very interesting chapter gives a review of mediaeval relations between Europe and India carried on through Seistan and Afghanistan. The

later discussion is drawn from the records of various explorers English, American and French and presents the modern conditions of travel.

Mr. Holdich's work shows the result of his twenty years' intimacy with his subject. He has enriched his narrative with other material in addition to his notes. The book is an excellent summary of the results of the best historical research as well as a testimony to the explorers of the nineteenth century. CHESTER LLOYD JONES.

*University of Wisconsin.*

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**Hopkins, C. G.** *Soil Fertility and Permanent Agriculture.* Pp. xxiii, 653. Price, $2.75. Boston: Ginn & Co., 1910.

At this time when so much attention is being given to the question of conservation of resources, it is especially gratifying to have an exhaustive discussion of soil fertility, the most important of all resources, from a recognized authority on the subject. The book discusses the problems of agriculture from the scientific standpoint, but for the most part in terms intelligible to the general reader. In some of the early chapters, however, where it is necessary to expound various fundamental principles, the discussions of chemical elements, compounds and reactions are likely to be difficult for the lay mind to follow. Occasionally in other connections, also, items are introduced, as the disputed relations of phosphorus compounds in slag, which are important only to a student of chemistry.

The book is divided into four parts. Part I is devoted to chemical principles, soil formation, composition, analyses, and the relation of various soil elements to plants. Part II, "Systems of Permanent Agriculture," is a discussion of the importance of limestone, phosphorus and nitrogen, crop rotation and live stock farming, to the maintenance of soil fertility so that agriculture may be permanent. Part III is a survey of the soil investigations, crop yields, etc., at various experiment stations. Part IV is a consideration of the "various fertility factors," as fertilizers, natural and manufactured, losses of plant food in different ways, soil testing and the essentials of successful farming. Under this latter head it is interesting to note that business ability is, in the author's estimation, one of the three essentials for success. An appendix gives statistics of agricultural production, locations of agricultural colleges and experiment stations in the United States and Canada, and much other useful information to supplement the text.

The book is a veritable mine of information on the subject of scientific agriculture, and though there may be disagreement over some points, it should be highly commended. WALTER S. TOWER.

*University of Pennsylvania.*

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**Jones, H.** *The Working Faith of the Social Reformer.* Pp. xii, 305. Price, $2.40. New York: Macmillan Company, 1910.

This is a collection of essays and lectures on social problems, previously published in magazine form. The author is Professor of Moral Philosophy

in the University of Glasgow. Most of the essays were originally written in response to the incitement of some temporary circumstance. Their scholarly type and philosophic treatment give them a value far from temporary. It is the author's conviction throughout that "there is no need so imperative, none from whose fulfilment our social welfare would flow so full and free, as the convincing enunciation of a few principles which have the intrinsic right to be dominant." The purpose running throughout the book is to question the principles involved in our social philosophies, for, as the author maintains, "principles are very powerful, either for mischief or for good. They may appear to be remote from practice; but they are, in truth, the most practical forces of all. They warp our judgment of *all* facts if they are false; they inform our judgment if they are true."

The thirteen essays or lectures group themselves under the following six general titles, The Working Faith of the Social Reformer, The Moral Aspect of the Fiscal Question, The Child and Heredity, Idealism and Politics, Social and Individual Evolution, and Social Responsibilities. The discussions under these divisions vary from philosophic treatises to popular discussions. Of the latter class are four lectures under the caption "Social Responsibilities," addresses primarily to the business men of Glasgow. Their tone is eminently sane and conservative.

Of a more philosophic and abstract nature are the essays grouped under the title, "Idealism and Politics." Here the author seeks to advance one of those principles, which has the "intrinsic right to be dominant" and of which he feels the need is "so imperative." The author discusses idealism and concludes by showing that "idealism is not in the least unique in that it has taken a spiritual view of human life; it is not from that either its merits or its demerits flow. Its uniqueness lies in the fact that it has endeavored to employ the conception of spirit in the way in which the natural sciences employ *their* dominating hypothesis. It is for it a principle of research in knowledge, and of reform in private and public conduct. Idealism would follow the self-articulation of spirit in the history of beliefs and institutions, even as biology seeks to follow the evolution of natural life from form to form in an ascending series. Its task is only begun. It is no complete theory rounded and finished."

This idealistic philosophy is the characteristic viewpoint of the book. Whether one accept or reject this hypothesis there is much of great value and general interest in the author's presentation of his subject. The style of the lectures is scholarly, the subject matter excellent, and their philosophy well worthy of the careful consideration of all thinkers interested in social reform.

FRANK D. WATSON.

*University of Pennsylvania.*

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**Kennan, G.** *Tent Life in Siberia.* Pp. xv. 482. Price, $2.50. New York: G. P. Putnam's Sons, 1910.

**Bates, L.** *The Russian Road to China.* Pp. ix, 391. Price, $3.00. Boston: Houghton, Mifflin Company, 1910.

These books stand at opposite poles of our knowledge of Siberia and its

peoples. Mr. Kennan's story is based on his first trip to Siberia in 1865, an expedition largely of an exploring character though supported by a commercial company which planned a land telegraph to Europe by way of Asia. There was then no thought of international conflict; the imperial designs of Russia seemed to have a free field. Like all stories of adventure the daily experiences have almost a touch of romance.

Though the theme of the story is now forty years old it deals with subjects of contemporary interest. The home life of the natives of the far northeast has changed but little, the characteristics of the country, especially in Eastern Siberia, have been affected by immigration and the railroad only to a slight degree. Aside from the study of the natives, the splendid character of the adventure holds the reader's attention. Cossack weddings, reindeer and dog teams, native folk lore and religion, bear hunts and kindred subjects make the story often approach fiction in its interest.

Mr. Bates' journey emphasizes the present day. He shows us the conditions of travel on the commodious Trans-Siberian railroad where Mr. Kennan describes a five-thousand-mile sledge journey. He pictures the cosmopolitan civilization growing up on the hither and farther sides of Lake Baikal, the great increase of Siberian population and commerce, the international rivalries, the crude civilization of Mongolia, and its unique priesthood. Besides these chapters there are discussions of the place of the Mongals in history, Russian expansion and the place of Russia and China in world politics. The author is evidently in sympathy with the imperial ambitions of the Northern Empire. The books can very profitably be read together, for Mr. Kennan sketches the ground work, the conditions before the opening of the country, and Mr. Bates emphasizes the present day developments.

CHESTER LLOYD JONES.

*University of Wisconsin.*

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**Lingley, C. R.** *The Transition in Virginia from Colony to Commonwealth.* Pp. 218. New York: Longmans, Green & Co., 1910.

Dr. Lingley has made an interesting and instructive analysis of the evolution of the Virginia Commonwealth, which to an important degree is the evolution of self-government. In his review of the westward migration the study would be more satisfactory were the emigrants from eastern Virginia differentiated more clearly by classes and creeds, since this explains their attitude to the established church and the crown, and their subsequent vigor in supporting the revolutionary movement.

Due emphasis is placed on tobacco as a commodity of commerce as well as the part it played in the controversial period preceding the passage of the Stamp Act. In the chapter dealing with Governor Dunsmore's administration appears a detailed narrative of how Patrick Henry, the fearless advocate of the Dissenters, became a daring leader in the first pre-Revolutionary force-of-arms movement. The tracing of the consolidation of sentiment between the colonies, following Virginia's initial move in appointing a committee of correspondence, is an important part of the contribution.

That the Virginia delegation led in the first Continental Congress is evidenced by the fact that the terms of agreement were practically identical with the resolutions previously passed by the Virginia convention. The guidance and influence of the Virginia delegates in the framing and adoption of the constitution is properly made the subject of careful compilation. The historical citations leave no shadow of doubt as to Thomas Jefferson being the dominant spirit in laying deep and permanent the foundations of democracy.

G. T. SURFACE.

*Yale University.*

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**Martin, W. A.** *Treatise on the Law of Labor Unions.* Pp. xxv, 649 Washington: John Byrne & Co., 1910.

The growth of combinations both of labor and capital gives to all discussions of the law of labor unions an increasing importance. New questions are continually being presented for judicial settlement because of the changed economic and social conditions. This development is chiefly confined to the last two decades in which period more cases have been decided on this subject than are reported during all the time previous.

Mr. Martin's work applies the elementary principles of the law of torts and conspiracy to questions of labor union law. He hopes thereby to be able to show the line which the courts should follow in their decisions. This gives us an excellent exposition of the present law, but the basis on which it is made is hardly one which will suit the social worker. The language of the author shows that he believes that the basic rules of the law of torts and conspiracy establish "perfect equality before the law" in the relations between the workmen and the capitalist. This, as has been pointed out in many of the recent decisions, is true in theory, but on account of economic conditions, is not true in fact.

Mr. Martin's discussion is however judicial and constructive under the limitations which he sets for himself. He regards many of the present holdings as unjust to organized labor. He believes the courts will finally sustain the right of the workmen to threaten strikes in order to prevent the employment of certain objectionable men; that they will sustain the rights of the unions to use disciplinary measures to compel insubordinate members to join lawful strikes or continue on strike; that they will allow certain sorts of picketing and will refuse and enjoin unions from giving strike pay or expending money for picketing.

There are decisions he regards as unjust to capital. The secondary boycott will ultimately be recognized as illegal. The absolute right of the members of the union to quit work will be denied whenever such action depends on malevolent motives. Any legislation which tends to make legal concerted action in connection with a trade dispute which would otherwise amount to a conspiracy will be annulled.

Three-fourths of the book, as should be the case, are taken up with the

discussion of the law of labor disputes; one-fourth is devoted to the cases on the internal organization of labor unions and the protection of the union label. The leading American and English cases are collated and the appendix gives a valuable series of forms which fit the questions most often arising in connection with labor unions.

*University of Wisconsin.* CHESTER LLOYD JONES.

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**Stephenson, G. T.** *Race Distinction in American Law.* Pp. xv, 388. Price $1.50. New York: D. Appleton & Co., 1910.

Few people realize how numerous race distinctions are in our statute law. Hitherto it has been difficult to obtain information as to the situation in the various states. In summarizing the legislation and court decisions, therefore, the author has performed a very useful service. He recognizes that law and custom are often at variance and in a few instances he reports his own findings as to facts—for illustration, the extent of jury service by Negroes.

Distinctions and discriminations are very different things and ofttimes only by the former can the latter be avoided. Our law should therefore recognize as may be necessary race distinctions. Such is his philosophy. Practically the study concerns only the laws enacted since 1865 and practically also, in spite of the title, deals only with the Negro.

In covering such large subjects as the "Black Laws," "Marital Relations," "Intermarriage," "Civil Rights," "Separation in Schools," and "Conveyances," "Court Room," "Suffrage," the discussion must necessarily be brief. Citations of law and decisions are given. It is too much to expect entire accuracy. The author may know that in some country districts as well as cities in Pennsylvania Negroes to-day must attend special schools though that is not the impression given by the text. He may know that in some districts of the South the Negroes probably pay in taxes more than is spent on their schools though he suggests only the current and contradictory position. Some such slips or omissions are unavoidable. As a whole the work seems carefully done and should be of great service to students.

CARL KELSEY.

*University of Pennsylvania.*

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**White, A. D.** *Seven Great Statesmen.* Pp. xi, 552. Price, $2.50. New York: The Century Company, 1910.

The statesmen selected by Mr. White for study are Sarpi, Grotius, Thomasius, Turgot, Stein, Cavour and Bismarck. The volume is one of the most interesting and instructive books of the year. The reader would naturally expect a book of high order from the pen of Andrew D. White, and those who have enjoyed and admired his previous works will find the author still possessing his old-time charm. The work of the seven statesmen selected, and its bearing upon the world's history, are presented with exceptional force and clearness. The author's personal acquaintance with Cavour and Bis-

marck gives especial interest to the sketches of those two statesmen. The longest and on the whole most brilliant of the seven essays is that upon Bismarck. The strength and weakness of the builder of the German Empire are strikingly portrayed. Future students of German history will undoubtedly turn to this paper frequently, because of the light it throws upon many controverted questions.

The analysis of the work of Stein is also admirably done. "He was second in point of time, of the three great German statesmen since the Reformation. The first of these was Thomasius, mainly a publicist. . . . . In any comparison between the latter two [Stein and Bismarck], the world at large will doubtless award the first place to Bismarck", but Mr. White points out that Bismarck had at his command greater forces and had the support of William I, of Moltke "the greatest soldier since Napoleon," of Roon, "the greatest of army organizers," and finally of "an uprising of German feeling fully equal to that which Stein had done so much to arouse against the Napoleonic tyranny." Mr. White gives Stein a place equal to Bismarck "as regards services to German nationality, superior as regards service to humanity."

The present controversies between the papacy and the governments of Portugal and Spain give added interest to Mr. White's account of the Sarpi's heroic services to Venice in the struggle against Rome; while the recent activities of the International Tribunal at the Hague give timeliness to an estimate of the life and work of Grotius "who thought out for Europe the precepts of right reason in international law."

Not the least among the charms of Mr. White's book is the appeal it will make to the general reader. It will be instructive and entertaining alike to layman and specialist.

EMORY R. JOHNSON.

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**Wright, C. W.** *Wool Growing and the Tariff.* Pp. xiii, 362. Price, $2.00. Boston: Houghton, Mifflin Company, 1910.

This book contains a careful study of the relation of the American protective system to the wool growing industry. It is to be hoped that this study of one phase of our tariff history will soon be followed by others dealing with other industries. So many generalizations are made to-day in reference to the influence of tariff legislation on industrial development that a concrete study of one industry is to be welcomed by all thoughtful students of the subject.

The author traces the rise of the wool growing industry in the east, its steady progress westward, and its final location in the Far West, where it is to-day in a new position no longer quite able to hold its ground. Throughout the historic treatment, much interesting light is thrown on the general economic conditions of the times. Though the book is primarily on wool growing, the author correctly maintains that its development cannot be properly understood as an isolated phenomenon.

The primary object of the study is to ascertain to just what extent the various changes in our tariff policy have either aided or retarded the development of the industry in question. The author throughout his investigation constantly emphasizes the fact that not *one* but a great variety of influences have at one time or another affected the course of the wool industry, and that the same factor has never been the ruling one for any two successive periods. When it is stated that the development of the industry has been controlled in turn by "the spread of population, the rise of manufactures, the relative changes in the prices of agricultural products and the competition of other farm pursuits, the abnormal conditions of war with its distorting inflation of the currency, the opening of the Far West, and again the greater relative profits in other lines of agriculture," it seems as though the author had left little room for any influence on the part of our past tariffs. This in fact is the author's conclusion. "There was not a single one of the periods into which the history of the period has been divided when we did not find some one influence, or possibly some half-dozen, more potent than the tariff. At best the tariff was of minor importance." Its influence has been only in the field of raising the price of wool above that in the world's market, and thereby somewhat increasing the number of sheep in the country, chiefly since the war, and after the rise of the industry in the Far West. This increase in the number of sheep, the author views as but a relatively small proportion of the total number of sheep. "The assertion, frequently met, that the very existence of the sheep industry of the country depends on the duties finds no substantiation in the facts of history."

"As for the future, there seems at least a chance that the tariff may play a more prominent part than heretofore. Present tendencies point to a decline in sheep-raising as an independent industry mainly for wool. Mutton will increasingly become of first importance, and wool secondary. In the East, where sheep promise to be incidental to general farming, and wool subordinate to mutton, the basis of the industry will be such that the tariff on wool can be of but comparatively slight moment. In the West, which offers far larger possibilities and a more dependent basis, the competition of the foreign grower is likely to become more serious, and there, in the main seat of the industry, protection can do much more for the wool grower. Still in that section also, just so far as mutton becomes the main object in place of wool, to that extent the weight of this foreign rivalry will be lessened, the security of the industry strengthened, and the influence of the tariff diminished."

In the opinion of the author the most far-reaching influences in the various phases of the development of the industry has been the slow sure march of the center of industry from the Atlantic coast to the Far West, following or rather accompanying, the westward movement of settlement and development so characteristic of the American economic history of the nineteenth century. Wool is primarily a "frontier" product. In proportion as a section of a country becomes more densely populated sheep raising for the clip seems to decrease. The land becomes more valuable for other purposes and the available capital seems to find more remunerative channels.

To the book are added several valuable appendices, one of which contains an exhaustive bibliography. The others contain tables largely statistical giving such information as the number of sheep and amount of wool produced in the United States, 1840-1907, etc. In addition there is an index. Throughout the work are to be found many footnotes of value to the more interested reader. Altogether the book is a valuable addition to the literature covering various phases of American economic history.

FRANK D. WATSON.

*University of Pennsylvania.*

# The Public Health Movement

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# THE ANNALS

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# BOOK DEPARTMENT

CONDUCTED BY FRANK D. WATSON



## LIST OF CONTINENTAL AGENTS

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PART ONE

# *The General Problem*

# HEALTH NEEDS AND CIVIC ACTION

By William H. Allen, Ph.D.,
Director Bureau of Municipal Research, New York City.

Of $112,000,000 requested last year in 4400 appeals to one New York philanthropist, $1,075,000 was asked for various co-operative health purposes. Of this total, only $45,000, or less than one-half of one per cent., was asked for preventive or educational health work. The rest was for hospitals, dispensaries, clinics, etc.

Of $163,000,000 in public benefactions last year, $19,100,000 was for health purposes. Of this not one dollar was for teaching laymen or governmental officials how to use knowledge already possessed, while $6,800,000 was for finding facts not yet known about cancer, hookworm, etc., and $12,200,000 for hospitals and medical colleges.

When John S. Kennedy's will provided for public benefactions of $32,000,000, not one dollar was given in a way that indicated an interest in preventive health work, or in what we speak of as the "health movement." The only part of his gift of which he could have been certain that any fraction would be applied to preventive and educational health measures was the $750,000 for the New York School of Philanthropy, where in the treatment of social and civic subjects, considerations of private and public health are given emphasis.

Among the world-famous gifts of Mr. Rockefeller and Mr. Carnegie, which together total nearly $350,000,000, not one dollar has been given specifically for furthering the administrative use of health knowledge already possessed, whether by experts or by the public, and less than $10,000,000 is known to have been given for hospitals and medical research.

What does it mean to the "health movement" that, while hospitals received last year in wills and in large gifts over $10,000,000, the National Committee of One Hundred could not raise $10,000 to show the need for a National Bureau of Health?

Is it not really true, as might seem from the figures, that rich

men and women prefer to spend their money on curing a handful rather than on protecting a townful, or on training a few medical students rather than on training a nation? Is a *not-yet-found* germ of disease more alluring to a philanthropist than a *not-yet-found method of getting communities to kill the infinitely more important and more famous germs already understood, and to apply for all of us the laws already known to the favored few?* No. They give from misinformation, not from choice.

The gap between what we know and what we get done—between obvious opportunities for large giving and the actual large giving for health purposes—is one helpful index to the present status of the "health movement" in the United States. It is not true, as one is apt to imagine when reading a list of health activities—of beginnings such as are described in this volume—that a nation has been won over to a full appreciation of its health problems. True, subjects that were considered impossible for use in the magazines and newspapers ten years ago are given prominent places with profuse illustrations. True, as the physician has lost his monopoly on knoweldge of health laws, the layman has found health stories and health work absorbing. True, our bill-boards, street cars, magazines and newspapers, afford innumerable evidences that huge factories have been built and stores started to cater to the new appreciation of health laws—*e. g.*, vacuum cleaners, incinerators, sanitary drinking fountains, sanitary underwear, ventilated shoe-soles, disinfectants, "spotless town" soaps, health cereals, etc. Yet we are barely beginning, and cannot go much farther without giving new direction to two forms of private benefaction: (1) money gifts by rich men and women; and (2) thought gifts by those who most influence private giving and public spending.

If private giving had none but positive influence, we could afford to disregard it, for its volume is small when compared with health work done through taxes. But private giving has also negative, obstructive, deflecting, inhibiting influences on those who read of it. In fact, its *thought and feeling product* is vastly more significant than its *cure or relief product.* For example, when John D. Rockefeller said to the world, "There will never be money enough to do the world's uplift work," he started in motion forces and doubts and compromises that will do vastly

more harm to the South than the hookworm. On the other hand, by a statement in his autobiography that there is money and to spare to do the world's uplift work, the world's most intelligent giver on a large scale would have done more good than millions for health or medical education. Therefore, it behooves us who are enthusiastic over the immeasurable strides recently made by the "health movement" to consider the direction of our thinking about *the work that remains to be done.*

Let us take up some of the alternatives confronting rich men and women, and the still richer communities of taxpayers who are confronted with the same facts as are rich men and women, to illustrate some of the misconceptions now current.

The medical examination and inspection of school children has "arrived." Newspapers and magazines have given miles of space to describing the benefits to school children from having their physical defects discovered and from being constantly protected against the spread of transmissible diseases. Taking one hundred readers of THE ANNALS at random, probably ninety of them will be under the impression that certainly the greater number of twenty million school children are now enjoying the benefits of these advanced methods so widely heralded. The actual condition, so far as state laws are concerned, is that medical protection to school children is provided for in but ten States. Even in New York State itself at the present writing the educational and health officials are under the impression that this is not a good year to introduce a bill providing for physical examination of all children in all schools. The only place in the country where children in private and parochial schools, as well as in public schools, are by law assured the benefit of medical inspection and examination is in the city of Indianapolis. It is true that in almost all of the larger cities there is now a nominal effort to discover physical defects. It is also true, unfortunately, that with few exceptions, the discovery of the physical defects goes no farther than the statistical records of the board of education or the board of health.

In New York City, which, because of the large figures necessary to describe its experience, is responsible for the greater part of the publicity on this subject, the city superintendent reports that for the last school year but a little more than one-third

of those in the schools were examined at all, and of 264,425 defects found, only 113,278 were remedied. To get this total of defects remedied, the health inspectors advise tooth brushes *as treatment* for defective teeth.

Except as money and time are spent in getting done what now everybody knows ought to be done for all children in all schools—laws compelling examination, school nurses for examination, school physicians for diagnosis, house-to-house instruction of parents, harnessing hospitals, philanthropists and health departments to preventive and educational work, establishment of clinics, constant comparison of work attempted with work done, hygiene instruction and hygiene practice at school, which will stop manufacturing defects at their source and give the children right habits—it will be generations before the majority of our children will have these health rights which most of us now take for granted they possess. The money which will build one hospital in Chicago would get all schools in the country under this legitimate load.

The story of the "dental awakening" affords another illustration of the need for constant challenge of our expenditures for health. Men have been pouring millions upon millions into hospitals. It is now admitted that many of these millions have been worse than wasted, because dental knowledge has not been applied within hospital and dispensary walls. So much more is now being done by dentists than was done five years ago to enlist the layman's co-operation and to emphasize the dentist's social mission, that even among dentists themselves the impression is gaining currency that the world is aroused to the need for dental care. Many a city, however, has had the experience of New York: (1) Physical examination of school children without proper examination of the teeth; (2) Piling up records of defective teeth with almost negligible facilities for securing treatment; (3) Permitting children's teeth to be extracted when they should be repaired and cleaned; (4) Heralding one or two dental clinics as evidence that dental needs have been recognized; (5) Promise of wholesale co-operation between dentists and public schools with practically no examinations or treatments of children. The $2,000,000 given for dental clinics and instruction in dentistry in Boston could be so used as to

give a nation clean teeth and habits that will preserve clean teeth. Would it be worth while?

The crusade against infant mortality has finally come down to the simple proposition of what the mother knows and does for her baby. The only agency in any community equipped to do 100 per cent. of the educational work that is required to equip mothers to save their own babies is the city or state government. Those most interested in saving babies have the choice of spending time and money in getting done 100 per cent. of the educational work for 100 per cent. of the mothers who need it, or diverting public attention and private funds to the maintenance of a few nurses or a few milk stations, or, worse still, a few babies' hospitals. When confronted with this choice in Hoboken, Mrs. Robert L. Stevens established a memorial to her husband which shall be used "to increase, year after year, the number of mothers and fathers who will take an interest in Hoboken's city government, so that schools shall be progressively better, streets cleaner, recreation more enjoyable, and health rates and civic ideals progressively higher."

What promises to be the most conclusive demonstration in infant care ever made in this country is that shortly to begin in New York City, where fifteen milk stations will be maintained by the department of health and supplemented by district nurses in all needy sections. Attempt to picture 100 per cent. of the problem has been made by the New York Milk Committee, which is now asking for $300,000 for enough milk stations so that this coming summer no baby and no mother will be without the direct and constant educational influence of those who know that there was absolutely no excuse last summer for losing 3293 babies, under one year of age, just "because the weather was hot."

The campaign for a National Bureau of Health and for the Children's Bureau discloses elements which we must keep constantly in mind in any health program. They emphasize particularly the need for funds ample to permit those who conduct any educational campaign to keep everlastingly at it. The Committee of One Hundred not only has never had the money which its opportunities justified and required, but it has never dared to ask for money enough to meet, for example, the miseducating campaign of the quack medicines and quack medical men who

fear a strong health policy at Washington. When we stop talking of public benefactions, as if each were an intelligent gift and could possibly do no harm, it is inconceivable that again, as in the past, when this national health policy needed public support, nearly $300,000,000 will be given away for public purposes by the very private citizens who refuse to help a nation-wide crusade for individual and public health.

The National Children's Bureau adds its testimony and, in my judgment, its warning to those who are investing energy or money in promoting health campaigns. It would have been just as easy to interest Theodore Roosevelt in the possibilities of the United States Bureau of Education, United States Bureau of Census, and a United States Bureau of Health, as in a special not-yet-existing Children's Bureau. The same energy that tried to arouse a country to the need for an additional agency, with an income of $30,000 or $40,000 a year, could have organized and galvanized these other already existing agencies, in touch with a half-million teachers, fifty state and colonial superintendents of education, fifty state and colonial departments of health, all the city bureaus of vital statistics, etc. We social workers can hardly hope to divert the millions upon millions of private philanthropy that now pour into curative institutions over into preventive work, if we ourselves fail to see that our greatest problem, like our greatest opportunity, is in making existing agencies efficient, and in getting done what we all know ought to be done in ways that we know it should be done.

It is one of the anomalies of present-day reform, and even present-day health work, that we undervalue the potential service of the newspaper, except when we want to make appeals for our own work. The Healthgrams of Chicago's health officer, Dr. William A. Evans, could, if generally known and generally imitated, do more for nation-wide promotion of health than a thousand hospitals. Why will we go on believing it is worth while for private philanthropists to work in a few spots a part of the time, while permitting newspapers, street railways or billboards to advertise, all of the time to all of the people, various nostrums which aggravate disease and manufacture misconceptions on which disease thrive? In two New York Sunday papers one issue printed 27 columns of advertising more potent for evil than

27 cases of smallpox equally flagrant. Have you ever compared the amount spent in your city by private philanthropy to fight tuberculosis with the amount spent by quacks to advertise quack medicines for these same tuberculous neighbors?

Take, for instance, the campaign against infant mortality. It would be an interesting study to note on what days of last year the newspapers of your city printed facts about saving babies. Were these newspaper items and editorials addressed to the mothers who have the babies, or to the men and women who have the money to support private work? Did they relate to 100 per cent. of the babies, or to one per cent. or to 10 per cent. cared for in different private institutions? Was the maximum attention given in the summertime when babies could be saved, or in wintertime when the annual reports of child-saving institutions were published? In New York City, at the height of the infant mortality of last summer, toward the end of June and early in July, day after day, hundreds of thousands of citizens, including practically all mothers of young babies, read shouting headlines to the effect that there was no hope for reducing infant deaths because the hot wave would last another week. Private agencies, instead of coming "square back" to the mothers through these same welcome sources of information, utilized the torrid wave to state their own need for funds. The health department itself finally accepted the co-operation of the newspapers, and day after day told the New York public that babies died because the milk was warm or unclean, and not because the weather was hot or baby was hot.

In my judgment, we cannot go much farther in our health crusades without more funds for making such effective use of the newspapers as has characterized the crusades for legislation against the white plague and child labor.

Propaganda for more laws or more hospitals makes news more easily than propaganda for the enforcement of laws already obtained, and the effective use of hospitals and health agencies already established. Here energy and money must be spent in getting facts about the non-enforcement of child labor and other laws, and the administrative remedies for the non-enforcement of our child labor, factory, truancy, compulsory education laws, etc.

Just as we are never going to have dentists enough to do the repair work for a nation with unclean teeth, so we are never

going to have private agencies enough to undo the evils of inefficient administration by public officials and employes who are working for good or evil every day in the year with the momentum of 100 per cent. of their communities. Clean streets are more deadly enemies to tuberculosis than are hospitals and dispensaries. Efficient state and local departments of hea' ; can do more to check transmissible diseases than state and local private organizations. Getting 100 per cent. of us "under the load" by placing our official representatives under that load, with methods that do efficient routine work, is a duty imposed upon all of us by the growing interest in health laws. As Superintendent Young illustrated by opening Chicago's school windows, it is infinitely more important to give 100 per cent. of our school children proper ventilation than to start open-air classes for the anæmic and tuberculous.

The only time in the year when our communities attempt to picture 100 per cent. of their health opportunity and health needs is when they are preparing their local or state budgets. The only document that pretends to outline 100 per cent. of a community's health needs is the budget estimate. The only document that pretends to describe 100 per cent. of what a community proposes to do next year for promotion of health is the city budget. Yet to a degree that is astounding, when one considers public responsiveness to the "health movement," budget estimates, budget hearings, budget making and budget possibilities are still unknown lands to health crusaders.

Still more of a stranger is interest in the after-budget fulfillment of before-budget pledges. From one end of the country to the other are illustrations in almost every city, that getting money voted for a health purpose is by no means the same thing as getting money used for that health purpose.

In October, 1909, at a taxpayers' hearing on the budget for the year 1910, the need for a comprehensive fight against tuberculosis was presented with a skill and with authority such as were probably never before equalled in any public hearing in any American city. All the money was voted that such famous experts in the fight against tuberculosis as Robert W. DeForest, Abraham Jacobi, Simon Flexner, Woods Hutchinson, etc., declared was needed. Public schools, Bellevue and allied hospitals,

and the health department, received all the money asked for the tuberculosis campaign. Yet with two months' full notice that the money would be available January 1, 1910, not one of these agencies was ready on January 1st to begin to spend the money as planned, and not one of these agencies had spent the money as planned by December 31, 1910. The health department allowed $4727 in January, $2590 in February and $9875 by July 31st to lapse for want of organization and direction. Instead of twenty out-door school rooms, the board of education equipped but three and used but two. (Those wishing information on budget making and budget estimates, budget hearing and after-budget records and accounts that will disclose the truth about after-budget uses of appropriations, are referred to the Herman A. Metz National Fund for Promoting Efficient Municipal Accounting and Reporting, 261 Broadway, New York.)

Utilization of health knowledge already known requires attention now more than the discovery of facts heretofore concealed. With almost negligible exceptions, we can stamp out diseases common to man without knowing one more fact regarding medicine. The great problem of the next few years is to show medical men themselves and philanthropists who like to give money for training medical men and medical research that the supreme need is for administrative use of medical knowledge already in hand.

An investigation by the Carnegie Foundation for the Advancement of Teaching has given the physician's halo and that of the medical college a pretty severe tilt. Hundreds of thousands of readers, who, until that report, felt that medical schools were distributors of health knowledge, were made to see that what the country needs even more than physicians are men and women who can teach to what a very great extent physicians are unnecessary. For example, after working for a couple of years, the Rockefeller Fund seems to have proved conclusively that the cure for the hookworm requires chiefly the application of a few elementary principles of cleanliness. The great problem in the South seems to be, not to find germs, analyze them and discover means for killing them, but to give the Southern farmer and small town modern standards of cleanliness and modern local and state machinery for applying modern sanitary methods everywhere.

Likewise the union of Columbia University and the Presbyterian Hospital for the bedside training of medical men raises a question whether an additional step must not soon be taken to supplement bedside instruction with sewer-side instruction, unclean milkshop-side instruction, unclean home-side instruction, uninformed mothers-side instruction, unlighted tenement-side instruction, unventilated factory-side instruction, etc.

It is not true that a cause is always advanced when everybody comes to see the necessity for promoting it, and when everybody talks about it. Oftentimes consciousness of social need acts like a drug, putting the public to sleep instead of opening its eyes, unless supplemented by administrative acts which harness public conscience and public intelligence to efficient daily routine work.

Immediately after hearing of the Slocum disaster—the burning of several hundred women and children on an excursion boat on the Hudson River—I telephoned to Sea Breeze to ask about our fire protection for several hundred mothers and children on fresh-air outings, and for forty children suffering from bone tuberculosis. Fire drills were started at once, and upon my first visit I asked to see one. The promptness, efficiency, pleasure and order that characterized that fire drill were a joy. There was just one defect—nobody had been detailed to turn on the water. Had there actually been a fire, it is not inconceivable that buildings would have been entirely empty or several lives lost before discovering it was nobody's business to turn on the water.

This is the condition of a great number of our health crusades at the present time. The public is convinced, everybody knows that water puts out fire, everybody knows that there must be organization, but in too many instances, even when we have our fire drill organized, we have not yet arranged for turning on the water and keeping it on until the fire is out.

Social workers and the philanthropists and officials they try to influence can pay biggest dividends these next few years by seeing and taking the administrative steps necessary to utilize, every day in the year, the knowledge they already possess *through the only agencies which belong to all of us, which make mistakes or advance steps in the name of all of us,—our city, county, state and national governments.*

# HOUSING AND HEALTH

By Lawrence Veiller,
Secretary, National Housing Association, New York.

Dirt and disease have gone hand in hand too long. As modern surgery owes its rapid strides to the discovery of asepsis and the banishment of dirt from the operating room, so modern medicine is about to come into its own through the banishment of dirt from our communal life. The slum, the mother of disease, is now doomed. Its end is in sight. From ocean to ocean, throughout the land, there is a newly awakened consciousness of our past folly and a slowly dawning perception of our inherent right to decent conditions of living.

We have paid dear for our slums, and have given hostages to fortune, leaving a heavy debt for posterity to liquidate. No one has even attempted to estimate the cost to the nation of our bad housing conditions, because it is an impossible task. Who can say of the vast army of the unemployed, how large a portion of the industrially inefficient are so because of lowered physical vitality caused by disadvantageous living conditions? To what extent is the forbidding atmosphere of so many homes an element in the problem of inebriety? Of the burdens which the State is called upon to bear in the support of almshouses for the dependent, hospitals for the sick, asylums for the insane, prisons and reformatories for the criminal, what portion can fairly be attributed to adverse early environment?

Despite our vaunted civilization, our material prosperity, our increasing love and appreciation of things artistic, our greatly improved architecture, our musical development, our mastery of the mechanical world, our readiness of invention, our diffusion of education, our higher standards of liberty, in a word, our greatly increased culture, we are still in some respects "barbarous America." From the past no word comes to us of the slums of ancient Tyre or Sardis or of noble Athens—only a faint breath from decadent Rome, to tell us that the worst they had did not approach the evils of present-day America.

In the great majority of our cities we are still in that rudimentary state of sanitary knowledge where we know no better than to surround ourselves with the vilest elements of human waste, which we allow to remain near the homes of the poor for long periods of time, turning living places which should be gardens of delight and centers of sweet repose into nothing more nor less than disease factories, whose daily output is literally disease and death. We still suffer to remain in large numbers even in the crowded quarters of our cities, where the poor are huddled close together, and where disease spreads quickly, thousands of vile privies, vaults, sinks, cesspools, outdoor closets, "sanitary conveniences," so-called. No one knows how many thousands of these there are, but the city where they are not present in large numbers is exceptional. Even New York, with its four and three-quarter millions of people, had 7000 of them up to a few years ago. Baltimore still has 70,000 earth closets, and through all her existence has had no system of public sewers, but only now is installing one. St. Louis can still show 12,000 privy vaults, Philadelphia and Chicago have literally hundreds of thousands of outdoor closets, and many privies and cesspools. Indianapolis, Milwaukee, Pittsburg, Cleveland, Cincinnati, Nashville, Birmingham—all have to admit the presence of these ancient evils by the thousands. The list might be added to indefinitely. Hardly a city in America is free from this blight.

That such conditions could prevail among the cultured, well-to-do, progressive people of America to such degree is unthinkable. That people of intelligence and wealth would continue to live in such surroundings is not to be believed. And, of course, they do not. These conditions are to be found only among the homes of the poor—in our slums, in those foreign colonies which we have allowed to spring up in the various sections of our cities, "empires within an empire," segregated from American institutions, isolated communities feeling but slightly the touch of democracy—"social Saharas," as they have been aptly called.

Just because these evils have been removed from our immediate sight we have foolishly fancied ourselves secure, and have believed that they do not touch us. But the "mighty miasmatic breath blown from the slums" penetrates all parts of the town. No home is

exempt, no person secure. Disease, no respecter of persons, visits all alike.

The sordidness of it all, the degrading baseness of it, unfortunately is withheld from the eyes of most of us. What it means to the people who have to live in the midst of it we can but faintly conceive. Let us frankly admit that these conditions result in imposing upon the great mass of our working people habits of life that are more compatible with the life of animals than with that of human beings. What it must mean in its effect on the standards of decency, of modesty, of morality even, of young girls growing into womanhood, I leave to the reader's imagination.

The effect upon health is direct and intimate. To the debilitating influence of the noisome odors in the hot summer weather may be traced much of the illness of the poor; to such influences are largely traceable their lowered vitality and inability to readily resist disease. The connection is even more direct; myriads of flies swarm throughout the hot months, feed on the contents of the vaults, and then proceed to infect the food supply of the people in the neighboring stores, in the kitchens where food is preparing—and with their dangerous burden crawl upon the faces and bodies of the sleeping infants in the homes of the poor. Nor do they stop there—even the homes of the rich are not exempt from the dangers of the typhoid fly.

That conditions such as these should grow up in a young community like America, without our becoming conscious of them, is not strange, but the time is rapidly passing when we can longer plead ignorance and extreme youth as excuses for our failure to act.

Few cities have as yet dealt effectively with this situation, but, fortunately, the number which have awakened to the significance of these conditions is constantly increasing.

We are rapidly passing out of the stage where the representative men of a community with whispers discuss these evils and in subdued tones deprecate their ventilation on the ground that it is "bad for business" and will "hurt the city's fair fame." Far-seeing men realize that any such ostrich-like policy but postpones the evil day, that the continued tolerance of the conditions in the long run injures the city and that a low death rate and a

well-earned reputation as "a city of homes" is one of the best assets a city can have. Such men realize that frank, open-minded discussion of health needs is a prerequisite to their cure. Diagnosis must precede treatment. In many cities groups of business men, chambers of commerce, etc., are themselves actively taking hold of these problems. They are abandoning the policy of concealment and working that there may be nothing to conceal.

Strangely enough, democracy itself seems to be an obstacle to sanitary progress. It is a disconcerting and startling discovery to make, but the evidence is unmistakable. In those cities where the "workingman owns his own home," where there are miles and miles of small one-story and two-story houses, the sanitary authorities will tell you that they have the greatest difficulty in meeting health needs, in securing adequate appropriations, in enforcing higher standards. A low tax rate becomes in such communities a fetich of sinister effect. Where the community is made up to a predominant degree of working people, many of whom "own" their own homes by the payment of but $25 or $50, as is frequently the case, the tax rate becomes directly felt to a degree that cannot be appreciated in other communities where the burden of high taxes is more widely distributed and is frequently disguised in the form of rent and increased prices of commodities.

In such cities every public expenditure is viewed with the closest scrutiny—public officials, who owe their office to popular vote, are loath to pursue any course of action that will impose upon the electorate at large additional expense. Bond issues for needed public improvements, for installing a system of public sewers, for example, or for alley improvement, are often voted only with great difficulty.

The small property owner, with limited resources, staggering frequently under burdens which he should never have placed on his own shoulders, lured by "land hunger," and sometimes by the hunger to be a landlord, is the greatest obstacle to progress. Burdened as he is, limited in his intelligence, his own standard of living low, his knowledge of sanitary science practically *nil,* it is not strange that he should not place the welfare of the community above that of self-interest, and should not divorce in his

consideration of public questions, their effect on his own pocket from their value to his neighbors and to posterity.

The low standards of living of such a man are further obstacles to sanitary advance. Living himself under sordid surroundings, content with the conditions that he has known from early childhood, he can see no reason for the new "fads and fancies" which the health authorities would compel him to provide for his tenants. If vaults are good enough for him, they are quite good enough for his tenants, whom he considers as social and industrial inferiors.

The false cry for "economy" which now is so popular, and which is usually a cry for false economy, threatens to wreck our institutions. Its appeal to the taxpayer is immediate and satisfactory. His materialistic sense is gratified, and he cares little if it means a serious setback to the sanitary and social progress of the community. It will take the country years to recover from its present hysterical outbreak in this direction.

It will be a long time, I fear, before we return to a sane realization that with our advancing standards of civilization, the increased burdens imposed by unrestricted immigration, and our constantly enlarging conceptions of governmental functions, expenses of government must necessarily increase from year to year. New sources of revenue must be developed, due economy should be practiced, waste eliminated so far as practicable, but retrenchment in public expenditures should never be made at the expense of the health of the community.

It is due largely to the conditions just described that we have as yet in no city dealt effectively with our alley problem. The alley is both a blessing and a curse. As a means of letting light and air into the interior of city blocks that would otherwise be without it, it is a distinct gain. And the few cities that have no alleys feel their misfortune in this regard most keenly. The small, pocketed back yards, shut away from the free current of air, are unknown in the city with alleys. The alley is generally however, an evil. As a minor street, hidden away at the rear of everything, it becomes the dumping ground for all the cast-off material of humanity. Here will be found collected, in all stages of picturesque disorder and sordid squalor, all of the unpleasant things of our material existence.

The privies generally are close to it. Piles of manure, those pest factories which breed uncontrolled the typhoid fly by myriads, frequently overflow into it. Uncollected garbage, in the hot summer months, lies there in decaying heaps. Surface water, slops, wash-tub emptyings, leakage from privies and from stables cover the surface with slime. Old paper, tin cans, rubbish and refuse of every kind are everywhere; huge rats, living and dead, add to the general horror.

In many cases, these are the playgrounds of the children of the working people. In some they are the only approach to their homes, the sole outlook upon life they get from the windows of their dwelling places. And we wonder at the improvidence of the poor, at their inebriety, at their shiftlessness! We are surprised at the burdens which the State has to bear in the support of the defective and delinquent.

Unpaved, as most alleys are, the cleaning often is a difficult problem. This difficulty is greatly enhanced by the fact that in most cities the city itself assumes no responsibility for their cleanliness, but looks to the abutting property owner to perform this function. The result is what might be expected. We years ago passed beyond that stage of our development where we imposed on private citizens the responsibility for cleaning the streets in front of their houses, but we still, in many cities, foolishly expect them to clean the streets in the rear. In few cities are the alleys policed or lighted at night. They become often, therefore, the haunt of criminals, and naturally lend themselves to practices which shun the light.

All of these evil conditions are well recognized in most of our cities, but the same causes that have tended to perpetuate the evils of the privy vault have been operative here as well. The small property owner, to whose wishes the elected public official is sensitive, objects to assessments for paving the alleys. He sees no "benefit," in the financial sense, to his property, and he is unwilling, as a rule, to be asked to pay for an improvement which, from his point of view, does not "improve," and which he thinks too good for the class of people from whom he draws his revenues.

The alley, if it is to remain, must be treated as a street. It must be paved; it must be cleaned at regular intervals, that is,

kept clean, not made clean; it must be lighted and it must be policed. Before any of these things can be done the city must officially assume responsibility for it; where it does not already own the fee, the owners must dedicate it to the city.

The cry for "economy" and the desire to keep down the tax rate operate against the carrying out of these measures. If the alleys are to be cleaned by the city as often as the streets are cleaned, the cost of street cleaning will increase at least fifty per cent. So, if they are lighted and policed, the city's yearly expense will be similarly increased.

But it is a false economy that stands in the way of carrying out these greatly needed reforms. It is saving at the spigot and wasting at the bung-hole. We are paying the cost now, in fact, but in indirect and less obvious ways. It will cost the city more for police, but less for police courts and jails; more for street cleaning, but less for hospitals and relief. It is better economy to keep people well than to get them well, to prevent crime than to punish it. The cost must be paid one way or another. If we refuse to pay it in treasure now, we must pay it in both blood and treasure in the end.

The filth and squalor which surround the homes of the poor in so many of our cities may be traced to similar causes. From the very nature of things, the working people cannot be expected to hire carts and cart away the refuse which accumulates. Nor is there much likelihood of the average landlord doing this under the conditions of our ordinary urban existence.

This is a function of the municipality, and, if the city neglects it, the responsibility must be placed where it belongs, upon the city officials who are so benighted that they do not see the short-sightedness of their policy, and upon the citizens who are so penurious that they prefer to tolerate the evil conditions rather than increase the cost of government. There are few cities in America to-day where the garbage is collected with sufficient frequency or regularity. And the city which collects rubbish, ashes and other waste is as yet the exception rather than the rule.

Tuberculosis, that sinister terror of former years, is thought by many to be about to vanish from us, but sober vision indicates that it will be many years before we see it disappear. Although it would seem that no one could have escaped learning the im-

perative necessity of fresh air and sunlight, yet, notwithstanding that we have been taught that tuberculosis is a "house disease," that in dark, unventilated rooms it thrives and flourishes, and that the germs cannot live in strong sunlight, yet in how few cities is the speculative builder restrained from adding new dark rooms to swell the present number. In growing Western cities, where space is plentiful and land is cheap, new tenement houses are built with half the rooms dark—it is easier to do it that way. And, as a nation, we normally choose the easiest way. In no city, East or West, have we so far progressed as to prohibit in our private dwellings and our public buildings rooms without direct outside light and air. Everywhere, irrespective of land values, one encounters an intense, individualistic desire to cover over an undue amount of the lot, and occupy, if possible, every foot of land.

In our houses on wheels, the railroad cars and trolleys, where disease spreads most easily and rapidly, we have just begun to enforce standards of ventilation; one might almost say we have hardly commenced it. In our public buildings we are still in the dark ages; our court houses, our municipal and state buildings, our schools and churches, our workshops, our theaters and the moving picture shows, where so many hundreds of thousands of people congregate nightly, proper ventilation is the exception rather than the rule.

We have a long and difficult campaign of education ahead of us before we can approach reasonable health standards in this regard. Most people do not want fresh air in their homes or elsewhere. It is not only "night air" that is dreaded, but all fresh air. Let a man open a window in a railroad train, or trolley car, or even at a convention of physicians or sanitarians, and see what happens. How quickly some one closes it who cannot stand "the draft." All the ignorance in this regard cannot be charged to the "great unwashed."

Viewing these conditions, it seems premature, at least, to talk of establishing "garden cities" and "zone systems." These highly desirable ideals, so successfully carried out in the Old World, must wait until we can bring ourselves to attend to the elementary principles of sanitation and the rudimentary principles of community living. It is as if the doctor attending a

patient desperately ill with typhoid or pneumonia were to concern himself before the crisis of the disease had passed with the patient's diet during the convalescent stage. We have not yet reached the convalescent stage, but are still battling for the patient's life.

Underlying all of the evils we have thus far discussed is our failure, as a nation, to develop sanitary inspection as a vital adjunct of municipal administration. We lead the world in the development of the science of sanitary plumbing, in our ready adaptation of new mechanisms and devices, the products of our inventive genius, but sanitary inspection here is still in its infancy.

In most cities it is still unexplored territory. With two exceptions, New York and Chicago, no city in America has as yet developed a system of inspection that is worthy of the name of system. And even in these two cities only a beginning has been made.

In the majority of cases we are still employing methods that belong to the pre-glacial period of sanitary science. In practically all our health departments we sit down now, as we did years ago, and placidly await "citizens' complaints" of unsanitary conditions, assuming that, when we have attended to these we have done all that need be done. Perhaps, when we were a homogeneous nation of American citizens, it was safe to trust to this method, but that period has long passed. With our foreign "colonies" in every city, with the mass of our working population made up, more and more, of the peasantry of Europe, ignorant of our language and customs, unused to our standards of living, and unable to make articulate their dissatisfaction with the conditions under which they are compelled to live, we can no longer look to any such methods of discovering and remedying sanitary evils.

Many of the poor in our large cities do not know that there is such a thing as a board of health; of those who do know of its existence, few know where to find its offices, or, if aware, cannot afford the time to travel to them to call attention to evil conditions, and the great mass is too illiterate to send written complaints. Back of it all, too, is the certain knowledge, gained from bitter past experience, that if the source of the complaint

is discovered, eviction by the landlord is sure to follow. So, the worst conditions remain undiscovered, for weeks, often for months, sometimes for years, and the poor finally become hardened to them, believing them unescapable and inherent in poverty itself.

This system, too, has interesting "by-products" which the student of social and municipal affairs should not overlook. It makes for unfair discrimination. It seems to indicate to the landlord whose property is frequently complained against that he is singled out, "persecuted," as he puts it, when he sees worse conditions in neighboring property tolerated and left alone. Nothing can convince him that it is not due to political "pull" on the part of his neighbor that he is able to escape attention. He is prone to charge graft, politics and crookedness to the administration, and thus there is bred in the public mind that distrust of popular government which is rapidly making the holding of public office unattractive.

In place of this casual, haphazard method there must be substituted the only system of sanitary inspection that is worthy of the name. Instead of sitting calmly waiting for complaints, health inspectors must systematically go about "looking for trouble"—they will find plenty. Instead of sending a man to look at one thing in one house, because it is complained about, there should be a well-trained corps of men going over every part of the homes of the poor, systematically and thoroughly, scrutinizing carefully every part of the building where trouble might naturally be expected—all the probable danger points. Such inspection would include the cellar, the water closets and privies, the public halls and stairs, the roof, the out-premises, the individual apartments and the plumbing, with especial emphasis laid on the public parts of the building. It should be done on the health board's initiative, and should be periodic, that is, at sufficiently frequent intervals to ensure the maintenance of the homes of the poor in proper sanitary condition. Once a month is the ideal. Once a year is the minimum. Three times a year should be practicable in most cities.

Coupled with this inspection to discover sanitary evils so that they may be abated, there should go a system of "instructive sanitary inspection" by trained women inspectors. It sounds

paternalistic, but we might as well face the fact that many of the poor must be taught how to live. This is especially true of the inhabitants of our large foreign "colonies." To many of them American standards of living are totally new. They have no conception of the functions of modern plumbing, for instance, and often fail to realize that methods of waste disposal which were satisfactory to them in sparsely settled country districts of rural Europe, and which there brought no evils in their train, may not safely be followed in the more closely built-up sections of our urban communities.

Instruction of this kind must necessarily be undertaken with the mothers and children. In the homes it must be given by women, and women who have the power and authority to follow up their advice with orders, when necessary. Much can be done in the schools. Whatever is done should be done in a practical way, with apt illustration, and through direct personal influence, rather than by distribution of "literature."

It is easy to say, "These things should be done," and they commend themselves at once to most minds. In only two cities in the United States, however, New York and Chicago, is a system of periodic sanitary inspection carried on. And in only one city is any work being done along the lines of "instructive sanitary inspection."

Why, one asks, should American cities be so far behind the enlightened standards of sanitary science? Partly because we have drifted along, choosing the line of least resistance, and partly because we have fallen into a rut in our health work and have only just begun to stand off and look at it and weigh its value.

The failure to progress faster and to reach higher standards is, however, due to far more fundamental causes. We have hitherto not been civilized enough or intelligent enough to be willing to spend money for the preservation of health. In hundreds of cities, still, the health commissioner receives no compensation, or so slight a one that he can afford to give but a small portion of his time to the work.

In every city in the country the health department is terribly undermanned. It cannot begin to attempt to do what it knows to be imperatively necessary for the city's welfare. I can con-

ceive of no more trying situation than that which most of our earnest and conscientious health commissioners encounter year after year, having to sit helplessly by and see their recommendations ignored, and the annual toll for unnecessary disease and death increase year after year. The blame for the evil conditions cannot be laid at the doors of our health officials. With but few exceptions, they have done their part, and if, after years of effort of this kind, they finally lapse into a state of hopeless indifference, they are not to be blamed. Who would not give up hope under such circumstances? The blame must be placed on us all—on the whole community, on our best citizens, and our worst. It is our fault and no one's else that these conditions continue.

We have been so stupid or so careless that we have paid little or no attention to our slums. We have been willing to spend money lavishly to protect property, but not to protect human life and health. Large sums we grant annually in all our cities for the support of the police and fire departments, but we grudgingly apportion mere pittances to our health departments.

In New York 1½ per cent. of the city's annual expenditures is for health work, as compared with 5 per cent. for fire protection, 9 per cent. for the police, and 17 per cent. for education. And New York leads the country in its health expenditures and has more generous treatment in this regard than any other city in America. And yet, even in New York last year, where its efficient health commissioner certified that the welfare of the city required the expenditure of $4,076,578 for health work during the coming year, the financial authorities granted him but $2,823,499.

What are we to think of a city like Chicago, with all its wealth and culture, where the city authorities pay no heed to the statement of the expert head of its health department, that $1,500,000 is requisite to meet the health needs of the city, and allow him little more than one-third of that amount? And this in the face of a campaign of education, in which the health authorities showed just what the citizens of Chicago could buy with their money in the way of health.

In the face of such statements as the following, coming from

the highest official authority, it is difficult to understand how such a decision could have been reached:

> Chicago now has a 21-cent per capita health department. A 21-cent health department for Chicago can hold the gross death rate under 16 per 1000 for a few years. It can hold the number of deaths from diphtheria at about 800; from scarlet fever at about 600; typhoid at about 300, and baby deaths from summer complaint at about 3000. It can keep smallpox epidemics at about twelve years apart, and paralyzing epidemics of diphtheria or scarlet fever about four or six years apart.
>
> A health department spending 50 cents per capita should put diphtheria down to, say, 100 deaths per year; scarlet fever to about 500; typhoid to 120, and cut off 5 per cent. from the consumption mortality. It should be able to add 10 years to the smallpox intervals and 3 or 4 years to the diphtheria and scarlet fever intervals.
>
> The final conclusion is that we can have freedom from preventable diseases in proportion as we are willing to pay for it. We cannot have something for nothing. A 21-cent health department means about 15,000 deaths from preventable disease a year. If we pay more, we will have fewer. If we pay less, we shall have more.
>
> Which shall it be: Dollars or deaths?

In the last analysis, it all resolves itself back to the degree of intelligence and enlightened public sentiment which are to be found in the community.

Still, the outlook for the future is hopeful. We are passing out of the dark ages of sanitary science. Housing and health are receiving each year increased attention, increased thought. We are rapidly ceasing to be "barbarous America."

# SCIENTIFIC RESEARCH BY THE PUBLIC HEALTH SERVICE

By J. W. Kerr, M.D.,
Bureau of Public Health and Marine Hospital Service, Treasury Department.
Washington, D. C.

The increasing complexity of modern society gives rise continually to new sanitary problems which must be solved and the results applied if we would escape race deterioration and loss of industrial prosperity. Under present conditions the individual is himself unable to exercise all these measures of protection. Public health administration is therefore necessary, and one of its important functions is scientific research.

Governmental activities in the field of preventive medicine have accordingly included systematic investigations, practically all modern governments having made more or less provision for them, depending on the special problems presented for solution. A comparative statement of such provisions in the several countries and their influence on the public health would be of interest, and in the United States would necessarily include those of the federal, state, and municipal governments. It is practicable here to describe only the activities of the Federal Public Health Service, which service, however, is but a part of the public health organization of the country; the state and municipal health agencies being also included, and all being related by law and by reason of their common object.

While the triple relation mentioned has probably resulted in the past in a distribution of scientific effort and consequently limited centralization, on the whole it has been responsible for an immense amount of work of the greatest importance, and it is a striking fact that in addition to the several public health laboratories of the federal government there is authority in law for laboratories in no less than twenty states.

The present official interpretation put upon the constitution prevents the federal government from exercising police powers with

respect to sanitation within the states themselves. This restriction, consequently, modifies to some extent the character of the investigations by the Federal Public Health Service; but does not limit their scope, which embraces laboratory studies of all matters pertaining to the public health and the dissemination of the information thus acquired.

Organized originally to provide care and treatment for sick and injured sailors of the merchant marine, the Public Health Service has had a steady growth, having from time to time been charged with additional duties and granted greater powers. These additional duties included the prevention of the introduction of contagious and infectious diseases and their spread from one state to another, the medical inspection of arriving aliens, the supervision over the propagation and sale of viruses, serums and toxins, and in connection with all of them there was necessity of scientific investigations.

### *The Hygienic Laboratory*

The activities in the field of scientific research may accordingly be said to have originated when these additional duties were assumed, and to have taken definite shape with the establishment of the hygienic laboratory at the Marine Hospital, New York, in 1887. Their inception therefore was practically coincident with the beginning of the growth of the science of bacteriology, which may be said to mark the start of the present public health movement that has now assumed world-wide proportions. It soon became evident that the foundations of public health research should be laid at the seat of government, and the laboratory was accordingly moved to Washington in 1891.

Since the quarantine act of February 15, 1893, imposed on the service the devising of regulations and their enforcement, for the prevention of the introduction of infectious and contagious diseases, and since the etiology, methods of transmission and prevention of some of those diseases was then but indefinitely understood, there was necessity of special studies of those subjects. In the early nineties, therefore, increasing attention was paid to the developing science of bacteriology and its bearing on preventive medicine. Officers attached to the Hygienic Laboratory were sent

abroad to acquaint them with the methods employed in foreign laboratories and the progress made. By this means, for instance, knowledge was had of the methods of propagating an immunizing serum for use in the treatment and prevention of diphtheria, and as a result diphtheria antitoxin was first made in the United States in the Hygienic Laboratory in November, 1894.

Studies were likewise made of disinfectants to determine their germicidal value and best methods of application, and for the generation of sulphur dioxide, furnaces were devised which, with but slight improvement, are now in use at the national quarantine stations. An autoclave for the evolution of formaldehyde gas was also invented and the best method of using it determined. These and many other practical discoveries indicate that substantial progress was made, and that the Hygienic Laboratory was developing into an important center for research in public health problems.

In the meantime important scientific studies were also being made by officers in the field, particularly in connection with epidemic work; those of Carter on the period of incubation of yellow fever having had a most important bearing on the subsequent investigations of that disease. In fact, his recorded observations on this point were hardly less important than Finlay's hypothesis in laying the foundation for success in the final demonstration of the transmission of yellow fever.

The outbreak of plague in Hongkong in 1894, which proved to be the beginning of the present pandemic of the disease, also stimulated research as to its nature and methods of prevention. There was therefore prepared in the Hygienic Laboratory, at the proper time, large quantities of the prophylactic vaccine for distribution in case the disease should be introduced, and bulletins containing the latest knowledge regarding plague were distributed for the information of public health officials and the public generally. By these means officers of the service became familiar with plague and were thus qualified to undertake quarantine duty at both domestic and foreign ports, and when the disease actually gained a foothold on the Pacific Coast they were prepared to recognize and combat it.

Prior to 1902 the Hygienic Laboratory had been devoted almost entirely to research in pathology and bacteriology, but a lab-

oratory building had been authorized by Congress in March of the preceding year, and it became evident that in order to discharge the functions for which it was created, and which were demanded in the public interest, there should be some enlargement of scope and reorganization on broader lines.

In accordance with an act of Congress of July 1, 1902, reorganizing the service, therefore, there were created three new divisions, which made in all four divisions of the Hygienic Laboratory, designated respectively as: pathology and bacteriology, medical zoology, pharmacology and chemistry. This act also provided for an advisory board of nine members, four of whom are officers of the government, and the remaining five eminent in their respective fields and connected with private educational institutions. By this means the laboratory is brought in touch with like institutions and the surgeon-general can secure advice with respect to the investigations to be made and the methods of making them.

It had long been the practice to make record in the annual reports of the work accomplished, or in the public health reports which have been published weekly since 1885, and in some instances special brochures were issued independent of these publications. But with the reorganization of the service in 1902 it was apparent that the results of investigations, in order to be of the most benefit, should be published as Hygienic Laboratory Bulletins. Since that time seventy-three such bulletins have been issued, their titles being as follows:

Preliminary Note on the Viability of the *Bacillus pestis.*

Formalin Disinfection of Baggage without Apparatus.

Sulphur Dioxid as a Germicidal Agent.

Viability of the *Bacillus pestis.*

An Investigation of Pathogenic Microbe (*B. typhi murium* Danyz) Applied to the Destruction of Rats.

Disinfection against Mosquitoes with Formaldehyde and Sulphur Dioxid.

Laboratory Technique: Ring Test for Indol; Collodium Sacs; Microphotography with Simple Apparatus.

Laboratory Course in Pathology and Bacteriology.

Presence of Tetanus in Commercial Gelatin.

Report upon the Prevalence and Geographic Distribution of Hookworm Disease (Unciniariasis or Anchylostomiasis) in the United States.

An Experimental Investigation of *Trypanosoma lewisi.*

The Bacteriological Impurities of Vaccine Virus; an Experimental Study.

A Statistical Study of the Intestinal Parasites of 500 White Male Patients at the United States Government Hospital for the Insane. A Parasitic Roundworm (*Agamomermis culicis* n.g., n.sp.) in American Mosquitoes (*Culex sollicitans*). The Type Species of the Cestode Genus *Hymenolepis.*

Spotted Fever (Tick Fever) of the Rocky Mountains; a New Disease.

Inefficiency of Ferrous Sulphate as an Antiseptic and Germicide.

The Antiseptic and Germicidal Properties of Glycerin.

Illustrated Key to the Trematode Parasites of Man.

An Account of the Tapeworms of the Genus *Hymenolepis* Parasitic in Man, Including Reports of Several New Cases of the Dwarf Tapeworm (*H. nana*) in the United States.

A Method of Inoculating Animals with Precise Amounts.

A Zoological Investigation into the Cause, Transmission and Source of Rocky Mountain "Spotted Fever."

The Immunity Unit for Standardizing Diphtheria Antitoxin (Based on Ehrlich's Normal Serum). Official Standard Prepared under the Act Approved July 1, 1902.

Chloride of Zinc as a Deodorant, Antiseptic, and Germicide.

Changes in the Pharmacopoeia of the United States of America.

The International Code of Zoological Nomenclature as Applied to Medicine.

Illustrated Key to the Cestode Parasites of Man.

On the Stability of the Oxidases and their Conduct toward Various Reagents. The Conduct of Phenolphthalein in the Animal Organism. A Test for Saccharin, and a Simple Method of Distinguishing between Cumarin and Vanillin. The Toxicity of Ozone and Other Oxidizing Agents to Lipase. The Influence of Chemical Constitution on the Lipolytic Hydrolysis of Ethereal Salts.

The Limitations of Formaldehyde Gas as a Disinfectant with Special Reference to Car Sanitation.

A Statistical Study of the Prevalence of Intestinal Worms in Man.

A Study of the Cause of Sudden Death Following the Injection of Horse Serum.

I. Maternal Transmission of Immunity to Diphtheria Toxine. II. Maternal Transmission of Immunity to Diphtheria Toxine and Hypersusceptibility to Horse Serum in the Same Animal.

Variations in the Peroxidase Activity of the Blood in Health and Disease.

A Stomach Lesion in Guinea Pigs Caused by Diphtheria Toxine and Its Bearing upon Experimental Gastric Ulcer.

Studies in Experimental Alcoholism.

I. *Agamofilaria georgiana* n.sp., an Apparently New Roundworm from the Ankle of a Negress. II. The Zoological Characters of the Roundworm Genus *Filaria* Mueller, 1787. III. Three New American Cases of Infection of Man with Horsehair Worms (Species *Pagordius varius*), with Summary of All Cases Reported to Date.

Report of the Origin and Prevalence of Typhoid Fever in the District of Columbia.

Further Studies upon Hypersusceptibility and Immunity.

Index-Catalogue of Medical and Veterinary Zoology. Subjects: Trematoda and Trematode Diseases.

The Influence of Antitoxin upon Post-diphtheritic Paralysis.

The Antiseptic and Germicidal Properties of Solutions of Formaldehyde and their Action upon Toxines.

1. The Occurrence of a Proliferating Cestode Larva (*Sparganum proliferum*) in Man in Florida. 2. A Re-examination of the Type Specimen of *Filaria restiformis*. 3. Observations of Two New Parasitic Trematode Worms: *Homalogaster philippinensis* n.sp., *Agamodistanum nanus*. A Re-examination of the Original Specimen of Taenia saginata abietina (Weinland, 1858).

Milk and its Relation to the Public Health.

The Thermal Death Points of Pathogenic Micro-organisms in Milk.

The Standardization of Tetanus Antitoxin (an American Unit Established under Authority of the Act of July 1, 1902).

Report No. 2 on the Origin and Prevalence of Typhoid Fever in the District of Columbia.

Further Studies upon Anaphylaxis.

*Hepatazoon perniciosum* (n.g., n.sp.); a Haemogregarine Pathogenic for White Rats; with a Description of the Sexual Cycle in the Intermediate Host, a Mite.

Studies on Thyroid: I. The Relation of Iodine to the Physiological Activity of Thyroid Preparations.

The Physiological Standardization of Digitalis.

Digest of Comments on the United States Pharmacopoeia. Eighth Decennial Revision for the Period Ending December 31, 1905.

Further Studies upon the Phenomenon of Anaphylaxis.

Chemical Tests for Blood.

Report No. 3 on the Origin and Prevalence of Typhoid Fever in the District of Columbia.

The Influence of Certain Drugs upon the Toxicity of Acetanilide and Antipyrine.

The Fixing Power of Alkaloids on Volatile Acids and its Application to the Estimation of Alkaloids with the Aid of Phenolphthalein or by the Vollhard Method.

Quantitative Pharmacological Studies: Adrenalin and Adrenalin-like Bodies.

Milk and Its Relation to the Public Health.

I. The Presence of Tubercle Bacilli in the Circulating Blood in Clinical and Experimental Tuberculosis. II. The Viability of the Tubercle Bacillus.

Digest of Comments on the Pharmacopoeia of the United States of America (Eighth Decennial Revision) and the National Formulary for the Period Ending December 31, 1906.

The Oxidases and Other Oxygen Catalysts Concerned in Biological Oxidations.

A Study of the Anatomy of *Watsonius* (n.g.) *Watsoni* of Man, and of 19 Allied Species of Mammalian Trematode Worms of the Superfamily *Paramphistomoidea.*

Quantitative Pharmacological Studies: Relative Physiological Activity of Some Commercial Solutions of Epinephrin.

The Taxonomic Value of the Microscopic Structure of the Stigmal Plates in the Tick Genus *Dermacentor.*

Digest of Comments on the Pharmacopoeia of the United States of America (Eighth Decennial Revision) and the National Formulary (Third Edition) for the Calendar Year Ending December 31, 1907.

Studies upon Anaphylaxis with Special Reference to the Antibodies Concerned.

Facts and Problems of Rabies.

I. The Influence of Age and Temperature on the Potency of Diphtheria Antitoxin. II. An Organism (*Pseudomonas protea*) Isolated from Water, Agglutinated by the Serum of Typhoid Fever Patients. III. Some Considerations on Colorimetry, and a New Colorimeter. IV. A Gas Generator, in Four Forms, for Laboratory and Technical Use.

The Solubilities of the Pharmacopoeial Organic Acids and their Salts.

The Bleaching of Flour and the Effect of Nitrites on Certain Medicinal Substances.

The Effect of a Restricted Diet and of Various Diets upon the Resistance of Animals to Certain Poisons.

A Study of Melting Point Determinations with Special Reference to the Melting Point Requirements of the United States Pharmacopoeia.

I. Some Known and Three New Endoparasitic Trematodes from American Fresh Water Fish. II. On Some New Parasitic Trematode Worms of the Genus *Telorchis.* III. A New Species of *Athesmia* from a Monkey.

I. Report of an Outbreak of Typhoid Fever at Omaha, Neb. (1909-1910). II. The Water Supply of Williamson, W. Va., and its Relation to an Epidemic of Typhoid Fever.

The Effects of a Number of Derivatives of Choline and Analogous Compounds on the Blood-Pressure.

These bulletins represent very well the scope and activities of the Hygienic Laboratory in relation to scientific research. But in addition there have been published in the medical and scientific literature, or placed on file in the archives of the bureau, many brief reports and papers that have had a distinct value in the advancement of public health administration.

The Hygienic Laboratory has also been utilized as a school of instruction for officers of the Public Health Service, and its facilities have been extended from time to time to sanitary officers on

request of state health authorities. By this means the sanitary corps has been strengthened, and from among its members have been developed those capable of conducting independent research. By this means also it was possible to inaugurate scientific investigations in connection with public health stations already established.

Severe outbreaks of the great epidemic diseases have been indications for the conduct of research of a clinical or laboratory nature in the infected localities. By this means special studies of smallpox were made on the Mexican frontier in 1895; yellow fever was studied in the Southern States, and plague in Honolulu, T. H.; Seattle, Wash., and San Francisco, Oakland, and Los Angeles, Cal.

### *The Federal Laboratory of the Pacific*

The suppression of plague in a community is closely associated with the eradication of the disease among rodents. In order, therefore, to determine the extent of the epizootic among these animals daily examinations of large numbers are necessary, and there has also been need of careful studies to clear away the mysteries surrounding the relationship of the disease in man and animals.

The Federal Plague Laboratory was therefore established during the first plague outbreak in San Francisco, and has been an important agent in the suppression of the first and second outbreaks of the disease. Its most lasting value, however, will be derived from the scientific studies conducted therein regarding the epidemiology of plague among ground squirrels and other rodents. Some of the published reports of these studies are as follows:

Plague Infection in Rats.
Organic Diseases of the Rat.
Rodents in Relation to the Transmission of Bubonic Plague.
Rodent Extermination; Rats and Mice.
Rat-Proofing as an Antiplague Measure.
Notes on Rat Leprosy and on the Fate of Human and Rat Lepra Bacilli in Flies.
Experimental Investigation of Biting of Man by Fleas from Rats and Squirrels.
Evidence of Plague Infection among Ground Squirrels.
General Observations on the Bionomics of the Rodent and Human Fleas.

As an additional means of disseminating information regarding the pathology and diagnosis of plague in rodents, mounted speci-

mens of plague tissues were prepared and furnished to over one hundred and fifty medical colleges and models illustrating various phases of the disease made and exhibited to the public.

In the Federal Laboratory on the Pacific careful observations have been made not only of plague lesions, but other abnormalities among rodents, particularly lawless growths. The exact value of this work can not yet be estimated, but in view of the stimulus given to the study of cancer by the recent successful transplantation of tumors, it is possible that careful observations of these abnormalities may in time develop additional facts that will have some bearing on the cancer problem. At any rate, it was through such observations that a leprosy-like disease of rats was first detected on the Pacific Coast, which observation is of particular interest to those engaged in the study of leprosy in man.

While the above-mentioned laboratory was established only in response to a great administrative necessity, and therefore limited in its scope, there are cogent reasons why it should be enlarged and devoted to the solution of the sanitary problems peculiar to the Pacific Coast. One of these is the necessity of epidemiological studies of leprosy and certain diseases peculiar to the Orient.

### *The Leprosy Investigation Station*

A commission was appointed in 1899 in accordance with a provision of an act of Congress to study leprosy, particularly with reference to its prevalence in the United States. These studies developed the fact that there were no less than two hundred and eighteen cases of leprosy located in twenty-one states at the time the report of the commission was made in 1902, and indicated that some provision should be made for the national care of lepers. More important still, it indicated that there should be systematic studies of leprosy with the view to determining the methods of transmission of the disease and the improved methods of treatment.

Congress accordingly provided for such investigations in Hawaii, and appropriated funds for the establishment of a leprosy investigation station on the island of Molokai. Systematic studies were begun in 1906, and the results are recorded in thirteen papers. The titles of these papers are as follows:

The Present Status of the Leprosy Problem in Hawaii.

The Reaction of Lepers to Moro's "Percutaneous" Test.

A Note Upon the Possibility of the Mosquito Acting in the Transmission of Leprosy.

Upon the Utility of the Examination of the Nose and the Nasal Secretions for the Detection of Incipient Cases of Leprosy.

A Report upon the Treatment of Six Cases of Leprosy with Nastine (Deycke).

Leprosy in the United States of America in 1909.

A Statistical Study of an Endemic Focus of Leprosy.

A Palliative Treatment for Leprous Rhinitis.

Mosquitoes in Relation to the Transmission of Leprosy.

Flies in Relation to the Transmission of Leprosy.

Heredity versus Environment in Leprosy.

Notes on the Study of Histories of Lepers from the Standpoint of Transmission.

A Contribution to the Study of Rat Leprosy.

Early in the work it was recognized that the solution of the leprosy problem was to be sought for among incipient cases and in the homes of the lepers themselves. A branch laboratory was accordingly established at the Kalihi Station on Oahu, where lepers are brought on being apprehended, and here work of the most important character is being prosecuted. While it is inadvisable to anticipate the results of these studies before publication, it is pertinent to refer to the successful growth of the leprosy bacillus, and the important bearing this achievement will have on the subsequent steps of the investigation. In fact the way is now open for the production of a therapeutic vaccine and perhaps an antitoxic serum.

*The Laboratories of Marine Hospitals and Quarantine Stations*

Besides the above laboratories devoted wholly to research, provision is made at certain of the marine hospitals and quarantine stations for making public health investigations. At the quarantine stations such studies have mostly to do with determining the best means of disinfection and perfecting methods for their application. In addition, extended experiments have been made of the life history of mosquitoes, the culicidal properties of gases and other subjects specially related to quarantine practice.

At the marine hospitals there is always opportunity for clinical research, and in some instances this is unexcelled because of the character of the patients admitted and the fact that they come from

every quarter of the globe. In addition these stations are utilized as public health stations where certain experiments can be long continued. For instance, at the marine hospital at Wilmington, N. C., investigations are now being made of soil pollution and the best methods for its prevention; a question the solution of which must have an important bearing on the improvement of rural sanitation. Because of their location, and relation to the public health service, these stations are capable of becoming the recognized centers of special research, and with adequate authority to admit for purposes of scientific studies cases of diseases affecting the public health there would be provided a powerful means of determining the causes, methods of transmission and prevention of such diseases within the country.

The field for research is broad, but in view of present limitations as to funds, the investigations to be undertaken must be carefully planned and the work directed in order that there shall not be duplication or loss of energy. It was accordingly recognized that a central office was necessary that would keep in touch with the scientific workers and relieve them of certain administrative obligations. This was accomplished through the establishment of a bureau division of scientific research.

### *Supervision of Viruses, Serums and Toxins*

With the reorganization of the Marine Hospital Service into a Bureau of Public Health in 1902, a division of scientific research was provided, through which are handled the administrative matters connected with service investigations.

Special work of a statistical character is also carried on and the results published from time to time in the form of Public Health Bulletins.

It is the additional duty of this division to supervise the publication of all scientific reports, except the "Public Health Reports," and to discharge those administrative duties connected with the enforcement of the law of July 1, 1902, regulating the propagation of viruses, serums and toxins in interstate traffic. This law requires that all viruses, serums and toxins offered for sale in interstate traffic shall be propagated and prepared only in establishments licensed by the Secretary of the Treasury. Licenses are granted

only after inspection of establishments made in accordance with regulations issued under the law, and examination in the Hygienic Laboratory of products for which license is desired. Since these biologic products are intended for hypodermatic injections, their freedom from contamination is of paramount importance, and because of the great value of some of them in the treatment of the diseases for which they are intended, it is essential that purity and potency should be assured. The adoption of standards, therefore, became necessary. Standards for testing the strength of diphtheria antitoxin and tetanus antitoxin were especially needed, and investigations to this end were undertaken and continued until a standard for diphtheria antitoxin was adopted in 1905, and a standard for tetanus antitoxin devised in 1906. The standard units are prepared in the Hygienic Laboratory and distributed bi-monthly to all licensed manufacturers and others concerned, and, by means of examinations of serums on the market from time to time, it is determined whether they are free from contamination and conform to these standards, and in the case of those products for which no standard has been devised, whether contamination is present or not. It is evident that the administration of the law regulating the propagation of biologic products involves a large amount of highly technical work and requires investigations in the broad field of immunity. As a result studies of anaphylaxis in relation to immunity have been continued over a period of more than four years and stimulated an immense amount of work on the same problem in other laboratories throughout the world. The number of biologic preparations intended for the prevention and cure of diseases of man is rapidly increasing, and their standardization becomes a matter of importance. Investigations with this end in view therefore comprise one of the most important activities of the service at the present time.

An inquiry into the prevalence of rabies during 1908 and subsequent studies of antirabic virus led to the preparation of that product for administration at the Hygienic Laboratory and its distribution for the use of state health authorities. As a result, this treatment was made available to 1,143 patients from April 25, 1908, to June 30, 1910, and the problems of rabies are being carefully investigated.

*Zoological Investigations*

Beginning with the discovery of the *Uncinaria Americana* in 1902, studies of hookworm disease have been carried on with great energy, and in my opinion no other single event in the field of preventive medicine has had as far-reaching importance to the people of the United States since the discovery of diphtheria antitoxin. The studies already made have not only accounted for a large amount of invalidism in the South and cleared away in some measure the confusion with respect to several diseases, but they have demonstrated the methods necessary to the improvement of the physical and mental vigor of the people of an important section of the country. Zoological studies in the interest of the public health are especially indicated in view of the causal relation of animal parasites to diseases and the influence of insects as carriers of infection, and represent a broad field of activities of the Public Health Service. Studies of a number of subjects are now in progress, and the results of those completed are contained in bulletins already published.

*Pharmacologic Research*

Authority having been granted in 1901 for laboratory investigations of matters pertaining to the public health, and a division of pharmacology in the Hygienic Laboratory having been authorized in 1902, pharmacologic studies became a part of the activities of the service. Investigations of organo-therapeutic and other medicinal preparations were inaugurated and have been continued. Digests of comments on the Pharmacopoeia and the National Formulary are compiled regularly and published for use in connection with revision of those important official standards. The importance of establishing standards of strength for potent drugs has opened up a wide field for investigations; those already in progress relating to epinephrin, ergot and digitalis. In addition, new preparations are being made from time to time and studied as to their therapeutic value. These matters also involve physiologic consideration including the functions of the ductless gland.

Recent announcement of the discovery of an arsenic preparation reputed to have marvelous curative properties in certain protozoal diseases indicates the possibilities of pharmacologic studies,

and emphasizes the importance of their continuance under official auspices.

### *Chemical Studies*

As previously stated, provision was made for a division of chemistry in the Hygienic Laboratory, wherein have been conducted systematic studies of water and milk in relation to the public health. The action of ferments and the chemistry of the blood have also been considered and the results published as bulletins. Other studies made and the bearing of chemical questions on the public health emphasize the scope of this division, which was but recently organized and which is destined to fulfil an important function in public health work.

### *Epidemiological Investigations*

The foregoing organization for research and the facilities for carrying it on have resulted in the co-operation of several of the divisions along epidemiologic lines.

Typhoid fever has been the subject of continuous studies for over four and one-half years, and has engaged the attention at times of three of the divisions of the Hygienic Laboratory. Aside from tuberculosis there is no infectious disease that is more nearly universal in the United States, and none deserving more earnest study from both health and economic standpoints.

Systematic studies into the origin and prevalence of typhoid fever were begun in the District of Columbia in 1906, and carried on there during four seasons. A large amount of accurate data was accumulated and published, throwing light on the local problem and having general application to typhoid fever problems in other sections of the country. Studies of the disease have also been made by the service in five widely separated states; and the facts elicited while clearing up local problems have indicated the necessity of like studies in other sections of the country.

The manifold avenues through which typhoid fever spreads involves a wide field for investigations. The studies are necessarily made in the presence of outbreaks and include many lines, such as the purity of milk supplies, the extent of the pollution of water supplies, the rôle of insects as carriers of infection, the percentage of bacillus carriers among the population in different sections of the

country, and the influence of contact as a factor in the propagation of the disease.

A large amount of data is necessary on all phases of the typhoid fever problem in order that the deductions to be drawn may be of general application. There is also necessity for a better understanding on the part of the people as to the known facts regarding preventive measures, and this comprises one of the most important duties of the Public Health Service in relation to the control of the disease.

Similar statements apply also to other preventable diseases, such as pellagra and poliomyelitis, which are being made subjects of special study. There is authority for their investigation in the laboratory, and the extent of such activities is limited only by the available appropriations. Since, however, the prevention of diseases involves improved sanitary methods and devices, additional authority must be had for studies outside the Hygienic Laboratory better to cover the field.

From the brief outline presented it is apparent that the activities of the Public Health Service relate to many subjects, and that their enlargement, in so far as relates to research, is almost wholly dependent on additional authority to be obtained.

Because of our form of government and the consequent division of responsibility among national, state and municipal agencies in respect to the public health, two of the most important duties of the federal government are, in my opinion, scientific research and the collection and dissemination of useful information. The object of the present public health movement is to prevent disease and to prolong life and make it more productive. This can be accomplished largely through universal acceptance and observance of hygienic principles by the people.

Legal restrictions are necessary and there will undoubtedly be indication for others in the interest of the public health, but when adopted they will of necessity be enforced by the states, except in those instances involving interstate relations. But the federal government will perform an important service in bringing about uniformity of action by rendering accessible the facts on which such action is based.

In the German Empire a wise policy has had such an effect.

In that country the confederation of states and free cities is looser than in the United States; yet governmental scientific research in the interest of the public health has been most productive, and the large amount of valuable statistics available was collected through voluntary co-operation of those states and cities. Theoretically the imperial government can exercise police powers in a state for the suppression of outbreaks of disease, but so far as known this has not been done nor has there been any necessity for doing so. The experience of the German Empire is of value in considering the development of future public health activities in our country, especially as relates to scientific research. The organization for such work on the part of the federal government is well founded, and in certain respects broader than in other countries. With proper development it should in time be as productive of results as any national agency.

# THE CENSUS AND THE PUBLIC HEALTH MOVEMENT

By Cressy L. Wilbur,
Chief Statistician of Vital Statistics, Bureau of the Census, Washington, D. C.

The Bureau of the Census, which is one of the bureaus constituting the Department of Commerce and Labor, is the only Federal agency that deals with the collection, compilation and publication of general vital statistics for the United States.

Through its division of vital statistics—one of the five divisions into which it is at present organized—it receives returns of births and deaths monthly from such states and cities as afford registration data in satisfactory detail, and sufficiently complete with respect to the total number registered to repay compilation.

The other divisions of the Bureau of the Census, as constituted for the three years of the "decennial census period" ending June 30, 1912, during which time the thirteenth census (1910) is to be taken and its results published, are those of population, agriculture, manufactures, and methods and results. One of these, the Division of Population, bears an especially important relation to vital statistics, because its data, the statement of the number of persons living in every portion of the United States, with full details of sex, age, color, civil condition, nationality, parent nationality, etc., form the indispensable basis with which the returns of births and deaths derived from registration records must be compared in order to compute vital rates.

## *Importance of an Accurate Census of Population*

Hence, first of all in the activity of the Bureau of the Census relating to vital statistics, we must place an absolutely correct census of population, or at least as correct a census as ordinary human agencies operating with the best means at our disposal and with honesty of purpose and method may be able to obtain.

The recent census, taken as of April 15, 1910, is the most perfect and complete census that has yet been taken in the history

of the Federal Government. The fact that the census has refused to accept padded returns from certain localities may have cast doubt in the minds of some upon the correctness of the census as a whole. It is very unfortunate, indeed, that local dishonesty, which has probably existed to some extent in previous censuses, should thus cast a stigma upon the work, but it is evident that no better method for the correction of such abuses is available than full publicity and prosecution of the individual offenders. Otherwise the erroneous returns of population may be used for years to come as the basis of lying rates, which the officials printing them should know to be fraudulent, although they may claim—in the absence of full investigation and rejection on the part of the Government—as in an advertising pamphlet that recently came to my attention that "*Government statistics place* ———— *among the healthiest cities in the United States.*" So "Government statistics," based on a dishonest enumeration of population, did; and it is a satisfaction, indeed, that a correct count of population in 1910 relegates this city to its proper position with respect to mortality rates.

Certain cities for which the populations as first returned have proved to be grossly overstated should be thankful that correct rates will be available for 1910 and subsequent years, and that their figures will not be discredited by extravagantly low rates of mortality such as carry conviction to no one competent to judge of vital statistics. Aside from its dishonesty, the policy of overstatement of population is a short-sighted one, because the next census must likewise be padded, and in the same proportion, which means in greater numerical amount, unless a falling off in the rate of growth is to appear. And in passing from a dishonest to an honest census, an increasing rate of mortality might be shown for intercensal years, when the actual rate was constant or decreasing, so that an effective sanitary administration might be discredited by erroneous rates based upon false population returns made years before. There are ways, known to certain health offices, by which even a handicap of this kind could be temporarily overcome, and by rejecting various classes of deaths, with increasing latitude from year to year, the figures can be "juggled" to show almost any desired reduction of mortality as a whole or for certain diseases. But there will be less of this done in future, because the registration officials of the United States have now organized and adopted cer-

tain standard "Rules of Statistical Practice," which are approved and enforced by the Bureau of the Census in the transcripts collected by it and compiled for its annual reports on mortality statistics, so that a sharp discrepancy will at once appear between the census figures and those of any office that fails to make a complete and correct compilation.

A correct enumeration of population every ten years is thus seen to be the absolutely indispensable basis of correct vital statistics for the United States. In fact, this period is too long, because it is impossible to interpolate, with entirely satisfactory precision, estimated populations for the intercensal years that lie between the decennial enumerations. This is true for all countries, but is especially true for the United States, with its rapid and unusual growth in certain localities, so that it is very much to be desired that an interdecennial enumeration should be taken. This is already provided for in some States, and the practice should be made general.

### *Collection of Vital Statistics by the Census*

Coming now to the more immediate activity of the Bureau of the Census with respect to the subject of vital statistics, it is a somewhat astonishing fact that the Federal Government has no authority, under the Constitution of the United States, directly to collect vital statistics, through the absolutely necessary means of registration of births and deaths, except in the District of Columbia, which is entirely under Federal control.

Provision was made for the first census (1790) of the United States by the Constitution so that "representatives and direct taxes shall be apportioned among the several States which may be included within this Union, according to their respective numbers," and further enumerations were authorized "within every subsequent term of ten years." Although the word "census" does not appear in the constitutional provision (Article I, Section 2), nor in the organic act providing for the first enumeration of population of the United States, there was thus instituted the line of decennial censuses which have now been taken regularly for one hundred and twenty years. The United States was the first country in the world to provide for a regular periodical enumeration of inhabitants, an example which has now been followed by practically all civil-

ized nations. It may be said, indeed, that the establishment of a regular census of population and the registration of vital statistics are the first steps taken in placing a country upon the plane of modern civilization. While the United States led the world with respect to the census of population, we still rank with the most unprogressive and semi-civilized countries as concerns the registration of births and deaths.

As stated in the work from which some of the preceding facts have been taken,[1] the provision authorizing a decennial census "was embodied in the Constitution for political purposes wholly, and with no thought for providing for any systematic collection of statistical data beyond the political necessities of the Government." There was certainly no thought of providing a basis for vital statistics, nor of furnishing material for the purpose of protecting the public health. Indeed, such a matter as the "public health" was entirely without the purview of the fathers of the republic, and lay unrevealed in the womb of the future. Not until the awakening to the unnecessary destruction of human lives and the beginning of modern sanitation in England in the 40's of the last century, based upon the data collected by the first modern registration law for vital statistics, namely, that passed for England and Wales in 1836, did it enter into the conception of the State that one of its chief functions was the protection of the lives of its inhabitants not only from foreign foes, but also from the more deadly and dangerous enemies of disease. Even to-day the sole authority that the United States Public Health and Marine Hospital Service attempts to exercise within the United States, aside from its peculiar function as related to the medical care of merchant seaman and in cooperation with state authorities acting under state constitutions that provide for the protection of the health of States, is derived from the provision of the Constitution permitting the Federal Government to regulate interstate commerce. Only as epidemic diseases interfere with the interstate movement of property, no matter how inefficient may be the state control of a dangerous disease, can the Federal Government intervene to protect the people of the United States.

Such a condition might well be considered intolerable, were it

[1] History and Growth of the United States Census, 1790-1890, by Carroll D. Wright and William C. Hunt.

not largely ameliorated by the cordial cooperation of state authorities in times of danger, as when yellow fever menaced New Orleans and the plague was to be stamped out in San Francisco, with the United States Public Health and Marine Hospital Service. Such cordial cooperation exists also with respect to the registration of vital statistics, and much of the progress made in recent years is due to the harmonious action of the state and city authorities with the Bureau of the Census. It is possible that stronger and more direct agencies, were they permissible, would accomplish little more, because an essential requirement in the establishment of effective registration work under our form of government is that the people shall understand its importance, and therefore support it in operation. A law without moral support cannot be thoroughly enforced in the United States.

One of the first results apparent from the national registration law that went into effect in England in 1837 was the light cast upon the conditions affecting mortality. We may justly consider the modern public health movement, that has now become perhaps the most characteristic feature of the twentieth century, a necessary consequence of the attention given to mortality statistics. In the First Annual Report of the Registrar-General of Births, Deaths and Marriages in England, London, 1839, we are struck at once with the practical sanitary importance of the deductions made by the editor, Dr. William Farr, who at once placed the work upon the firm basis, from which, through the successive annual reports for over seventy years, it has not departed. As an immediate result of such statistical information, which replaced the old haphazard guesses and inferences derived from the limited scope of bills of mortality, the progressive movement for the improvement of public health was begun, which is now proceeding in almost every country of the world with yearly accelerated pace. The impulse was rapidly transmitted to this side of the Atlantic long before any state or even city boards of health were established. Its results are recorded in the annual registration reports of Massachusetts, prepared under the Act of March 3, 1842. The best medical talent and the most progressive minds appear to have been enlisted by the Secretaries of State of Massachusetts for the preparation of these early Massachusetts reports.

The almost unanimous opinion of practical public health work-

ers in all countries is that accurate vital statistics are the absolutely necessary foundation of effective public health work. What is the reason, then, after recognition of this fact, that vital statistics are not to-day as completely and accurately registered in the United States as in most other countries?

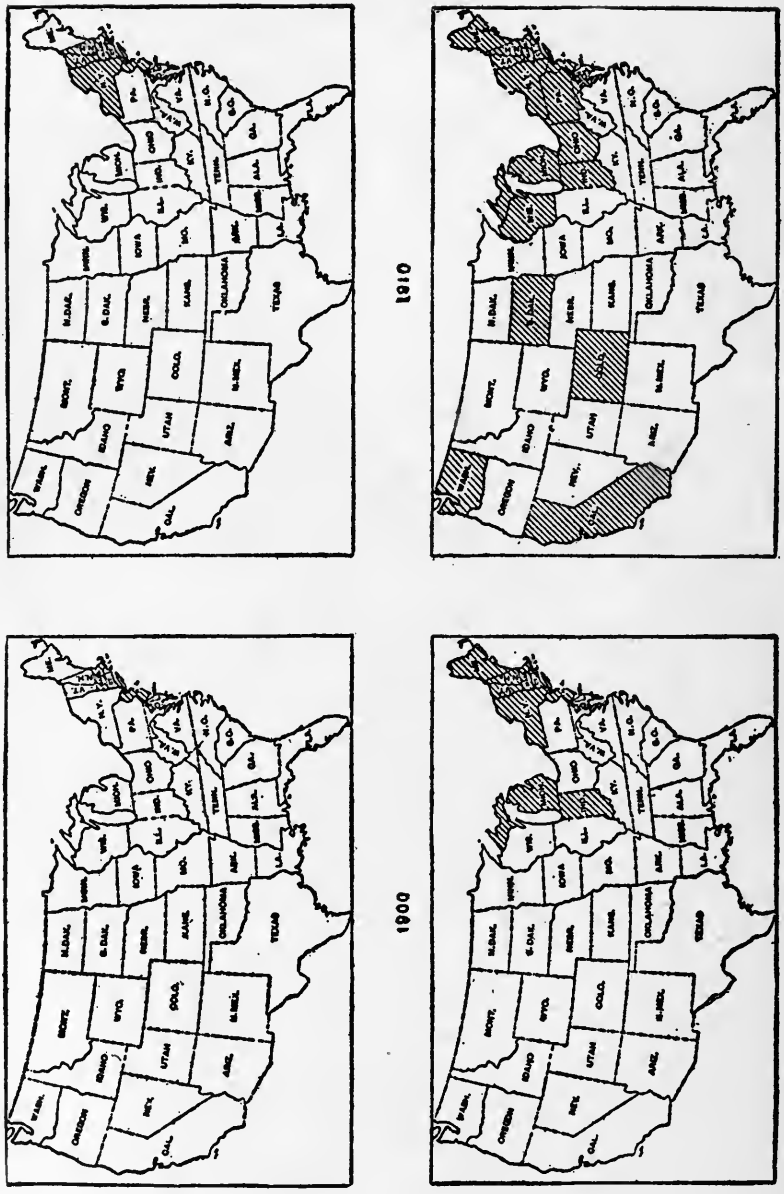
*History of Efforts of the Census to Collect Vital Statistics*

As a result of the establishment of early systems of registration, first in Massachusetts, and then in other states, much interest was aroused on the subject in various parts of the country, and provision was made in the act for the seventh census (1850) for the inclusion of the subject of mortality statistics.

The report clearly indicated the difficulty, which is an absolutely insuperable one, of collecting vital statistics by enumeration after the close of the year to which the data relate. No accurate statistics can be obtained in this manner, and the successive experiences of the eighth census (1860), ninth census (1870), tenth census (1880), eleventh census (1890), and twelfth census (1900), only served to confirm the opinion expressed in this original report of 1850, that mortality figures based upon enumerators' returns were incomplete and might be misleading. It was not until the thirteenth census (1910), however, that the method of attempting to obtain mortality statistics by enumeration of deaths at the time of taking the general census of population was entirely done away with.

The discarding of the antiquated and pernicious method of enumerating deaths was made possible by the extension of proper methods of registration. Registration of vital statistics is a method sharply distinctive from the method of enumeration. By registration of a birth or death is meant the immediate recording of the same. That is to say, for deaths it is necessary that a compulsory provision of law be enforced that no human body shall be interred, removed from the place at which death occurred, or otherwise disposed of, until a proper legal and statistical record has been made. Such a provision can be enforced only by means of a compulsory burial or removal permit. In like manner, complete birth registration depends upon prompt reports by physicians or midwives not over ten (10) days after the occurrence of the birth, and with some method of checking failures to report. For both

INCREASE IN THE NUMBER OF REGISTRATION STATES



births and deaths the essential condition for efficiency is the enforcement of the law by means of the penalties therein provided.

### *Extension of the Registration Area*

The foregoing map shows the growth of the registration area for deaths from the date of its establishment under the tenth census (1880), when it consisted only of two registration States, Massachusetts and New Jersey, and a few independent registration cities, with an aggregate population amounting to only seventeen per cent. of the total population of continental United States, up to the present time, when it includes something over one-half of the total population of the country.

An account of the development of the registration area may be found on page 18 of the little Physicians' Pocket Reference to the International List of Causes of Death, a copy of which has been sent to every physician in the United States, to medical students, health officers of states and cities, and local registration officials, and which will be sent by the Director of the Census upon request to any person interested in the movement for better vital statistics. It illustrates incidentally a most important feature of the practical work of the Bureau of the Census since its permanent organization, namely, missionary work for the extension of the registration area both for births and deaths. The crying need for this work is well expressed by the introductory paragraph of the letter of transmittal of the Director of the Census to the Secretary of Commerce and Labor:[2]

> It seems to me that there is almost nothing more important in the entire field of statistics than vital statistics, because of their direct bearing upon the health and consequent welfare of the people. It certainly is both strange and shameful that the United States should be so far behind the other leading countries of the world in the registration of deaths, and even more so in the registration of births.

Prior to the organization of the Bureau of the Census upon a permanent basis in 1902, it was impossible for the census authorities to make any systematic effort for the improvement of registration methods. The law providing for the decennial census was usually passed at the latest possible moment, and it was then neces-

[2] Physicians' Pocket Reference, page 2.

sary to organize anew, without any nucleus of a permanent staff, the immense force necessary for the taking of the census of population, agriculture and manufactures, within a brief time. Little, if any, preliminary attention could be given to the methods of collection of the data of vital statistics, nor was it feasible to attempt to introduce uniform methods. Such methods could only be adopted by the concerted action of state and city registration officials, and the time available between the passage of a decennial census law and the completion of the census was too brief to enable such an organization to be completed. Hence the work of the Federal Census in mortality statistics had comparatively little influence on the development of registration methods in the state and city offices until the census was placed upon a permanent basis, and began the compilation of annual, not merely decennial, reports on vital statistics. At once a new era began and the possibility of uniform and more efficient methods was suggested.

One of the first steps taken by the Bureau of the Census in this direction was the adoption of the international classification of causes of death, which had already been accepted by the leading state and city offices of the United States, as the system to be employed in the annual reports on mortality statistics beginning with the calendar year 1900. The Bureau of the Census prepared a Manual of the International Classification, and took an important part in the second decennial revision held by the French Government at Paris in 1909, at which a special census commission, appointed under the first public act passed by the Sixty-first Congress, was present. This commission was appointed by the Director of the Census, and contained representatives of the Committees on Nomenclature and Classification of Causes of Death of the American Medical Association and the American Public Health Association, the latter representing, through its section on vital statistics, the organized registration officials of the United States. Attention should be especially called to the latter body. By the formation of a section on vital statistics in the American Public Health Association, an organization which, from its history and influence on practical sanitation in the United States, may be taken as the most representative body of sanitarians in this country, it became possible for the first time to deal with a tangible body of statistical workers, with power to act and to carry out

plans for the improvement of vital statistics in the United States. This is accomplished by means of rules of statistical practice (see Bulletin 108, Mortality Statistics, 1909, pages 37 to 42), which embody definite decisions upon important statistical methods, and include, among other recommendations, the use of the United States Standard Certificate of Death, as revised at Richmond in 1909, for use beginning January 1, 1910, a primary schedule which places the collection of the original returns of death upon a basis of uniformity. Uniform rules and instructions to be given by state and local registration officials are provided, so that physicians and others who make reports upon these certificates may do so in a uniform and comparable manner. The use of such a schedule is necessary if we are to have comparable statistics for the country as a whole, and it may be considered one of the chief results accomplished by the census that at the present time nearly 67,000,000 of the population of the country are represented by offices that either use or recommend the standard blank.

### *Approval of the Congress of the United States*

Although the collection of vital statistics has formed a part of the decennial census since 1850, it cannot be said that Congress or the Federal Government generally, except the bureau that had the matter immediately in charge, has ever taken a very active interest in the improvement of our vital statistics.

The general interest in vital statistics that was awakened in this country during the early 50's, and which is suggested by the list of states that passed registration laws, was utterly dissipated by the intense political excitement of the later 50's and by the civil war. The cause of registration was set back at least a decade, and perhaps twenty years, and it was not until the later 60's and during the 70's that attention began to be given again to the subject of public health.

Many state boards of health were constituted about that time, and as a part of their functions the subject of vital statistics was usually included. The earlier legislation had established the collection of vital statistics under some officer of the state government, usually the Secretary of State. There were then no state boards of health. This was the case in Massachusetts, Michigan, Ohio,

Pennsylvania, Vermont, and in the Southern States where registration laws were enacted.

At the present time the collection of vital statistics is conducted by the state sanitary authorities in all States except Massachusetts, Michigan, Ohio, and South Dakota. Registration work is recognized by all practical sanitarians as the absolutely necessary basis of efficient public health service, but it is not always certain that our state boards of health, as at present constituted, will give more effective administration of registration laws than if they were placed under some other department of the state government. In all cases, of course, such work should be under medical direction, because the most important data are furnished by physicians with whom it is necessary for the central office to be in constant correspondence. Such work is medical work, and it is very desirable that special training therein should be given in our advanced medical schools, so that accomplished vital statisticians may be available for the public service, in addition to the general instruction in vital statistics that every medical student should receive. Such special knowledge should be an essential part of work for the degree of Doctor of Public Health (D. P. H.). In the practical conduct of registration matters the state boards of health have in many cases been woefully neglectful of their duties with respect to registration simply from ignorance of its importance and its fundamental relation to their work.

The general approval by Congress of the movement for better vital statistics was shown by a joint resolution adopted by Congress in 1903:

"That the Senate and House of Representatives of the United States hereby expresses approval of this movement, and requests the favorable consideration and action of the state authorities, to the end that the United States may attain a complete and uniform system of registration."

This resolution has been of very great service in calling the attention of governors and state legislatures to the importance of registering vital statistics. It is unfortunately true, however, that Congress has neglected to secure in that area over which it has sole control, namely, the District of Columbia, that uniform and complete system of registration which it recommends to the states. This applies more especially to the registration of births, which is

even at the present time (1911) admitted by the District Health Officer to be incomplete, and appears not to comprise much more than ninety per cent. of the births that actually occur. That is to say, after many years of registration in the city of Washington, which is coterminous with the District of Columbia, one birth out of every ten that occurs may fail to be registered! Congress has ample power to frame a law that will secure the registration of practically every birth that occurs in the District of Columbia, and it has ample power to secure the enforcement of such a law so that it might serve as a model that could be followed by other cities of the United States, of which there is not one at the present time with complete birth registration.

The District has not so far adopted the Standard Certificate of Death which has been such a great factor in the standardization of the mortality statistics, but there is a prospect, with the cordial recommendation of the District Health Officer, that use of the standard blank will be provided for in the city of Washington in the near future. The difficulty in securing the introduction of standard methods and of complete birth registration in the District of Columbia, under the direct control of the Federal Government, shows how difficult it is to secure the adoption and enforcement of proper registration laws in States, some of which are sparsely settled, some of which have a very large proportion of illiterate population, and many counties remote from railroad communication, when the desirable purposes indicated in the resolution of Congress cannot be carried out in practice in the Federal District itself.

### *Obstacles to the Extension of Proper Registration Methods and How They Can be Overcome*

In taking a general view of the progress of the movement for the extension of adequate registration methods in the United States, the question arises as to what are the chief obstacles that prevent the general introduction and enforcement of adequate registration laws so that the United States may become at once, or within a very short time, abreast with the other civilized countries of the world in this respect.

The first and most important obvious difficulty has already been pointed out, namely, that no uniform law can be passed for

the entire country, but the individual and harmonious cooperation of forty-eight different state legislatures and of Congress itself (for the District of Columbia) must be sought. No person who has followed the efforts of the American Bar Association and the Commissioners on Uniform State Laws will fail to recognize the great difficulties in securing the enactment by the several States of uniform laws respecting some comparatively simple matters of legal procedure. When we consider the inherent difficulties of enforcing a registration law in a state that has never had legislation on this subject, and in which undertakers and other persons are accustomed to dispose of the bodies of the dead without let or hindrance from legal authority, it will rather be a matter of surprise that so many states have adopted, within the last ten years, laws for the registration of vital statistics that are substantially identical in principle, and in many cases in wording, with the model law. At the present time the movement for the introduction of uniform registration laws has met with more actual success than any other movement of equal scope for uniform legislation.

It is easy to secure the passage of registration laws in comparison with the difficulty of securing thorough enforcement of them when passed. The duty of enforcing such laws has been largely entrusted to the state boards of health. These bodies are composed mostly of physicians, who are appointed, in many instances, on account of their political prominence rather than because of any special knowledge or education in public health methods. Some of the members of such boards may be entirely ignorant of the importance and necessary principles of effective registration, and even the executive officers, who are usually the secretaries of the state boards of health, may enter upon the practical work of enforcing a state registration law without any previous knowledge or training whatever in vital statistics. It is remarkable and very fortunate that some public health officers, both of States and cities, have taken up the subject with interest, developed it with enthusiasm, and have done their best under existing conditions to secure enforcement of registration laws. It is easy to see, however, that when a test case arises and the state registrar undertakes to enforce the penalty of the law, that he may be hampered by the appeal of the delinquent individual, who has violated the law and who ought to be punished, to some members of the

board or to political authorities, and as a result thereof the law may practically be nullified and remain unenforced.

The failure to enforce registration laws is almost universal in this country with respect to births. In only one State in the Union (Pennsylvania) has there been any continued and persistent effort, on a state-wide basis, to enforce the law requiring physicians and midwives to report all births. The effort has been attended with marked success, and it is hoped that the example will be followed by other States. Even our largest and most densely populated States are delinquent in this respect, and it has been found under some registration laws that the delinquency was greater in the cities than in the rural districts. Until within a few months no effort has been made to secure complete registration of births by systematic enforcement of the penalty of the law in even the largest city of the United States and the second largest city in the world. The first recommendation of the Advisory Board, recently appointed by Commissioner Lederle to consider the vital statistics of New York City, was as follows:

> The most important improvement which it is now ready to urge is the adoption of the following means for securing the thorough registration of all births:
>
> 1. Verification of the birth registration of every infant dying under one year of age in order to detect omissions.
> 2. Strict enforcement of the law providing a penalty for an omission to record a birth in every case thus brought to light.

This recommendation was at once adopted by the Board of Health, a number of prosecutions have been conducted, fines collected, and it is likely that a beginning has been made for more thorough and complete municipal registration of births in this country.

The great difficulty in securing complete birth registration, which can only be accomplished by the enforcement of the law and the prosecution of the comparatively few delinquents, is the fact that the health officers are dependent upon their popularity with the medical profession, both for appointment to the offices that they hold, in some cases, and for help in carrying out various methods of sanitation which they deem of greater importance than the thorough registration of vital statistics. It is necessary, therefore, that the health officials of the United States be educated as to

the fundamental importance of correct vital statistics, and brought to realize the fact that more can be gained in the long run by establishing a sound basis of registration than by following one pet fad this year and another the next without any correct knowledge as to their actual results.

The paper by Samuel H. Adams, in "The Survey" for the week of December 17, 1910, entitled, "Mixing Hygiene with Politics," or "Tomfoolery with Public Health," indicates how dangerously the various functions of a public health office, whether state or municipal, may be twisted or may be warped to the public detriment. This is especially true of the practical conduct of vital statistics, which is often relegated to an untrained and totally incapable person. The resulting worthless data may then be used by an equally untrained health officer, so that the public and press may be entirely deceived as to the actual conditions. No help can be expected from services of this character in the thorough enforcement of registration laws, because such thorough enforcement will tend to disprove the fallacious data and conclusions presented.

An effort has been made to improve the general condition of vital statistics in the United States by building up an effective organization of registration officials, and by so doing to improve the *morale* of the service, and its standing as a necessary practical division of public health service. The attempt has been to some extent successful, and the rules of statistical practice have already justified themselves in practical use. Some registration officials will continue to neglect or ignore them, and there is, of course, no compulsion for their use, except through the general education of public and statistical opinion, so that the worthlessness of some of our present municipal reports will cause a demand for their immediate abolition or reform. It is, indeed, only by building up public and professional sentiment by continually pointing out the importance of accurate registration and by teaching the public generally, and the medical profession more particularly, to condemn lax and inefficient methods, that marked improvement can be secured in the United States under our present conditions. The hearty cooperation of the American Medical Association, the American Public Health Association, the American Federation of Labor, and the beginning cooperation of the American Federation of Women's Clubs, are significant of the commencement of better things.

The census has been for many years as the voice of one crying in the wilderness, and its heretofore neglected appeals are only recently beginning to bear fruit in effective and enforced legislation. It will be many years to come, however, at the present rate of progress, before we can expect complete registration of vital statistics, including both births and deaths, for the entire United States. Not only the nations of Western Europe have long surpassed us in this respect, but also the nations of the Orient may perhaps do so. Japan has maintained for many years most excellent reports on the movement of population and statistics of causes of death embracing the entire empire. These were established very soon after the adoption of the most important methods of western civilization, and the annual reports surpass anything that will be possible for the United States at the present rate of progress for half a century to come. China has just taken its first census, and very likely will proceed to the establishment of a registration system. The new government of Turkey will doubtless proceed to remove the reproach that has heretofore rested upon that country in this respect.

Perhaps the fundamental difficulty lying at the root of our trouble in securing accurate vital statistics for the United States, and, more particularly, complete statistics of births even for cities where registration systems have been established for many years, is the American's disregard of law. Neglect of the requirements of law would seem to be a general characteristic of the American people, and the failure and neglect of vital statistics laws are only special cases. How can one expect that provisions for registration of births and deaths—the importance of which is not fully appreciated even by some physicians, let alone the people generally, the bar, and the courts—should be enforced when crimes of active violence may not be punished? Every American assumes, in his own person, to be a court of last resort, so far as passing upon the desirability or expediency of any legal provision with which he may come into conflict. If it agrees with his habits of thought to submit to the law, very well; and if not, he calmly pronounces it "unconstitutional," and it practically becomes unconstitutional for him in the majority of cases, because the officials charged with the enforcement of the law may not care to take the necessary trouble, or they may be afraid to institute the necessary legal proceedings, for the imposition of a fine or other penalty.

There is some ground, indeed, for the disrespect that American citizens have for laws, because of the absurd number of statutes that are ground out biennially by the legislatures of the different states. Many of these laws are ill considered and not practical in operation. Even the members of the legislatures that pass them do not expect them to be enforced. The United States, in spite of its lack of effective registration, has been plastered over with laws for the registration of vital statistics, many of which could have been known to be worthless and ineffective before the governor's approval was secured, just as well as after years of ineffective operation.

It has been one of the most important tasks of the Bureau of the Census to aid in the proper understanding of the essential principles that should govern in the construction of registration laws for births and deaths, to advise state sanitary officials and committees of legislatures in regard to the proper construction of such laws, and to deter, as far as possible, the passage of too highly specialized and comprehensive laws in states in which there is no reasonable probability of securing full enforcement and satisfactory results. Persons who become interested in vital statistics, and to whom the knowledge of the lack of registration in their own states comes for the first time with the effect of a sudden shock, not infrequently desire to remedy the evil all at once by "passing a law," and expect some sort of a miracle to be worked by which, with the utmost laxity of administration and with perhaps altogether inadequate financial provisions, their state may come at once to be accepted as a part of the registration area.

We have few miracles nowadays, and it seems better and more reasonable to institute legislation only so far as it can be carried out. This advice, however, is not often accepted, and usually the cry is insistent for a complete law. The only instances in which the progressive method has been employed are in the cases of Michigan, which passed its death registration law in 1897, and later, in 1905, after the law for the immediate registration of deaths had proved itself a success, instituted a similar law for the immediate registration of births; and the State of North Carolina, the first state in the South to institute a modern registration law in 1909, but which, in the wise judgment of Dr. Richard H. Lewis, was restricted to the complete registration of deaths, by burial permits,

in municipalities of 1,000 population and over, with a provision making the mayor responsible under penalty for thorough enforcement of the law. The law is now in operation, and will be extended to cover the entire state, and to include births, just as soon as the results justify such action.

### *Hope for the Future*

We have seen how many obstacles intervene in the way of bringing the United States to the position occupied by other countries with respect to the recording of the data of vital statistics. There is a brighter prospect, however, in the awakening public interest and the special attention that has been given to the importance of this subject as the fundamental basis of the conservation of human life and the movement for a national Department or Bureau of Public Health.

All the effort for better health administration in the United States, and for the establishment of a national public health service, is more or less directly an effort for better vital statistics in the United States. This is true, because a public health service, whether of a city, of a state, or of a nation, is a cripple without dependable vital data. The duty of such a national public health service would be to see whether more could be done than has been done by the Bureau of the Census to bring about the complete registration of vital statistics in the United States, under a uniform system, and so related to the Federal service that the results might be utilized promptly and with full confidence. Nevertheless, in all the discussions and arguments on this question, including the outline of bills for the organization of such a service, little practical attention was given to the subject, and no suggestions whatever were presented as to any means by which better registration can be obtained in the United States.

The same neglect, in fact, that now hampers the efforts of the state and city offices that fail to make use of their vital statistics, and to insist on the thorough enforcement of their laws seems to attend the representations made with respect to the Federal service. A Federal health department would have no more legal authority to register births and deaths directly than has the Bureau of the Census, and certainly no more cordial cooperation could be desired than has been given by the state, and by nearly all city health

authorities to the movement for better and more comparable vital statistics. Perhaps the enthusiasm attending the creation of a new department would cause some additional activity, but spasmodic interest alone will not cause state legislatures to enact, and state sanitary authorities to enforce, laws that Congress itself is apparently unable to carry out for the District of Columbia. Nevertheless, I believe it is perfectly practicable, if there should be a real demand for better vital statistics and if Congress should be actually aroused to the importance of proper registration, to institute a thoroughly cooperative registration service by state authority for the collection of the data under Federal supervision for the precision of methods and results, that could be made to cover the entire United States within a brief period, and that would prove practical and effective in operation.

# SOURCES OF INFORMATION UPON THE PUBLIC HEALTH MOVEMENT

By Robert Emmet Chaddock, Ph.D.,
Assistant Professor in Economics, University of Pennsylvania.

## *Introduction*

Someone has called vital statistics the Cinderella of modern public hygiene. She sits in the chimney corner and sifts the ashes of dusty figures, while her proud sisters, Bacteriology and Preventive Medicine, go to the ball and talk about the wonderful things they have done. In the absence of statistics visionary theories are set forth, so contradictory that scientific reasoners and business men give little attention to them. We know social facts completely when we measure them. We cannot measure social facts without statistics. They are the testing instrument for theories and schemes of social reform; they show us where to look for the causes of social maladjustments; they become the basis of the great preventive campaign which characterizes the movements toward social betterment at the present time. Consequently, the quantitative study of social phenomena is attracting the attention of an increasing number of students to-day.

Sound vital statistics are the necessary basis of modern sanitation and register clearly the steps in the campaign against preventable diseases, often pointing the way to the next step. They furnish a definite measure of the value of sanitary improvements. Pittsburgh spends $5,000,000 on a new filter plant and the death rate from typhoid at once falls. Havana is cleaned up by the United States Government and the yellow fever scourge subsides. Statistics register the progress of medicine and surgery. Antiseptic surgery comes into use and the death rate from operations, especially in war, declines to a remarkable degree. Vital statistics furnish the basis of an approximate estimate of national health.

In the present paper the sources of statistical data will be discussed and criticised from the point of view of their accuracy and completeness in the United States. Some comparison of public

health statistics in the United States will be made with foreign countries. Caution in the use of material and care in interpretation will be emphasized by the presentation of concrete examples of error. Finally, some of the problems of the public health movement upon which statistics may throw light will be suggested and illustrated by concrete material.

## I. Sources of Statistical Information

### 1. *The United States Census Reports and Bulletins*

The United States is far behind the other great civilized nations in the field of vital statistics, which includes a record of deaths, births, and marriages—a field most closely touching the interests of the people through its connection with public health. Frontier conditions long proved an effective bar to the development of public records of births, deaths, and marriages. The scattered population and the individualism which has always been impatient of official interference in America—both hindered an accurate registration. The official census was taken but once in ten years, and the data thus secured were out of date before the results could be published. The need was for an annual record. This involved accurate and complete state and local registration which has not been secured in many of our states. In 1880 records of death based on an effective system were obtained from about one-sixth of the population of the country, but this area had enlarged in 1909 to include five-ninths of the population—*the registration area,* as it is called. This area does not include the Southern States because their records of deaths are not sufficiently complete. No longer, therefore, do the returns on vital statistics come from the enumerators of the decennial census. Since the establishment of a permanent Census Bureau returns are received monthly from the registrars of state and local mortality in the registration area, and the results are published each year in a special report on "Mortality Statistics."

The accurate and complete record of all deaths is important because the rate is an index of the condition of the different communities from year to year—the relative healthfulness of different localities and occupations; of different age and sex groupings. It shows up evil influences in city life and reveals the dangers accompanying civilization.

The usual method of securing a record of deaths is to require a burial permit, to secure which a death certificate is necessary, made out by the physician who attended the deceased at death, stating age, occupation, cause of death, etc. One great difficulty in the way of accuracy has been the lack of uniformity in this blank form of certificate. Perhaps no single step taken by the federal bureau has meant so much for the welfare and sanitary protection of the American people as the successful introduction of the "standard certificate."

The difficulty of classification of the causes of death is a constant source of error and lack of uniformity. Medical men have made very imperfect returns of the causes of death as a result. What do we know about the real incidence of tuberculosis when health officers allow deaths to be reported so that they can only be classified as, "Probably tuberculosis?" There is much deliberate suppression of such causes as alcoholism and syphilis. Sometimes there is more than disease present, or disease and accident together. The adoption of the Bertillon system of classification of the causes of death over the registration area and outside has added greatly to the uniformity of mortality statistics, and renders the results in different places comparable.

An important aid in securing accurate statistics would come from better training on the part of those who are entrusted with the registration of vital statistics. The recent rapid development of the public health movement has increased the demand for this training. In England, where vital statistics have reached their highest development, medical officers of health are usually graduates of great universities and, besides, of a special course on public health in which a diploma is given.

In the United States the registration of vital statistics and the supervision of local health matters is as likely to be entrusted to a civilian as to a physician—at least to one who has devoted little time or thought to the larger problems of public health. The work of a statistician has not yet been established as a profession. Since 1850 there have been eight directors of our census, an average length of service of four and one-half years. If we compare the careers of the seven persons most conspicuously identified with recent census work in England, France, Germany, Prussia, Italy, Austria, and Russia, we find the average official life and work in statistics

has been twenty-six years, or about six times that in the United States. The accuracy and completeness of the statistics published by the United States Census Bureau depend upon the efficiency of local registration officials. An examination of fifty-six cities of the United States showed that in all except eight the work of registration is entrusted to the health officers, as it should be. In all but four the permit before burial is in force. A number of cities direct that the physician sign the certificate within a specified time, but most cities make no provision for a certificate of death which occurs without an attending physician.

One of the greatest needs for the public health movement is more accurate records of occupational mortality; and, in addition, data from which the morbidity rate may be calculated. The annual reports now publish mortality by age, sex and occupation, but the United States has almost nothing as to the morbidity rate. This one-sided information results in wrong conclusions from the federal statistics, for instance, as to the death-rate among women factory workers. It appears lower than for any other class of society—the truth being of course that few women die as factory workers, because when death overtakes them most have passed into the class of housewives. Nevertheless, their occupation may have been fatal in undermining health.

Besides, the mortality statistics do not give really accurate information, because the classification of the trades is not sufficiently discriminating. For example, the man working at the metal polishing wheel is classed with other metal workers. As a result, the federal figures do not show the enormous death-rate from pulmonary diseases among metal polishers. For these data we must go to the records of the Metal Polishers' Union.

In older European countries injury to health in the trades is studied and controlled by the government. The physicians of Germany, France and Great Britain are alert to the close connection between occupation and disease.

The accuracy of figures on occupational mortality depend upon: (1) correct statement of occupation and age in the enumeration of population in the United States census; (2) correct statement of occupation, by the same classification as for the United States census of population, and correct age upon the death certificate; (3) precise statement of the cause of death upon the certificate.

The data are derived from two different and largely independent sources. The returns of death, received from the registration states and cities, are copies of the death certificate made out by physicians or relatives. But the occupations of the living population are stated by the census enumerators according to instructions. The accuracy of statement may vary greatly in the two sets of returns even if the classification of occupations be the same in the two cases, which is likely not to be the case. But the only method of getting at the death-rate peculiar to any given occupation is to compare the mortality in that occupation with the number employed for that occupation according to the population returns. This comparison was attempted in the 1900 census, and since that time in the annual reports on mortality. There is still another difficulty. The population in inter-census years must be estimated for each occupation. This cannot be accurately done for more than five years after the last general census. This is an argument for a population census every five years. Thus, in the "Mortality Statistics" for 1908 it was necessary to state simply the percentage which mortality from a certain cause formed of the mortality from all causes in the given occupation. It may be said that the English figures for occupational mortality are much more complete and accurate. What is needed in the United States, both for mortality statistics and for population statistics, is a list containing all the more important individual occupations, with an exact statement of the terms included under each, so that all, whether census enumerator or physician or undertaker, may comprehend and make a uniform and comparable classification of occupations.

*Mortality of Children.*—The deaths of children should, if possible, be recorded by single months for the first two years of life and for the most important causes of death. This is not done in the United States.

In England and Wales infant deaths are recorded only during the first year by months, but in Berlin the record is by months for the first two years. These facts are of great importance in the problem of infant mortality. Besides, there should be a distinction made between deaths of children breast-fed and bottle-fed, since these data throw light on the solution of the problem of infant mortality.

On page 50 of the annual report of the medical officer of health

of Blackburn, England, the particulars of the nursing and feeding of 2,705 children under 7 months old are given.

*Registration of Births.*—In the "Supplementary Analysis of the Twelfth Census," page 237, we find the following statement: "The twelfth census contains no statistics of births or marriages. It has been found impracticable to gather information through census enumerators regarding either the births or the marriages that occurred during the census year with enough completeness to make the resulting figures worth the cost. The records of state or municipal registration offices upon births and marriages —the only alternative sources of information—are often lacking, and where they exist are incomplete in so many cases that no satisfactory statistics of births or marriages for the United States can be derived from them." In his contribution to the "Report of Vital and Social Statistics of the Eleventh Census," published in 1896, Dr. Billings stated: "We have no fully complete and accurate registration of births in any part of the United States." W. A. King, chief statistician for vital statistics in the twelfth census, began his discussion of births by admitting that "the data relating to births are the most incomplete and unsatisfactory of any treated in this report. Were it not considered desirable to give such results as bear upon the question for the information of students of statistics, the subject might be dismissed with the statement that they are entirely inadequate to determine, directly, the general birth rate of the country, or, what is of equal practical importance, the relative birth rate of different classes of the population."

The registration of births is extremely important for the knowledge of infant mortality, for the protection of infant life, and for securing the legal rights of children. Yet, not a single State in the Union, nor a single city of any considerable size, makes positive claim that it registers as many as nine births out of every ten that occur. Even the city of Washington, whose law for this purpose is a direct enactment of Congress, does not exceed this limit of efficiency. "The registration area for births consists of a few interrogation points." It was not until 1891 that the annual number of recorded births in New York City exceeded the number of deaths.

The total number of births must be known before a computation of infant mortality can be made which will be comparable with

the rates given in the vital statistics of all civilized nations except the United States. The infant death rate depends upon the comparison of deaths under 1 year of age with the total births. In this respect the infant death rate differs from that of other age groups, which is a comparison of the deaths at a given age with the population living at that age.

In the absence of accurate registration of births, the United States census has been at a loss to compute birth rates. The only way to obtain an approximate estimate for the whole country, or for a State, is to take the number of children under 1 year of age, found living at the date of the census, and add to this the number of children who died during the census year and who were born during that same year. In absence of accurate data for computation of the birth rate, the census officials resort to the method of comparing the number of children in the population to the number of women of child-bearing age, from decade to decade, in order to secure evidence as to the decline of the birth rate, as described in Bulletin No. 22, of the census. Thus, the ratio of the living children under 5 years of age to each 1,000 living women of child-bearing age is used as the best available substitute for the birth rate in the United States since 1850. But this ratio is not comparable with other countries which have accurate registration.

### *2. State and Local Reports of Vital Statistics*

The collection of vital statistics received its first impetus in towns where registration of deaths was desired for sanitary ends. Dr. Edward Jarvis states that New York City began to publish mortality statistics in 1804; Boston in 1813; Philadelphia in 1825, and Baltimore in 1836. The States in which these cities are located did not legislate until later. The most striking characteristic of these state and municipal reports is their lack of uniformity. The data of one State or city are, therefore, not comparable with those of another State or city. In fact, these local reports are not sufficiently uniform to admit of the comparison of the data in successive reports. As pointed out earlier in this paper, the officials to whom the work of registration has been intrusted in the United States have not had sufficient training either in statistical method or in the importance of the various public health problems. The adoption of the "standard certificate" of death, and the wide adop-

tion of the Bertillon system of classification of the causes of death, have brought a greater degree of uniformity into mortality records. Nevertheless, the accuracy of registration still depends in large measure upon the efficiency of the local official, who may correct errors on the certificate of death if he is sufficiently alert to its importance.

The American medical press is not critical enough of the contents, nature and objects of local health reports. As yet, there is no clear recognition of the real local value of such reports. As a result of a more careful and scientific study of vital statistics, it may be possible to set forth clearly that the great waste of life can be diminished by measures to prevent accidents or the unnecessary prevalence of disease.

Local health reports fail to make a careful study of the local mortality as affected by race, nativity and occupation. If the ages at death are given at all, they are generally given by arbitrary divisional periods of life. Rarely is any information published locally as to mortality by occupation, and yet this is essential to a knowledge of the relative influence upon the health of workers of various occupations.

Mortality from special causes, by streets or by wards, is often useful information in locating the causes of disease. In Liverpool, England, for example, to emphasize the prevalence of diarrhœa in 1905, a table was prepared showing the mortality by streets on which three or more deaths from this disease occurred. The Boston Registry Department gives a full account of the elements of the population and the mortality of every ward in the city. Most reports of boards of health give an elaborate analysis of mortality by months, instead of giving the necessary data by ages at death. For many important purposes, age and sex distribution are needed, while the distribution by months is of only limited significance.

Wherever the colored population exceeds 10 per cent. of the total, the mortality should be separated by color. The mortality rates are so different in the two elements of population, that frequently comparison of two places with different proportions of white and colored is impossible unless the mortality is stated separately for the two races. The same would be true in comparing different wards of a city.

The health and mortality of school children of 6 to 14 years

of age is a matter of great concern at present. The school officials might be requested to report, week by week, the deaths among their pupils. A table could then be constructed at the end of the year, showing the average number of pupils in different schools according to grades, with the mortality in each, together with a statement of ages at death and the principal causes of mortality. These data would throw light upon the problem of school hygiene.

Mortality from trade diseases and accidents is of the greatest concern to those interested in the preservation of national vitality and efficiency. Present local methods of presenting occupation-mortality statistics, where they are given at all, are usually very crude, and the tables are of little value. The best work in this field is found in England, in the reports of Sheffield and Blackburn—the former for the cutlery trade, the latter for textiles. The Blackburn report might serve as a model for such cities of the United States as Fall River and Lawrence. Such tables in the United States would afford an accurate insight into the extent of industrial disease. For these data in this country we must depend upon insurance companies, labor unions or private investigations. The Rhode Island reports state only the average age at death among men dying in different trades, instead of giving age distribution by periods of life and the more important causes. Where the reports are limited to specific trades (*i. e.*, textiles), the causes of death need not be extended beyond tubercular and respiratory diseases and accidents. Dangerous trades where accidents are likely to occur (*i. e.*, iron and steel) should be reported in detail—every fatal accident, with age, specific occupation and cause of death. The agitation for workmen's insurance or compensation should rest upon accurate data, which at present, in the United States, do not exist.

Besides what has been already said as to the inadequate provisions for the registration of births, the local importance of the earliest possible registration of births needs emphasis, in the interest of public health and the movement against high infant mortality. Early registration facilitates the work of the health visitor and sanitary inspector. The New York law requires report within ten days, and imposes a $100 fine, in addition to making the failure to report a misdemeanor. Some States offer a fee to the physician for registration of births.

### *3. Reports of Hospitals and Institutions for Defectives, Dependents and Delinquents*

For hospitals, most of the reports are decidedly defective and more or less misleading. Cases are duplicated, and there is lack of uniformity in description. Improved methods are needed, and it seems advisable for local health officers to insist upon accurate and specific returns from such institutions, in order that the real mortality rate may be known. The mortality record should show, in a special table, the deaths of inmates by age and cause of death, with a statement of the average number of inmates. These tables would correct wrong conclusions as to the healthfulness of particular localities. Furthermore, the deaths in institutions should be redistributed, according to the place of residence of the deceased, to prevent errors, which are especially serious in the case of hospitals for the treatment of special diseases, which attract large numbers from outside the locality. Not even New York City makes a proper redistribution. London does make this correction. The tables of institutions do not, as a rule, conform to the method of showing mortality at different ages and for specified causes.

*Defectives, Dependents and Delinquents.*—The president of the National Conference of Charities and Correction, in his inaugural address in 1891, discussed state and national registration of defectives, dependents and delinquents. He pointed out the fact that before the tables of the decennial census were issued they ceased to have scientific value. Reports in the States, he characterized as lacking in completeness, uniformity and scientific methods. He proposed to introduce the efficient methods of the charity-organization societies, as illustrated from their experience in New York, Boston, Buffalo and Indianapolis, into state boards of charity, in order to secure accurate registration and classification. The conference has a committee on statistics which makes a report at each session and seeks to promote uniformity and completeness in records.

There is no lack of statistical output, but the product is unfinished and largely indigestible. Busy men and women have no time to disentangle real information from unrelated masses of data. We have not even a trustworthy quantitative measure of the feeble-minded in the United States. The numerical strength of the insane

outside of institutions is unknown. Current institutional statistics are not of a sort to greatly promote our knowledge of insanity as a social phenomenon. Not long since, a foreign official asked for the statistics of the number of persons in the United States supported through public outdoor and indoor relief. He was astonished by the reply that the facts were beyond any one's knowledge. He wished, further, to learn the number of destitute children cared for by public and private agencies. Only the roughest estimate could be given.

There is a woeful lack of competent statistics of poverty and pauperism. We need more data and better analysis. Theories of social amelioration should be based upon a thorough study of the facts, and the results should be tested by careful records. The reports of the census office in 1906 on paupers in almshouses and benevolent institutions, prepared by John Koren, expert and special agent, mark the beginning of a new era of intelligent inquiry—the first step for a proper understanding of the existing state of the social ill health. For the first time we possess a definite basis of fact as to the extent of pauperism in the United States. In foreign countries more has been done on this problem, because it is more pressing. An interesting attempt at international comparison will be found in the second series of reports on British and foreign trade and industry. This report includes much statistical material on poverty and pauperism in the most civilized countries, including the United States. Want of uniformity in American statistics, however, made it impossible for the report to utilize other than the state returns of New York, Massachusets and Minnesota, which are scarcely representative of the country.

The German Union investigated seventy-seven German cities, and published the results in 1886-1888. A committee of statisticians formulated a plan and secured the co-operation of the relief officers of the various localities. In each city cards on a uniform scheme were furnished. The work was done by government officials, directed by a committee of the Union, and paid for by the cities. A rate of dependency was thus calculated for seventy-seven cities, with a population of over four millions.

The centralized system of the English Local Government Board furnishes each year very complete statistics of outdoor and indoor relief. In the United States the charity-organization reports are

valuable, but no statistics exist that compare with those of England and Germany. The reports of state boards of charity are, as a rule, so imperfect as to be exasperating to the investigator. The committee of the National Conference collected data for a year, and then had to report that "your committee does not pretend to offer complete statistics for even one community." And yet it is not too much to say that correct and uniform records lie at the foundation of modern charity work.

In correction, a German investigator declared as to American conditions: "They are lacking complete statistics in each case." We leave practically unworked the primary sources of information; *i. e.*, the records of police courts, grand juries, etc. A statistical test has never been applied to our system of penology as a whole. Our bookkeeping is so imperfect that we do not know, even approximately, the extent of the local juvenile delinquency problem.

I shall enumerate other sources of information on matters related to the public health movement, without detailed criticism:

(1) Reports of local charity-organization societies, medical societies, tuberculosis associations and labor unions.

(2) Records of insurance companies.

(3) Commissions on the problem of industrial accidents and their compensation.

(4) Annual school reports.

(5) Special reports on the following topics:

*a.* "Immigration," by the commission.

*b.* "Women in Industry," by the Bureau of Labor.

*c.* "Workmen's Budgets," by Robert Chapin and Mrs. L. B. More.

*d.* "Industrial Accidents and Dangerous Trades," by the Bureau of Labor.

*e.* "Wages," Twelfth Census.

*f.* "Child Labor," by state and local agencies.

*g.* Report on "National Vitality," by Irving Fisher.

*h.* Backward school children; physical defects.

## II. Caution in the Use of Statistical Data Needed

We live amid a wilderness of recorded data. Prophets seize eagerly upon the chaotic mass embodied in reports called statistics, and appropriate such facts as meet their needs—then they proclaim

this version of the facts as the truth. Some one declares that 500,000 persons have received relief in New York City during the last year; another exclaims, "I hear the wail of 2,000,000 children who are in want"; still another is sure that his statistics prove that the jails, almshouses, hospitals for the insane, and most other public institutions are chiefly populated by immigrants.

When two quantities are compared we must consider whether they are comparable. If we compare the general death rates of two cities in which there are widely different proportions of colored and white population error will be sure to arise because of the higher death rate among colored, if we conclude as to the relative healthfulness of the two cities from the figures given. It is never safe to take published statistics at their face value without knowing their meaning and limitations. The actual use and appreciation of statistics is ultimately a matter of intelligence, special knowledge, and common sense. The following are illustrations of error:

(1) The Census of 1890 presented very wrong inferences from some of its statistics. It was claimed, for example, that for each million of the foreign-born there were 1,768 prisoners, while for each million of the native-born there were only 898. These facts, so it was claimed, showed a tendency to criminality among the foreign-born twice as great as among the native-born. But this inference overlooked a most important fact—*i. e.*, that criminals are recruited mainly from adults, and that the proportion of foreign-born adults to the total foreign-born population is much greater than that of the native-born adults to the native population. The latter includes many more children. If we compare the number of male prisoners with the number of males of voting age, a very different result appears. The number of male prisoners per 1,000,000 of voting age in 1890 was as follows:

| | |
|---|---|
| Native white of native parents | 3,395 |
| Native white of foreign parents | 5,886 |
| Foreign whites | 3,270 |

In this analysis, age for age, the foreign-born show a lower rate than the native-born. Besides, the table shows criminality among the native-born of foreign parents twice as high as either of the other groups. This requires an explanation and a remedy.

(2) The report of the Secretary of War in 1899 discussed the

rate of death from diseases in the Philippines among the soldiers (17.2 per 1,000). He compared this rate with rates among the general population in Washington and Boston, and it appeared not excessive when so compared. But such comparison of the death rate of soldiers, mostly 18 to 30 years of age, could not be made with a city population of all ages, including infants, where the death rate is so high. Besides, soldiers represent a selected class. If he had compared the rate for soldiers with the rate among the general population, 15 to 45 years of age, he would have observed it to be about 10.9 per 1,000, which would still not have allowed for the selected class. If he had compared the rate in the Philippines with the rate among United States soldiers before the Spanish war he would have found it to be four times as great.

(3) If we consult the table on mortality among males and females in 1908 for the registration area, Bulletin 104, the following appears: *Percentage of gainfully employed to the whole number of deaths—*

| Age Grouping. | Males. | Females. |
|---|---|---|
| All ages | 52.3 | 8.3 |
| 10-14 years | 4.0 | 1.7 |
| 15-19 " | 58.3 | 25.7 |
| 20-24 " | 82.7 | 28.0 |
| 25-34 " | 86.5 | 19.2 |
| 35-44 " | 85.7 | 16.2 |

If the conclusion followed from these figures that mortality of women in industry is slight, it would overlook the important fact that many women have left industry and became housewives when diseases prove fatal. For exact conclusions we need facts—*i. e.*, the morbidity rate among women in industry.

(4) Suppose we have two cities of 1,000 each. We assume the same death rate for each at the same ages—*i. e.*, under 10 years, a death rate of 100 per 1,000; over 10 years, a rate of 10 per 1,000. The distribution in town A by ages is 100 under 10 years, and 900 over 10 years; in town B, 150 under 10 years, and 850 over 10 years. Therefore, the crude rate for A will be 19, and for B 23.5 per 1,000. This apparent difference is caused by the presence of a larger proportion of children in B among which the rate is always higher—the difference is not due to difference in healthfulness of the two towns.

It is, evidently, impossible to compare the healthfulness of two localities until differences in the death rate due to different age-grouping have been excluded. If comparison is made on the basis of the crude uncorrected rate error may result. Statistical method has a way of correcting death rates for difference in sex and age-grouping which will render the results comparable in determining relative healthfulness.

(5) The chief function of statistics is to show correlation of data and thus arrive at the relations of cause and effect. But often a single correlation leaves out of consideration other important correlations. An instance of this error is found in the annual report of a western college in which comparison of the average standing and failures among non-smokers, moderate smokers and excessive smokers is made:

| | Non-Smokers. | Moderate. | Excessive. |
|---|---|---|---|
| Number of Students | 111 | 35 | 18 |
| Average for year | 85.2% | 73.3% | 59.7% |
| Percentage of failures | 3.2% | 14.1% | 24.1% |

From these data it was concluded that smoking was the cause of the failure of a very large percentage of those who smoked. The correlation is clear but the explanation is not adequate. The men who smoked in that college were those who for other reasons would have valued other things more than marks. They went in society, they were prominent in athletics, or they were the fellows who did not come to college to study. Smoking was one of the things they did to pass the time.

If space permitted, this paper would be made much more complete by a presentation of some concrete data on such problems as tuberculosis, medical inspection in the schools, infant mortality and trade diseases and industrial accidents, which would make clear just how statistics may throw light upon the problems with which the public health movement is most concerned. Prevention means getting at the causes, and statistics show where to look for these causes. The removal of the causes then becomes a matter of public policy, the results of which are to be tested by a further collection of statistical data. Thus the beginning and the end of the movement toward social amelioration appeals to the science of statistics for its aid and guidance.

In conclusion, the great needs seem to be for a more complete and accurate registration of local vital statistics, greater uniformity in classifications, more training on the part of those who have charge of the records, and a higher appreciation of the usefulness of statistical data. The National Government may perform at least two functions in the great public health movement—*i. e.*, (1) investigation and (2) dissemination of information. To do this there is need for a Bureau of Public Health which shall become the central investigating agency and depository for the results gathered from the whole country. This bureau will seek to promote uniformity of classification which will make the results comparable, and will inform public opinion by well-ordered and authentic facts.

# WORK OF THE COMMITTEE OF ONE HUNDRED ON NATIONAL HEALTH

By Wm. Jay Schieffelin, Ph.D.,
Chairman of the Executive Committee of the Committee of One Hundred on National Health.

Professor J. P. Norton, of Yale, in a paper read in June, 1906, before the Economic Section of the American Association for the Advancement of Science, showed that the country is suffering great economic losses from preventable sickness and premature deaths. He advocated the creation of a National Department of Health, which should spread throughout the country a knowledge of effective ways of stamping out disease, as the Department of Agriculture has done in the case of cattle. As a result of this paper, a committee of one hundred on national health was appointed to study its subject, and to put into effect the best methods for securing its object. The committee elected Professor Irving Fisher, of Yale, president. It was later voted by the association that the committee,[1] instead of merely representing its economic section, should

[1]The present make-up of the Committee is as follows:

*President*—Professor Irving Fisher.

*Vice-Presidents*—Ex-President James B. Angell, Ann Arbor; Ex-President Charles W. Eliot, Cambridge; Rev. Lyman Abbott, New York; Miss Jane Addams, Chicago; Mr. Felix Adler, New York; Hon. Joseph H. Choate, New York; Archbishop Ireland, St. Paul; Hon. Ben B. Lindsey, Denver; Mr. John Mitchell, New York; Dr. William H. Welch, Baltimore.

*Executive Officers*—Chairman Executive Committee, Wm. Jay Schieffelin, Ph.D.; Secretary, Edward T. Devine, Ph.D., LL.D.; Treasurer, Title Guarantee and Trust Company, 176 Broadway, New York City.

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represent the whole association, and that the scope of its work should not be confined to advocating a National Department of Health, but should include the prosecution of all suitable work for securing improved national health.

The committee adopted the policy of not attempting much direct work for improving health conditions, but rather of inducing other agencies, already existing and equipped, to do the work. It has aimed especially to enlist the services of three great agencies, the press, the insurance companies, and the government.

At the outset the committee was confronted with the fact that very little information exists concerning the health of the nation as a whole. Actual facts as to deaths are available in only half of the population. Of the remainder we do not even know how many deaths occur. Before the nation can intelligently do its part of the work of disease prevention, the national aspect of diseases,

Mass.; Rev. W. G. Eliot, Jr., Portland, Ore.; Dr. Livingston Farrand, New York City; Hon. Charles J. Faulkner, Washington, D. C.; Dr. Henry B. Favill, Chicago, Ill.; Dr. George J. Fisher, New York City; Prof. Irving Fisher, New Haven, Conn.; Horace Fletcher, New York City; Austen G. Fox, New York City; Lee K. Frankel, Ph.D., New York City; Dr. John S. Fulton, Washington, D. C.; President H. A. Garfield, Williamstown, Mass.; William R. George, Freeville, N. Y.; Prof. Franklin H. Giddings, New York City; E. R. L. Gould, New York City; Rev. Percy S. Grant, New York City; Dr. Luther H. Gulick, New York City; President A. T. Hadley, New Haven, Conn.; Norman Hapgood, New York City; Miss Hazard, Peace Dale, R. I.; Prof. C. R. Henderson, Chicago, Ill.; Mrs. John B. Henderson, Washington, D. C.; Calvin W. Hendrick, Baltimore, Md.; Byron W. Holt, New York City; Prof. L. Emmett Holt, New York City; Dr. J. N. Hurty, Indianapolis, Ind.; Rt Rev. John Ireland, St. Paul, Minn.; Prof. M. E. Jaffa, Berkeley, Cal.; Prof. Jeremiah W. Jenks, Ithaca, N. Y.; Dr. P. M. Jones, San Francisco, Cal.; President David Starr Jordan, Stanford University, California; Prof. Edwin O. Jordan, Chicago, Ill.; Arthur P. Kellogg, New York City; Dr. J. H. Kellogg, Battle Creek, Mich.; Dr. S. A. Knopf, New York City; Dr. George M. Kober, Washington, D. C.; Dr. George F. Kunz, New York City; Prof. James Law, Ithaca, N. Y.; Samuel McCune Lindsay, New York City; Hon. Ben B. Lindsey, Denver, Col.; Dr. Jaques Loeb, Berkeley, Cal.; Hon. John D. Long, Boston, Mass.; S. S. McClure, New York City; Dr. J. N. McCormack, Bowling Green, Ky.; Hiram J. Messenger, Hartford, Conn.; John Mitchell, New York City; Hugh Moore, New York City; Dr. Prince A. Morrow, New York City; Dr. Richard C. Newton, Montclair, N. J; Prof. M. V. O'Shea, Madison, Wis.; Walter H. Page, Garden City, L. I.; Henry Phipps, New York City; Dr. C. O. Probst, Columbus, Ohio; Dr. Charles A. L. Reed, Cincinnati, Ohio; Mrs. Ellen H. Richards, Boston, Mass.; Dr. R. A. Sargent, Cambridge, Mass.; William Jay Schieffelin, Ph.D., New York City; Prof. Henry R. Seager, New York City; Hon. George Shiras, III, Washington, D. C.; Dr. George H. Simmons, Chicago, Ill.; President William F. Slocum, Colorado Springs, Col.; Dr. Charles D. Smith, Portland, Me.; Dr. Z. T. Sowers, Washington, D. C.; James Sprunt, Wilmington, N. C.; Melville E. Stone, New York City; Nathan Straus, New York City; J. E. Sullivan, New York City;; William H. Tolman, New York City; Dr. Henry P. Walcott, Boston, Mass.; Dr. William H. Welch, Baltimore, Md.; Prof. F. F. Wesbrook, Minneapolis, Minn.; Talcott Williams, Philadelphia, Pa.; President, Robert S. Woodward, Washington, D. C.

as they spread over state boundaries, must be known. The lack of such knowledge has been an added incentive to the Committee of One Hundred to ask for a health department to gather national health information. Referring to a map which the government made at a great expense to show where the best beet crops might be expected, Dr. Wiley, chief of the bureau of chemistry, has commented on the dearth of national maps on more vital subjects. He says:

> Our government needs maps of vital conditions throughout the country. We would have a map of the United States showing where the cancer belt is, where the greatest tuberculosis area is, where the typhoid area lies, what is the area containing men and women of the finest physiques. Such information would be of illimitable value to the nation in any intelligent attempt at the reduction of disease, and would save millions of dollars to the nation now lost by unnecessary sickness and unnecessary premature death.

Meanwhile the committee has availed itself of such material as exists on national health conditions, and has endeavored to place this material in the hands of as many people as possible. The object of the committee was two-fold: First, to give ground for a popular demand for a National Health Department; second, to set the people thinking on health subjects. As Dr. Wiley further says:

> If we have never had a Department of Health, Congress is not at fault; it is the fault of the people of the United States. They are perfectly apathetic about their own health. They go about their work day after day, and then when a break in health comes, they submit to all its consequences with a kind of feeling that the disaster is inevitable.

An American Health League was started by the committee. The membership in the league soon numbered 25,000. To these people and to the press literature was sent on the prevention of sickness and the need of national action. In all the committee has issued over two-score publications, among them "National Vitality," the report by Professor Irving Fisher, president of the Committee of One Hundred, as a member of President Roosevelt's Conservation Commission. This report, which was commended by eminent scientists, showed that out of the entire population 1,500,000 die annually, and of this number nearly half (over 620,000) die many years before they should; that proper precautions would save those

years of life. It also showed that there are constantly 3,000,000 sickbeds in the country, and that if hygienic knowledge now available were used, at least one-half of these people might be among the well, instead of among the sick. But besides the knowledge which already exists in regard to the nature of diseases, Professor Fisher brings out in his report that much more knowledge is needed to explain the causes of many diseases. For obtaining such information and for spreading it among the people, a National Health Department would be effective.

This conservation report on "National Vitality," was printed in several large editions by the United States Senate, at the suggestion of Senator Robert L. Owen, who has actively championed the National Department of Health movement. Copies of the report were spread throughout the country, and have furnished a large part of the committee's educational campaign.

A magazine called "American Health," was published by the committee in the beginning of its work. After a few issues of this magazine, however, the committee succeeded in enlisting the direct co-operation of "McClure's Magazine," "World's Work," "The Survey," "The Dietetic and Hygienic Gazette," and "Good Health." When this was accomplished, the committee's own magazine was discontinued. Many other magazines have directly co-operated in the committee's work.

Since the results for which the committee is working are a matter of vital consequence to life insurance companies from a business standpoint, it was apparent to the committee from the beginning that such companies could be a powerful aid in accomplishing those results. At a meeting of the Association of Life Insurance Presidents, in February, 1909, Professor Irving Fisher read a paper on "The Economic Aspect of Lengthening Human Life." A "Human Life Extension Committee" was then appointed. Since this meeting, the life insurance companies have entered more actively into the health campaign. Health educational departments have been established in many of the companies, medical examinations have been increased, sanatoria have been built, and definite steps have been taken to aid in obtaining national action in behalf of health. The life insurance companies, therefore, are to-day among the most powerful agencies for the betterment of health in this country. In a recent paper on the subject, Professor Fisher

reviewed the progress which the insurance companies have made in health work. He said:

At present the movement has only just begun; although it has, I believe, gone far enough to demonstrate its wisdom. The Metropolitan has established a consumptive sanatorium in the face of much opposition and in spite of an adverse decision at first by the Insurance Commissioners of New York State as to their right to do so; it has engaged visiting nurses to co-operate with visiting nurses' associations in certain cities to care for its bed-ridden policyholders; it has established a health magazine to distribute health literature among its policyholders—which magazine is made available to 15,000,000 readers, or one-sixth of the population in the United States; and it has endorsed in several ways and on several occasions the movement for a National Department of Health.

The Provident Life Assurance Company has established a health bureau which performs two functions, one of issuing bulletins of health information among its policyholders, the other, of granting to those who choose, free medical examinations. At first these free examinations were to occur every two years, but the results were immediately found to be so satisfactory in holding off the Grim Reaper, who was creeping upon his victims unawares, that the interval for periodical examinations has been reduced to one year.

The New York Life Insurance Company has taken a hand in the effort to improve and purify the milk supply of New York City.

Mr. Robert L. Cox, counsel for the Association of Life Insurance Presidents, states that "practically all of the companies represented in the Association of Life Insurance Presidents are giving their moral support to the movement for the prolongation of human life. In addition, many of them are doing practical educative work. Measured by number of policies in force, the association companies cover seventy-eight per cent of the field of American companies, having 21,700,000 policies out of a total of about 28,000,000. The association companies engaging in individual work along health betterment lines have seventy-three per cent of the total number of policies in force, or 20,500,000.

There is another group of companies in the association which goes beyond the body of policyholders in its health promotion activities. They advise impaired applicants for insurance as to their physical condition and make suggestions to aid them. There are four companies in this group. Two of them, in the East, have a total of 86,000 policies. Another is a flourishing Middle West company that has about 150,000 policies. The fourth is a young and conservative Southern company with 7,200 policies.

One of the Connecticut companies has published suggestions as to health reform in its magazines to agents. Two other companies—one of Massachusetts and the other of California—are considering active work in the future.

The fraternal societies have entered the campaign. Their journal, the "Western Review" now has a department especially devoted to the public health. Fraternal insurance companies have also in several instances estab-

lished sanatoria, and have attempted in other ways to lengthen lives and decrease death claims.

The accident companies have, I understand, for some time, aided in getting state laws passed to prevent accidents to life and limb.

Finally, health insurance, one of the youngest forms of insurance, has made a beginning in the field of prevention. The Loyal Protective Insurance Company has, within the last few months, established a health bureau to issue bulletins and conduct a sort of correspondence school of health information. Considering the fact that few, if any, of the existing insurance companies have been engaged in health insurance for more than fourteen years, their present entrance into the field of prevention is unusually prompt. Personally I believe that in health and accident insurance—and especially in health insurance—there are gigantic possibilities of profit. I use the term profit rather than philanthropy in recognition of the fact that insurance companies as such have no business to undertake philanthropic work except when it is profitable. In the end the money gains made by the insurance companies by reducing mortality and invalidity will be shared by the public in reduced premiums.

In the matter of enlisting government aid, the committee has been active in several states. It has aided health legislation, notably the law in Connecticut for the "Sterilization of Degenerates."

The committee has also laid the foundations for national health legislation. In the beginning of its work, ex-President Cleveland sent a letter of endorsement. Then came the endorsements of Presidents Roosevelt and Taft, and of Mr. Bryan. Both political parties put national planks in their platforms. Many noted men endorsed the movement and worked in its behalf. The governors of most of the states expressed themselves as favoring the establishment of a National Health Bureau or Department. National societies favored the movement, and passed resolutions endorsing it. The Grange endorsed it. The United Mine Workers and other labor organizations endorsed it. Educational institutions, boards of health, civic associations, women's clubs—all heartily endorsed the committee's work. Boards of trade throughout the country took up the movement, recognizing that health plays an important part in the prosperity of a community. The country can now be said, therefore, to be awake to the need of national action for the suppression of disease.

The Honorable George Shiras, III, a member of the committee, made an exhaustive study of the question of constitutionality of a National Health Department, and reported favorably on it.

The first national bills of importance that came under the

consideration of the committee were Senate bills 6101 and 6102 and their equivalents in the House. These bills aimed to increase the salaries of officers in the Public Health and Marine Hospital Service, and to enlarge the scope of their work. The merits of the bills were given thorough investigation by the executive and the legislative sub-committees of the Committee of One Hundred. After due deliberation, the committee decided to withhold approval (except as to the increase in salaries), and submitted to the President its own plan for increasing the efficiency of the federal health service. Instead of enlarging the scope of the present Public Health and Marine Hospital Service, which might result in duplication of work already being done in other bureaus of the government, the committee recommended that all the federal health agencies be concentrated into one department, instead of being scattered, as they are now, in various departments.

The President then appointed a "Commission on the Organization of the Scientific Work of the Government." This commission consisted of Charles Walcott, chairman (director of the Smithsonian Institute), James R. Garfield, W. L. Capps, William Crozier and Gifford Pinchot. They confirmed the recommendations of the committee, stating that "there exists a lack of co-ordination and effectiveness [among the bureaus doing public health work] that can only be overcome by administrative supervision in one department."

In the fall of 1909 President Taft took up the subject of co-ordinating the existing federal health agencies, after having repeatedly favored the idea in his public utterances. He had various plans suggested for the improvement of the federal health service. These were submitted to the Committee of One Hundred, and expert opinions were obtained from outside sources. None of these plans, however, satisfied the President or the committee.

New health bills were introduced in Congress, until, during the session of 1910, there were no less than six public health bills to which the Committee of One Hundred gave consideration. One bill, introduced by Congressman Simons, aimed "to further protect the public health," imposing additional duties on the Public Health and Marine Hospital Service. Another bill, introduced by him, aimed to "establish a Department of Public Health," this department to be supervised by a director-general of public health appointed by the President, all divisions of the government work relating to

public health, except those in the War and Navy departments, to be combined in one department. Congressman Hanna introduced another bill "to establish a Department of Public Health." This provided for a secretary of health, who should have a seat in the Cabinet. Congressman Mann introduced the bill "providing for a public health service." This was the plan to change the name of the Public Health and Marine Hospital Service and to enlarge its scope. He also introduced another bill to establish a bureau of health within the Department of Commerce and Labor "to perform the functions now exercised by the Public Health and Marine Hospital Service and the division of foods and drugs of the bureau of chemistry." Senator Owen introduced a bill to establish a Department of Public Health under the head of a secretary who should be a member of the President's Cabinet. After giving due consideration to all of the bills, and to the subject of the advisability of drafting a bill of its own, the Committee of One Hundred decided to endorse the principle of the Owen bill, although not committing itself to its details.

The national health movement has been powerfully supported by many members of the House and the Senate. Upon taking a poll of Congress, the committee found that there exists predominating sentiment in favor of increasing the efficiency of the federal work concerned with conserving the human-life assets of the country.

One problem before the committee was the question of establishing a Department of Health instead of a bureau. The original aim of the committee was a department, but President Roosevelt was unwilling to enlarge the Cabinet by adding a Secretary of Health. In order to obtain the President's help, the committee withdrew its advocacy of a department, and asked for only a new bureau of health, to be placed within one of the present departments. This change was adopted, not because anything less than a department is needed to carry on properly the work of conserving the lives of 91,000,000 people, but as a step in the right direction.

When President Taft came into office, it was found that he was less opposed to enlarging the Cabinet. Upon the appearance of the Owen bill for a Department of Health, the committee decided to endorse the principle of the bill. In regard to this question of a department versus a bureau, Senator Owen says:

We have had bureaus affecting the public health for one hundred years. They are scattered in eight departments. They have been disconnected and without co-ordination. They have even been jealous of each other, the one nullifying and hampering the work of another. They have been without a responsible head because of this subdivision and because the chief of the most important of these bureaus, the Surgeon-General of the Public Health and Marine Hospital Service, can not express an opinion or give information until he has consulted the Secretary of the Treasury—a system that is absolutely ridiculous.

The Secretary of the Treasury was not selected as a Cabinet officer because of his knowledge of the public health, but because he was an expert on finance. At present our Cabinet expert on finance directs government activities in controlling bubonic plague, and the board of trade and a few commercialized physicians of San Francisco would be more important in his eyes in all human probability than the chief of one of his subordinate bureaus; at all events this was true as to a previous Secretary.

Senator Owen cites an instance when local commercial interests went over the head of the chief of a health bureau, as a consequence of which public health had to suffer.

Upon the appearance of Senator Owen's bill, and after the stirring speech which he made on this subject in the Senate, a new faction appeared. This sprang up suddenly, apparently with plenty of money at its command, and put in the newspapers paid advertisements, which contained misleading statements designed to convince readers that the Owen bill proposed to establish a department of healing, that only doctors of one school of medicine would be allowed to practice, and that the "medical freedom" of those of all other schools would be restricted. As there is no part in the plan for a National Department of Health, which seems to justify such a perverted view of the national health movement, the Committee of One Hundred has endeavored to look into the source of the opposition. The committee has found that it is aimed at the American Medical Association, which happens to be one of the many endorsers of the Department of Health idea. The American Medical Association has maintained a department for investigating the ingredients of certain patent medicines, making public the facts regarding the misrepresentations made in their behalf and the harmful results from using those that contained injurious drugs. Such a proceeding on the part of the American Medical Association has not only antagonized the patent medicine interests, but has antagonized those doctors who have been in the habit of prescribing such

medicines for their patients. The cry of these people for "medical freedom" has been caught up by a number of unsuspecting people, however. Some of the Christian Scientists, for instance, are said to be enlisted. Ignoring the fact that the real issue is whether or not the government shall take steps to prevent the needless sickness from which this country is now suffering, these people apparently accept the present amount of sickness as inevitable, and center their attention on who shall get the business of treating it. President Taft referred to these misrepresentations in his message to Congress in December, 1910. He said:

> In my message of last year I recommended the creation of a bureau of health, in which should be embraced all those government agencies outside of the War and Navy departments which are now directed toward the preservation of public health or exercise functions germane to that subject. I renew this recommendation. I greatly regret that the agitation in favor of this bureau has aroused a counter agitation against its creation, on the ground that the establishment of such a bureau is to be in the interest of a particular school of medicine. It seems to me that this assumption is wholly unwarranted, and that those responsible for the government can be trusted to secure in the personnel of the bureau the appointment of representatives of all recognized schools of medicine, and in the management of the bureau entire freedom from narrow prejudice in this regard.

Meanwhile the country is interested in the facts regarding achievements in the *prevention* of sickness that have been made in different parts of the United States, and in Panama and the dependencies, by the adoption of sanitary measures.

Congressman Mann has now introduced in the House a bill to change the name of the Public Health and Marine Hospital Service to the Public Health Service, and to enlarge its scope. The committee has decided to oppose this bill, as being an avoidance of the demand for a consolidation of the health activities of the government. The committee is continuing its endeavors to unite the powers of the nation against the enemies of health, confident of the support of all who are guided by reason and humanity.

# PUBLIC HEALTH MOVEMENT ON THE PACIFIC COAST

By Sarah I. Shuey, M. D.,
Oakland, Cal.

It is appreciated here, as elsewhere, that the great motive power back of this world-wide health movement is the discovery of the germ theory of disease through the efforts of our scientists, to whom the deepest gratitude is felt, and to whom the highest praise must be given. The proof of the appreciation of the work can be best expressed by spreading this new gospel. An eminent surgeon says, that more has been accomplished in the last thirty years than in thirty centuries before.

Chemistry, physiology, bacteriology, hygiene, sanitation, dietetics, psychology, philanthropy, jurisprudence, sociology and criminology are giving the required knowledge that only needs practical application to bring to humanity, health in its widest and truest sense, the health that enables man to develop the highest and best of which he is capable, in his physical, mental and moral nature. Undoubtedly the first great step has been the tuberculosis campaigns, which have stimulated greater activity in overcoming other diseases, especially those of an infectious nature. The tuberculosis associations have been active throughout the West.

A special interest was awakened in the State of Washington by the Tuberculosis and Public Health Exhibit at the Alaska-Yukon-Pacific Exposition, held in Seattle, in 1909. Enthusiastic local leagues were formed in many counties. There is an active state society. While Washington has an excellent law, providing for the reporting of cases, and for disinfection, this law has been a dead letter from the first; that is, for eleven years, for lack of funds. Strenuous efforts will be made at the present Legislature to procure an appropriation.

In Oregon, $10,000 has been expended through the Visiting Nurses' Association in caring for indigent tuberculars. A state sanitarium, well equipped, accommodates 150 patients. The Penitentiary and Insane Asylum have separate outdoor pavilions for their tubercular inmates.

California has a state association, which also has been

greatly limited by lack of funds. Seventy-five per cent. of all the money reaching its treasury has been received from Los Angeles. The great problem in California is not of the native born, who acquire the disease, but the penniless consumptives who come in such advanced stages that cure is impossible. Fifty per cent. of the cases belong to this class. So acute did conditions become a few years ago that a conference of social workers, through the Associated Press, sent an appeal to Eastern organizations to refrain from sending their advanced and penniless cases. Many of the Southern California fruit ranches are largely colonized by consumptives, and many have been permanently cured. In Banning, 65 per cent. of the inhabitants have settled there on account of tuberculosis, either in themselves or their families. California has no public sanatoria for tuberculous cases, but allows a dollar a day for each patient to charitable institutions caring for its consumptives.

To Southern California belongs the credit of having established the first charitable sanatoria for consumptives—The Redland Settlement, at Redland; The Barlow Sanatorium, Los Angeles; The Stehman Sanatorium, of Pasadena.

At one of the insane hospitals a wire enclosed yard has been furnished for outdoor life for the inmates. So much is it appreciated that a mere suggestion that he will have to go indoors if he is boisterous or noisy, causes the patient to become docile and tractable. Large numbers of educational pamphlets in different languages have been distributed by the tuberculosis societies.

Through the San Francisco Association for the Study and Prevention of Tuberculosis, the supervisors have passed a most stringent law which places San Francisco unquestionably in the foremost rank so far as tuberculous legislation is concerned. Lectures have been given to unions, fraternal organizations, settlement workers, mother's clubs and in schools and churches. Thousands of circulars have been distributed at these lectures.

Tuberculosis clinics are held in several of the large cities on the coast. Tuberculosis exhibits by means of demonstration cars, lantern slides and moving pictures, have been most fruitful agents in educating the public, especially in California.

The increased demand for certified milk is a direct result

of this education. A rather unusual sign, "Do not spit here," is placed high upon the wall in the assessor's office in one of our large cities. Its position at once arrests the attention and creates a smile, for not even the most inveterate "spitter" would choose such a place, but it is an effective deterrent.

In the use of moving pictures many health subjects are illustrated; for example, the dangers of impure milk, of the fly evil, of the malarial mosquito and the bubonic flea. Apropos of the use of these novel films, this little jingle by Gertrude McKensie is transcribed:

"No more we'll seek the picture shows
To drive away dull care,
To see how Casey led the goat,
Or watch the county fair;
No more upon the screen we'll see
How Wilbur Wright can fly—
We'd rather watch the ptomaines jump,
And see the germs waltz by.

"No more we'll seek the far North Pole
With Peary or with Cook,
Or scour the plains with Broncho Bill—
We'll watch the hookworm hook.
We'll no more laugh to see portrayed
The pranks of little Willie—
We'll watch the microbe do its stunts,
And cheer the new bacilli."

California has several open-air schools for tuberculous children in Los Angeles, San Francisco and Oakland. Dr. N. K. Foster, the medical inspector of the Oakland schools, California, has furnished some interesting data, showing the average gain in weight of a class of tubercular children out-of-doors, and that of a class of the same grade indoors. Each child of the two classes was weighed at the beginning of the school term, and again at the end of the term, five months later. Comparison of the weights for the indoor class of normal children with those of the outdoor tubercular children showed an average gain for the tubercular child over that of the normal child of 1.37 pounds.

Despite the knowledge gained, of the value of fresh air and its application in the case of the tuberculous, there is the greatest disregard of its use as a prevention of disease. It really amounts to criminal negligence when one considers the poorly ventilated school-rooms, in which children are obliged to spend four or five hours a day. Scarcely a church, lecture hall, theater, railway

coach, or any indoor place where people congregate that does not soon become stuffy, close and oppressive. The hope of the future is in the child, and common justice demands that he should not be subject to the deleterious influences of impure air, dangerous at any period of life and especially to the growing child. Though insidious, it may prove as great a menace in undermining the system in the formative years of life as some of the dreaded infectious diseases of childhood. One would shrink with loathing and disgust from taking again into the body the waste from the intestinal canal or urinal tract, yet vitiated, polluted, poisonous exhalations from the lungs are constantly being rebreathed in poorly ventilated rooms.

A few years ago a prominent architect of large experience in California said that there was *one* perfectly ventilated building in the State, and that, a small bank in Woodland. In response to the query, whether the laws of mechanics had been applied successfully for satisfactory ventilation, he replied, "Yes, perfectly." In this bank the fresh air entering the building is forced to pass through a sheet of water, which removes impurities, and cools the air in summer, and warms it in winter. The expense of installing the ventilating system was $5000. A few days ago the same architect was asked if the Woodland bank was still the only well-ventilated building in California. The reply was, "There are now many public buildings well equipped, some theaters, few churches, but no homes. Unfortunately, in many of the buildings provided with an adequate ventilating system the supervision is faulty, especially in the school buildings. The teacher, deeply absorbed in other matters, is the last one to have charge of the ventilating, and few janitors are equal to the responsibility. No engineer, no matter how perfect his machine, would think it could be run by one not trained. At first the expense of installing the ventilating plant was at fault, and now the expense of supervising and operating the plant is the cause of bad air in the school-rooms."

Perhaps no one has done more of late than the psychologist in discovering physical handicaps in his endeavor to determine the degree of mental deficiency in the backward child. The detection of physical defects, or deviations from the normal, in their incipiency is not often permitted the physician, because his ad-

vice is rarely sought until defects resulting from disease have advanced so far as to be apparent to the laity. So at the same time that the public is being educated, the physician is stimulated to use every means available to obtain an early and correct diagnosis.

There is no work in the West comparable in its entirety to that being done in the University of Pennsylvania in the Psychological Clinic, under the direction of Dr. Lightner Witmer. One sees in this clinic the results, often most gratifying, of correcting defective sight or hearing or from removing impacted or diseased teeth, or adenoids and tonsils, and overcoming digestive disturbances; any one of these conditions, in different cases may reveal the tremendous influence of a physical disability, in arresting normal mental or moral development. Juvenile court judges, probation officers, and social workers, all begin to appreciate the deterrent and perverting effect of physical troubles upon the normal health of the child. Neither is there on the Pacific Coast, except in Los Angeles, anything that approaches the extraordinary "team work" done in Boston and Philadelphia, *i. e.,* the co-operation of specialists in medicine, oculists, aurists, neurologists and dentists, with the social workers, the probation officers and the public hospitals.

The state board of health of California has made gonorrhea and syphilis reportable, the same as other infectious diseases. It has the distinction of being the first State to inaugurate such a measure. When it is considered how many innocent ones suffer through this disease, it is appalling and too much cannot be said of the necessity of enlightenment to avert the evil in the future. It is certain that ignorance of the infectious nature of sexual diseases on the part of the growing young man and the false belief that his physical well-being requires sexual gratification, are the principal causes for his downfall. Grandin states it strongly, "Man, largely through ignorance of the calamities following the misuse of this, the reproductive instinct, has converted it into one for the extermination of the species." But by far the most potent agents in the continuance of the evil are the imperfect laws which license prostitution and require examination of the women prostitutes only, allowing men to go free. In view of the infectious nature of sexual diseases, ex-

termination of these diseases can never be expected, nor even lessened, with such laws. It is true, a recent remedy, 606, or Salvargan, claims to cure syphilis. Whether this will counteract the fear of infection, remains to be seen. It is quite certain that, though there is a remedy for diphtheria and rabies, it is not considered a good reason for exposing oneself to these diseases.

Another source of danger to the young man, in encouraging sexual gratification, is the use of alcohol. Dr. Prince Morrow, of New York, who has studied the subject, says, "Perhaps, more than any other agency, alcohol relaxes the moral sense, while it stimulates the sexual impulse."

It is encouraging to note in this connection that in California 200 saloons were closed during 1910; that 68 precincts out of 74 voted "dry"; that there are 170 towns and 65 incorporated cities from which the traffic has been banished. Eleven counties are dry, and Los Angeles bars the saloon from 11 blocks in the business center. California is given the credit of having the most effective school law, passed in 1909, of any State, regarding health measures. An educator especially awake to the necessity for healthful conditions of the schoolroom, well says, "The schools furnish an unrivalled opportunity for detecting and checking disease and defects among children." It will be only a matter of a short time, it is hoped, before medical inspection will be in every school.

The bubonic plague, in California, the truth concerning which the daily press has falsely concealed from the public, has yet to be fought. In the light of present knowledge, its absolute eradication in the State depends upon extermination of the ground squirrel. Three hundred and eighty-five cases of plague-infected squirrels were found in the fiscal year ending June 30, 1910, in the Counties of Alameda, Contra Costa, Monterey, Merced, San Bonito, Santa Clara, Santa Cruz, Stanislaus and San Luis Obispo. There was a death of one human reported in June, 1910, due undoubtedly to infection by squirrel fleas. The origin of the epidemic in 1908 was supposed to be of foreign importation, now it is known that the infected squirrels were the cause. Federal officers are still watching the seaports, and the extermination of rats goes on. Oregon, fortunately, has never had an

invasion of bubonic plague, due probably to the fact that it has no easily accessible seaports, as in Washington and California. Washington has had no plague among men for over two years, and only one in rats, early in 1910. The work of destroying rats has been continued by the United States Public Health and Marine Hospital Service since the appearance of plague there in 1907. Washington profited by the disastrous experience of California in 1903, and, by energetic measures, promptly and effectively checked the outbreak. It, too, realizes the danger that may come to it through the infected ground squirrel of California. Besides bubonic plague, the other Oriental diseases, leprosy, trachoma, pellagra, beri-beri, amœbiasis and hookworm, are being carefully watched by the health authorities of the seaports. Cancer and poliomyelitis, miscalled infantile paralysis (for adults are also victims), the cause of which science has not yet discovered, continue their deadly work here, as elsewhere. California takes great satisfaction in the comparatively small number of deaths among infants from dysinteric and diarrhoeal troubles. The cool summers on the coast, and the absence of humidity in the interior, are the beneficent agents lessening these enteric diseases of children.

While the hygienic laboratories of the Pacific Coast are doing effective work, they are much handicapped for funds. The death rate from typhoid, based on the census of 1910, is 20 per 100,000 in California, approximately only two-thirds of the United States rate. Oregon and Washington are also as yet unable to control their water supply and disposal of sewage in rural districts, so that typhoid still continues its ravages, a woeful fact in this enlightened age.

The California State Health Bulletin, in the November number of 1910, considers the necessity of a compulsory sanitary privy law, or ordinance, to be strictly enforced in all localities in which connection with a sewer system is not enforced. There is also presented a plan for a sanitary privy, so clear in detail that any 14-year-old boy of average intelligence and mechanical ingenuity could build it. There follows minute directions for keeping it clean and how to dispose of the excreta, to prevent pollution of drinking water and vegetables eaten uncooked.

The playground movement has been enthusiastically taken

up in Washington and California. Oregon provides each school with 200 feet square of playground. The playgrounds are supervised by voluntary attendants, there being no salaried employees. California has the distinction of having the first state playground association. The object of the state association is to promote the playground movement, in all its phases, throughout the State, to promote outdoor life, to supervise plays and to co-operate with school authorities in a more spirited use of all the playgrounds. The University of California and the normal schools have established playground courses in their summer schools. The society seeks to establish a spirit of "free play, of fair play, and of more play"; and to educate the Commonwealth to the worth of stronger boys and girls.

In April, 1910, the State Board of Health called a conference of the welfare organizations of California to meet at Sacramento. The result of this meeting was the organization of the California Public Health League. Its purpose is stated in the constitution to be the co-ordination of effort, and the promotion of economy and harmony among all public health organizations and agencies in California, thus correlating the important work of the many organizations working to upbuild California's standards of health and happiness. The heartiness with which the league is accepted promises well for the ultimate working out of its purposes. The bulletins sent out by the State Board of Health of California deserve especial mention, because they show a decided step in advance in their scope and subject-matter.

This paper would not be complete without at least an enumeration of the welfare organizations not before mentioned, and which are strong allies in health-conservation work: State Charities Aid and Correction Organization; California Public Press; California League of Municipalities; California Teachers' Association; Women's Christian Temperance Union; Y. M. C. and Y. W. C. Associations; welfare committees of the State Federation of Labor; fraternal organizations; chambers of commerce; American Red Cross, California, chapters; the American Medical Association, through its public health education committee; Association of Collegiate Alumnae, through its certified milk fund and baby hygiene committee; California Congress of Mothers; and women's clubs.

# PROTECTING PUBLIC HEALTH IN PENNSYLVANIA

By Samuel G. Dixon, M.D., LL.D.,
Commissioner of Health, Commonwealth of Pennsylvania.

The present State Department of Health of Pennsylvania was created in 1905, and legislation was enacted that year giving the department sufficiently broad and general powers to enable the Commissioner to fully enforce all necessary health regulations.

Three hundred thousand dollars were given the department for the two years 1905 and 1906. So rapidly did the work grow however, that in 1907 the legislature appropriated to the department two million dollars. Six hundred thousand of this was specifically set aside for the establishing of the State Sanatoria for Tuberculosis, and four hundred thousand for dispensaries for tuberculosis. Still the work continued to grow. People gave it their hearty support and in 1909 the unprecedented appropriation of two million dollars for tuberculosis and one million dollars for general health work, was given the State Department of Health.

Has this expenditure of public funds been a good investment for the taxpayers of Pennsylvania? To answer the question I can simply point out briefly what the State Department of Health has been doing since its creation, what results it has accomplished and the promise of fruition in the future for the seeds already sown.

The death rate in Pennsylvania fell from 16.5 in 1906, to 15.3 in 1909. That does not sound like a very big drop when recorded in that form. But when our more than seven million population is considered, it means a saving of 13,907 lives.

In four years the death rate from tuberculosis has fallen from 134 to 120 per hundred thousand of population. That means 1,000 lives a year saved to the commonwealth.

In 1906, 56.5 out of every 100,000 of our people died from typhoid fever. The close of the year 1907 saw this death rate cut down to 50.3; it dropped to 34.4 in 1908, and in 1909 to 23.9, cut down one-half in four years. Reckoned in the number of precious lives saved, this means that had the death rate of 1906 pre-

vailed in 1909, Pennsylvania would have paid in tribute to this disease, 2,363 more of her citizens.

And what of diphtheria, the terror of every mother, and the very messenger of death to the poverty-stricken mother who can not provide antitoxin for her sick child? The state in its beneficent charity and its wise effort to prevent the spread of disease, has driven back this foe. Twenty thousand seven hundred and ninety-four little children, stricken down with diphtheria, were in four years treated with the free antitoxin supplied by the Department of Health's 650 distributing stations. Without antitoxin 8,743 of these children, according to recorded mortality rates, would have died. As it was only 1,765 died. What more remarkable saving of precious life could be asked as a result of a wise state aid! Six thousand nine hundred and sixty-eight children rescued from early graves, conserved to Pennsylvania's resources. Moreover, free antitoxin was also given in 15,125 cases, mostly children who had been in contact with the disease. All but a very few of these were absolutely protected against diphtheria.

Four years ago Pennsylvania realized the fact that if tuberculosis was to be conquered the state campaign against it must be thoroughly organized and conducted on a comprehensive scale. To this end a million dollars was given the Department of Health for tuberculosis work for the two years ending May 31, 1910.

With the humble but praiseworthy state camp of twenty-eight patients at Mont Alto, conducted by the Forestry Commission as a nucleus, a model tuberculosis village was started on this sunlit plateau. The little camp has now grown to a splendidly equipped institution, accommodating eight hundred patients, with buildings now under construction that will raise the capacity to over twelve hundred. Up to date considerably over four thousand poor consumptives, in all stages of the disease, have been treated at Mont Alto.

The Mont Alto Sanatorium has six hundred and fifty acres of ground situated in a state forestry reservation of fifty-five thousand acres. The buildings are on a plateau of the Blue Mountains, sixteen hundred feet above sea level, swept by pine laden breezes. The cottages for the early and moderately advanced cases are designed to accommodate eight patients each. They are nearly square, measuring 27 x 24 feet, with a central hall 5 feet 8 inches

in width, which is enlarged in the center for heating and lavatory purposes. Ventilation is secured by direct-indirect steam heating. The loft is well ventilated to keep the patients' room cooler during the summer months. Two patients occupy each room, which is so arranged as to secure an ample supply of fresh air, with proper protection against storms. The cottages are so placed that each room will receive the maximum of the sun's rays during the day.

The patients rest during the day in ample pavilions, instead of porches to their cottages which would forbid the sun's rays. The dining room is a large, well-constructed building, originally built to accommodate 500, but permitting of extensions as needed. The infirmary for the accommodation of the incurable cases is beautifully situated in the pines, but apart from the other buildings. There are bath and toilet houses at convenient distances, and a sewage disposal plant. We are at present completing a number of new buildings at the sanatorium, including additional cottages, a modern dispensary, nurses' quarters, and a separate building for children. Here, in the pure air and glorious sunshine, Pennsylvania's consumptive poor, in all stages of the disease, are receiving the best care and treatment that it is possible to get anywhere.

Some weeks ago when our tuberculosis exhibit was being shown in Pittsburg, the attendants noticed a big, strong, husky fellow pointing out the features of the model Mont Alto buildings to the visitors. Upon inquiry he was found to be a former Mont Alto patient and the joy of life and restored health shone in his face. He was only a type of many another who has won his fight under the state's care. In many, of course, the disease had gone too far but they have been made comfortable and happy at the institution and at the same time have not been a source of infection to others in their homes.

Tucked within the forest and thus protected from the winter winds, but enjoying the full benefits of the high altitude, the new State Sanatorium for Tuberculosis, at Cresson, is being constructed by the State Department of Health, on the property given the commonwealth by Andrew Carnegie. It is so planned that four wings may be constructed, one at a time, as needed, utilizing the same central building. Each wing or ward will accommodate 160 patients, giving a total capacity of 640 for the finally completed institution. The first story of the entire structure is of sandstone found on the

property. The second story is of asbestos boards timbered, and the roof will be of asbestos shingles. The layout permits of the maximum amount of sunlight, with the wards so arranged as to accommodate the varying demand of advanced and incipient cases. The central building will provide a dining room, reception and examining room on the first floor and apartments for the doctors, nurses and help on the second floor.

Connecting the east and west wards with the central building are corridors that have enclosed basements through which the patients can walk to the dining room in stormy weather, and a first floor to be used for the open-air treatment. Here the patients may sit in their rest-chairs and enjoy the sunshine, and thus is overcome the necessity of porches that would block out the sun from the patients' rooms. Into this sun-corridor also the patient's bed can be wheeled. To economize by using the same foundation and roof for as much as possible, a second floor of each connecting corridor will accommodate twenty beds for hospital cases.

The sanatorium site, about 2,400 feet above the sea level, is sufficiently far from all industries to have pure air for the patients to breathe. The summers are cool and the winters long and unbroken.

At Hamburg, in Berks county, a site has been purchased for an eastern sanatorium, which will be built along the same lines as the one at Cresson. The site selected commands a pleasing view of wooded mountains, broken into gaps and peaks, with the Schuylkill River winding in the valley to the west. Far enough away to avoid all objection of noise and smoke, but near enough to relieve a sense of lonesomeness, the Schuylkill Valley branches of the Pennsylvania and Reading railroads are seen. The quaint town of Hamburg nestles in the valley below, bordered by fertile stretches of farm lands with their restful, pastoral scenes.

At these three state institutions, Mont Alto, Cresson and Hamburg, the poor will receive ideal treatment for tuberculosis. They will not suffer under the disadvantages of city hospitals, where their lungs would be constantly irritated by the smoke and dust so common to all large municipalities.

Hand in hand with the sanatorium work goes the dispensary treatment. At one hundred and fifteen places in Pennsylvania the State Department of Health has a free tuberculosis dispensary

in charge of a trained physician, with necessary assistants and visiting nurses. Some idea of the amount of work being done by these dispensaries may be gathered from the fact that up to November 30, 1910, 38,289 patients had registered for examination and treatment.

I believe that the educational and sociological work alone that is being done by the state from these dispensaries, to prevent the spread of disease and to better the conditions of living among the poor, would amply justify all the money Pennsylvania has appropriated for its tuberculosis campaign.

When these dispensaries were first started we realized that if they were to be fully successful, we should first of all have to reach the indigent cases. We therefore solicited and received the hearty co-operation of civic clubs, churches, organized charity organizations, labor unions and the large employers of labor throughout the state. This co-operation has always continued, and the department appreciates its value.

When an applicant for dispensary treatment has been carefully examined by the physician in charge, and full information as to the history of the case, environment, occupation, etc., noted, he is carefully instructed as to what he must do to improve his own health and the absolute necessity of taking certain precautions to avoid infecting others. He is supplied with sputum cups and paper napkins, and if too poor to get regularly the proper nourishment, this is supplied to him either in the form of milk and eggs or milk and oil, the latter having proven a most efficient food.

A day or so after the new patient has been to the dispensary a trained nurse calls at the home. The squalor and disease-breeding conditions that the nurse so frequently finds present a task that would seem impossible. But the nurse is all courage. Bright and cheerful and a model of cleanliness herself, she is not afraid to roll up her sleeves and set the pace for getting the house in order. Windows are thrown open, and God's glorious sunshine is allowed to come in and run riot through the rooms, killing, as nothing else can do so well, the lurking germs of disease. What a difference is made in that home!

The tuberculosis patient is again thoroughly instructed in the precautions he must observe and the health rules he must follow, and each member of the family is similarly taught how to avoid

infection. The patient himself is especially advised to sleep with windows wide open, or, better still, to sleep out of doors. Helpful suggestions are offered as to how sleeping quarters can be made out of back porches, for instance, at a nominal expense. Then the nurse makes a quick study of the other conditions in the home. Perhaps she notices that the children are anemic, poorly nourished and improperly clad, not necessarily because the family is destitute, but because the little income that exists is not being put to best advantage. Here is an opportunity to teach the mother how both in selecting and cooking the food the greatest possible nutrition can be secured for the least amount of money.

So it is that our nurses are going to the homes of the poor throughout Pennsylvania, letting in the sunlight, teaching the life-giving principles of fresh air and proper food, changing filth and disorder to cleanliness and neatness, making these people their friends, and thus making them understand that the state is their friend. Can there possibly be any other result than that these people should be lifted up, or, better still, that they should be incited to climb up to a higher plane of living and morality? Thus they become better citizens, better producers, and the commonwealth is so much the healthier, wealthier and happier thereby. Do you wonder why I say this work alone is worth all the money that Pennsylvania is spending to fight tuberculosis?

In sixty-six counties of the state the department has a thoroughly trained medical inspector, assisted by a corps of township health officers. There are altogether seven hundred of the health officers distributed throughout the state. To them the physicians report all cases of communicable diseases, and the health officers promptly placard the premises and establish the necessary quarantine. Upon receiving notice from the physicians of the termination of the case, the health officer thoroughly disinfects the premises. As a proof of the results being obtained from educational work, it has been gratifying to note the constantly increased number of requests from householders to have their houses disinfected after cases of tuberculosis. The tuberculosis and general sanitary exhibit that the department has been sending through the state has been a big factor in teaching the people to keep themselves healthy. Especially fruitful have been the talks to the school

children, who have not only learned the lessons themselves, but carried the message of health to their homes.

In connection with this work of educating the people, I want to take this opportunity of referring to the splendid aid given us by the public press in general. Through it, we have been able from day to day and week to week to talk over these problems of better health and better living conditions with the home group around every fireside in the state.

The new sanitary code passed by the last legislature has already been productive of far more efficient health work in municipalities throughout Pennsylvania by establishing uniformity in the rules for the control of communicable diseases. The State Department of Health through its organized army of medical inspectors and health officers has kept guard against the spread of disease in the rural districts, and whenever necessary has aided local boards of health in battling with epidemics that threatened to get beyond control. By example and by helpful advice and instruction these local boards have been greatly benefited, and in many municipalities, where no sanitary precautions were being observed, boards of health have been organized and stimulated to do effective work for their respective communities.

The inspection of dairy farms by the department's health officers as a protection to the milk supply is a most necessary part of the state's sanitary work, and will be carried on with a thoroughness which only a well-organized and adequate force of inspectors can attain.

These health officers also for the past two years have been making regular inspections of the sanitary conditions of all schools in the rural districts, and the result has been a very marked improvement at such schools. The department has also started a system of medical inspection of the school children in the rural districts. This inspection is being made by skilled physicians. In view of the results already accomplished by medical inspection of schools in some of the larger cities and municipalities throughout the country, we are safe in saying that the standard of health of the children in the country schools in Pennsylvania will be raised materially by this work.

When, in 1905, a state law was passed to protect the waters of the state from pollution it seemed as if an almost hopeless task

was being undertaken. If the truth must be confessed there was nowhere a more flagrant example than Pennsylvania of the criminal poisoning of the people's drinking water by disease-laden sewage. Private individuals, corporations and municipalities, large and small, were equally guilty. All this has not yet been changed. That would be inconceivable. But almost unhoped-for progress has been made, and this because the law has been administered wisely and justly, and the people themselves have been taught to understand and appreciate the absolute necessity and the real economy of protecting their water supplies from pollution. Twenty-six thousand four hundred and sixty-six private sources of stream pollution have been abated by the department to date. Seventy-six modern sewage disposal plants have been either built or are in progress of construction, as approved by the state. Two hundred and forty-six other municipalities and private sewerage corporations are preparing plans to be submitted to the department that embrace sewage treatment as a condition upon which the further extension of their sewerage systems is granted. Seventy-nine modern water filtration plants have been approved by the state and are either already in operation or under construction.

Thousands of physicians throughout Pennsylvania are being constantly aided in diagnosing their cases by the examinations of pathological specimens sent by them to the State Department of Health laboratories. Important research work is being done by the state in these laboratories, work that is adding to the world's knowledge of preventive medicine.

More than once in the past four years the federal government has held up as a model, Pennsylvania's system for the collection of vital statistics, that phase of work that lies at the foundation of all successful sanitation.

Viewed, therefore, from every line of activity that it touches, the State Department of Health, I hope, commends itself to the loyal support of the people. Far reaching as the work has been it must go forward with increasing vigor. The people's battle for health must be won. And it will be won.

# HEALTH PROBLEMS OF THE INDIANS

By Joseph A. Murphy, M.D.,
Medical Supervisor, United States Indian Service.

The various phases of the health problem among Indians, involve also the many varied conditions which constitute what is known as the Indian Problem as a whole, which has been so long before the American nation. It seems only to have been within recent years that the importance of considering the necessity for action looking toward the improvement of the health conditions among them has been realized. Sentiment ranging from the often expressed opinion that the only good Indian is a dead one, to the other extreme, has and should be changed to the saner realization that the conditions resulting in the Indian dead or diseased on account of contagious infections, are not only a menace to the race itself, but also to the health of the people of the states in which they live.

General statistics in regard to the prevalence of disease among Indians are either incomplete and far from accurate, or have not been compiled. General vital statistics are also inaccurate. It is only in those places where allotments are actually being assigned that statistics in regard to the population, births and deaths are reliable. The Navajo Indians, for instance, are scattered over a wide range or desert. Their births and deaths cannot be accurately obtained. Many other Indian children among the less advanced tribes are born and die far away from any physician or government employee.

Where there is lack of co-operation on the part of the Indian it can be readily seen that the occurrence of births or deaths and the causes of the latter will remain unknown. Physicians are not summoned to the great majority of cases, and even yet the medicine men in some tribes have a hold on the beliefs of the people and are given charge instead. With such chances for error in the general statistics, it is only where a special comprehensive investigation has been made that the real conditions can be determined. There is

then, primarily, a great need for investigation and study of the prevalence of disease among Indians, and need for more accurate registration of vital statistics, and for the registration of contagious and infectious diseases. It will only be through the knowledge gained in this way that conditions will be fully realized and intelligent action can be taken for their improvement.

The work of the Indian service physicians in the past has not been specifically directed toward the prevention of disease, but since special studies have shown that the morbidity and mortality from infectious disease is excessively high among Indians, it is evidently imperative that they must not only treat the ills which actually present themselves, but make persistent, systematic, rigid examinations and frequent thorough inspections of all the Indians under their charge for the purpose of detecting cases of contagious diseases, submitting them to treatment and checking them in the incipient stages, and in addition, correcting insanitary customs and conditions which are responsible. Invasion of the Indian home for the purpose of examination of unwilling or reluctant adults or children is a work that is not only frequently resented as unwarranted interference, but also frequently prevented. The gratuitous advice for the remedying of ailments, offered treatment of disease, and suggestions for the improvement of sanitary conditions in the homes are frequently either disregarded or refused. Treatment apparently accepted is seldom persisted in except among the most advanced tribes, and among these the practice of medicine is very similar to that among whites. This attitude on the part of the Indians, which is not unwarranted nor unreasonable, and one which would be assumed by white people under similar conditions, has greatly hindered the attempt to improve sanitary conditions, and in some localities has rendered even special investigations or special treatment incomplete and unsatisfactory.

According to the most accurate returns available the general birth rate among Indians for the fiscal year 1910 was 30.2 per thousand; the death rate 24.0 per thousand, 40.1 per cent of which was due to tuberculosis. The death rate per thousand due to tuberculosis was 10.4. These figures are probably more nearly correct than those of 1909, which are:

Birth rate per thousand, 30.6.

Death rate per thousand, 25.54.

Percentage of deaths due to tuberculosis, 30.25.

Death rate per thousand due to tuberculosis, 7.71.

If these figures were accurate they would indicate a great increase in mortality from tuberculosis during the year 1910, but this increase is apparent rather than real and is due to error in the return. Comparing the mortality among Indians with that of whites, the returns from the registration area of the United States for 1909 show a death rate of 15.0 per thousand of the population, 11.2 per cent of which was due to tuberculosis. The total mortality among Indians then is 60 per cent higher than that among whites, and the percentage due to tuberculosis 258 per cent higher, or over three times as great as the average mortality from the same cause among whites.

In addition to the great morbidity and mortality from tuberculosis, the Indians suffer to a very great extent from other contagious and infectious diseases as well as the parasitic infestations. One of the most common serious diseases is trachoma. Of 22,340 Indians examined during the year 1910, 6,124 cases of trachoma were found, a percentage of infection of 27.4 per cent. This disease exists in both the North and South, but seems more prevalent among the southern tribes.

Pneumonia is a very common disease, though not apparently more or less prevalent than among whites. Impetigo contagiosa is exceedingly common. It frequently complicates scabies, which is almost constant in many camps. The great frequency of suppurative tubercular glands and impetigo has given rise to a popular opinion that these ulcers are an indication of syphilis. While venereal diseases are present among certain tribes, they are probably not present in as large a proportion among a majority of the Indian tribes as they are among whites.

Measles is a very serious disease because of the large percentage of tubercular infection. As a sequel actively progressive tuberculosis frequently results in a rapid fatal termination. The same is true of pertussis. Digestive disturbances, due to the condition and quality of the food eaten, is not only responsible for a large mortality among Indian children and infants, but for great general morbidity at all ages. Scarlet fever and diphtheria are present to

about the same extent as among whites. Typhoid is not as prevalent as among those who live in more congested communities.

The most prevalent diseases to be considered are tuberculosis, trachoma, nutritional disorders and parasitic infestations. It is the condition of the Indian homes, their habits, customs of living and ignorance of sanitary requirements that are primarily at fault. In the North during the cold season individual families of a large number of the tribes live crowded together at night in one unventilated room. Tubercular cases spit on the floors and no attempt is made to prevent the entire home and its surroundings from becoming badly infected. The Indians eat from these infected floors, flies swarm on the food, and in the sputum. Blankets used as pallets on the floors become badly infected and extremely dirty. Excreta and household refuse are inadequately disposed of. Children brought up in such environments are necessarily constantly subjected to tubercular and other infection, and it is only the fact that the greater part of the day is spent in the open air that prevents a rapid advance and more frequent fatal termination of the diseases contracted. Poor, insufficient, badly prepared and improperly kept food of insufficient variety frequently adds to the factors which contribute to the breaking down of the resistance of the infected Indians. Infected food is also a frequent method of spread of disease. In the South the crowding conditions are largely the same. The conditions of filth, lack of ventilation and light (many houses being windowless), infected earth floors, absence of the attempt to segregate contagious cases or prevent in any way the spread of disease, results in the same high percentage of infection. Some tribes are exceptions to this general description, there being all gradations from those who live under practically the same conditions as the average white family, to those of extreme filth and insanitary environment and habits. Whole families become infected with trachoma from the intimate contact of the crowded home. Lack of attempt to obtain medical treatment finally results in permanent impairment of vision or even complete destruction of sight. Since cases of this sort are present in large numbers scattered widely all over the various reservations, it is not hard to conceive what a difficult task the service physician has to search out these cases and give adequate treatment, especially where they are not inclined to accept or appreciate it.

It is extremely important, however, that this work be attempted for the protection of the tribe as a whole.

It has been a matter of observation for many years that a certain proportion of the pupils at non-reservation and reservation boarding schools developed pulmonary tuberculosis and had to be returned to their homes. Sanitary conditions, cleanliness and nutrition were far better at these institutions than at the Indian homes, and it seemed that there must be some vital defect in the school methods. While there may have been sanitary defects in the school system contributing to this high morbidity, it is at present well recognized that many children come to the school with latent or partially arrested tubercular infection. The majority are vastly benefited by the improved nutrition and sanitary conditions, but the confinement of school life and strain, tension and fatigue induced by the requirements of rigid routine are enough to account for a sufficient breaking down of resistance of some to allow the extension of latent infection. An epidemic of measles passing through the school leaves the same fatal wake of cases. These facts have not been so well understood in the past, nor has the necessity been realized for a constant vigilance on the part of the physicians and school authorities to detect in its earliest manifestations any symptoms of pulmonary disease. Failure to do this has resulted frequently in a certain proportion of contagion and spread in the schools.

The solution of the problem of improving health conditions is being met along a number of separate lines. Systematic field inspections are being made by the medical supervisor and his field assistants. Local physicians are directed to systematize their medical inspections of the schools and reservation Indians with such thoroughness as to detect and place under treatment incipient disease. A new system of records for the recording and reporting of medical cases and the registration of infectious diseases, including tuberculosis and trachoma, has been introduced. This should insure more complete and more accurate statistics, and will indicate more precisely the need for work in special localities. As a result of more frequent and general medical inspection of schools and reservations, sanitary measures will be better enforced and local necessary reforms instituted.

It will only be through education that any real lasting results may be accomplished. The subject of tuberculosis is being studied from special text books by every pupil capable of understanding it, and additional improved modern books on hygiene have been placed in the school curriculum. Circulating sets of stereopticon slides, illustrating the method of spread of tuberculosis in Indian homes, and methods of its prevention and cure are being distributed to all the schools and agencies. A lecture illustrated by moving pictures showing the important phases of insanitary Indian customs, habits and conditions, and the methods of preventing the spread of the diseases common among Indians, is being sent to all schools and agencies throughout the country. Literature in regard to the cause, prevention and cure of tuberculosis will be distributed on the reservations among all Indians who can read. To effect radical changes, raising the standard of living among the older Indians, is a difficult undertaking, but the emphasis that is being placed on the subject of health and sanitation in the schools is bound to bring good results with the younger generation.

For the improvement of home conditions the field matrons have been placed under the direction of the Health Section of the Indian Office, and a special field supervisor placed in charge. For the purpose of increasing the efficiency of the field matron force in improving sanitary conditions in the homes, printed instructions will be furnished to all field employees directing and instructing them in the methods of correcting these conditions. The education of the government employees in direct contact with the Indians is as important a matter as the education of the Indians themselves, for the employees' influence cannot and will not be exerted along the desired lines unless the employees are properly directed. It will require considerable detailed instruction to make efficient sanitarians of employees who are not trained or specially educated for the work, but their assistance must be depended upon to help out the work of the physician.

The treatment of the diseased Indians is also a serious undertaking. In the schools, monthly weighing of pupils and regular physical examinations by the physicians is intended to sift out those who are infected or predisposed to disease. Screened porches attached to hospitals and dormitories are to be built for the open-air

treatment of such pupils as show pulmonary weakness. These porches have already been built in many places. If cases of pulmonary tuberculosis develop at the boarding schools, either they must be sent to their homes or to special sanatoria. These sanatoria are being started in various sections of the country.

Advanced cases of tuberculosis in the home are undoubtedly the nuclei for the spread of infection to many additional cases, and the problem of preventing this is a difficult one. Local camps could be used to care for these cases, but the Indians are frequently unwilling to submit to treatment. These camps are being established, but force cannot be used to compel attendance. Even the white race is not willing to submit to coercive measures of this character.

In addition to the special measures directed against tuberculosis, a campaign is in progress for the treatment of trachoma. Special expert physicians and nurses are being sent to all infected regions to operate upon the cases and instruct the local physicians how to treat the disease. As soon as this work is accomplished satisfactorily at one school or agency, it is left to the local physician and other territory visited. A special hospital for the treatment of trachoma was established at Phœnix, and service physicians nearby are being detailed for periods of one month each to assist at the hospital and receive clinical instruction from the specialist in charge. This general plan of work has been successful and has already resulted in a solution of the problem in many localities.

As allotments are rapidly being assigned, reservations opened up to settlement and the Indians becoming citizens of the state, the continuation of the work of improving the above outlined conditions will become a problem to be assumed by the state authorities instead of by the National Government.

# HEALTH PROBLEMS OF THE NEGROES

By John A. Kenney, M.D.,
Tuskegee Institute, Ala.

It is gratifying to state that the Negroes are becoming very active in the crusade against preventable diseases. In many places, without quibbling over such academic questions as whether the Negro is dying as rapidly as some other people, or whether there is some racial inherency productive of its high mortality, or whether it is due to environment, the race is realizing that its death rate is high; that certain diseases are taking more than their fair toll of human life from its ranks, and that many of these diseases are preventable. With this realization, many Negroes have set to work to improve their living conditions and reduce mortality.

As might be expected, the medical profession was among the first to realize this and to seek for improvement. In the year 1895 the National Medical Association, composed of representative Negroes in the practice of medicine, dentistry and pharmacy, was organized in the city of Atlanta, with the object of improving the conditions of Negro professional men, and through them, helping to educate the masses along the line of better health and right living. The influence of this organization has been felt in most of the country east of the Mississippi river, from Boston in the North, to Atlanta in the South. At its annual sessions, one of the chief features has been at least one public session, for the benefit of the people, when subjects of popular interest are discussed in simple language. Among the topics thus presented are the following: The Cause, Prevention, and Treatment of Tuberculosis; Infant Mortality; The Proper Care and Feeding of Infants, etc.

That these discussions have been appreciated by the laity is attested by the fact that they have always been given in crowded halls, and we have every reason to believe that they have done good.

Before the organization of the National Medical Association, there were in existence few state and local medical societies among

the Negroes. Most of those that were in existence have affiliated with the National, and a great many others have been organized under its influence. At the present time, nearly every state having a sufficient number of Negro physicians has its medical society, and, aside from this, nearly all the cities and many of the large towns also have local societies; and almost without exception, to a variable degree, they are striving to help the Negro people attain to higher planes of living, and thus improve their health and reduce their death rate.

Early in the year 1910, the executive board of the National Medical Association appointed a commission to study tuberculosis, hookworm disease, and pellagra among the Negroes. These reports, though incomplete, furnished one of the interesting features of the last meeting of the association.

A few illustrations may be mentioned. In 1908 the Bay State Medical Society of Boston, Mass., began a series of public meetings. The first meeting was held Sunday, February 3, the general subject of "Hygiene" being discussed under the following heads: "Oral Hygiene," Personal Hygiene," and "Practical Hygiene." In March, the general subject of "Water" was discussed as follows: "Contamination of Water," "Purification of Water," "Medicinal Uses of Water." In April, "Milk" was the general subject, and was discussed as follows: "Human Milk and Its Advantages," "Contamination of Milk," "Infant Feeding." In May the general subject of "Tuberculosis" was discussed as follows: First, "Past, Present and Future of Tuberculosis;" second, "Channels of Infection, and Early Symptoms;" third, "Efforts Being Made to Control the Disease."

These meetings were all well attended, and evinced a surprising amount of interest on the part of the people in all walks of life. Since that season the society has held many similar meetings in all the colored churches of the city. Similar meetings have been held by the North Jersey Medical Society. It is the policy of this society to hold four of these meetings each year.

At the last meeting of the Louisiana Medical, Dental and Pharmaceutical Association, one hundred dollars was appropriated by the society as a nucleus for the establishment of a tuberculosis hospital for the treatment of Negro patients. A committee has been appointed to formulate plans and secure a location. An Anti-

Tuberculosis League has been established by Negro physicians of Louisiana. Lectures on hygiene, sanitation, and tuberculosis are delivered by Negro physicians to schools, associations, and summer normals. A public health car has been put into service by the Louisiana State Board of Health, which is admirably equipped, for the purpose of traveling through the state, stopping at various towns and cities, where lectures are delivered on hygiene and sanitation.

The Alabama Medical, Dental and Pharmaceutical Association has for a number of years devoted especial attention to topics pertaining to the health and sanitary conditions of the people. At its meeting in Selma, in 1909, one evening session was devoted to the subject of tuberculosis, in one of the largest churches in the city, which was packed with an interested and appreciative audience.

The Lone Star Medical, Dental and Pharmaceutical Association of Texas holds annual meetings, and, aside from the purely professional aspects of these gatherings, especial attention is paid to health topics.

The Medico-Chirurgical Society of New York, for the past year has been teaching the people by means of lectures in the different churches, etc.

The Medico-Chirurgical Society of the District of Columbia, with a membership of seventy or eighty, devotes much of its attention to topics pertaining to the public health. An anti-tuberculosis league has been formed in the city of Washington, with a membership of about 2,000.

In addition to what the Negro physicians are doing in an organized way, a tremendous amount of work—a great deal of it unheard of outside of their immediate communities—is being done by individual physicians. Without doubt, the Negro physician is one of the most potent forces for the uplift of the race, and there seems to be a growing realization on his part of what his great responsibilities are in this regard. The great volume of his work is done in private, in his office consultations, on his daily rounds, in the churches, the secret orders, the Sunday schools, the Y. M. C. A.'s, and in a great many other gatherings, he uses his influence for the betterment of racial conditions, and at the same time for the good of the public, for it cannot be denied that whatever may

be done for the uplift of the Negro as a race, at the same time, helps the general public.

As an instance of the above, I might cite a few examples: Dr. A. A. Wyche, a Negro physician practicing in the city of Charlotte, N. C., was impressed with how little our young men knew about caring for their general health, and to that end began a course of Sunday afternoon lectures to boys and young men on different subjects pertaining to their welfare. He said, "It was surprising to know the good these talks have done. So many have come to me privately and expressed how much they have been helped by them." He is now preparing a series of lectures to be given to the young women. He is also giving lectures, once a week, to trained nurses, to the Ministers' Union, and the graded school teachers, upon hygiene and other medical subjects.

At Atlanta, the Fairhaven Infirmary is operated by six Negro physicians and is doing great service in offering shelter at very reasonable rates. The nurses from the nurse training department of Morris Brown College, are sent out to do charity work under the direction of physicians, and in that way carry relief to the homes of many who really need the care of a nurse, but could not pay for such services.

Dr. R. F. Boyd, of Nashville, Tenn., writes, "I have been deeply interested in this subject for a number of years. I am at present president of the Anti-tuberculosis League of Nashville, which holds bi-monthly meetings in the various churches, instructing the people as to the origin, prevention, and cure of 'The Great White Plague.' We have a committee that distributes sputum cups to those who are subject to the disease. The anti-spitting law has been so thoroughly taught that now most of the people obey it almost implicitly, and the amount of spitting on the floors, cars, and sidewalks, is very much reduced. Since we began this campaign many of our people are living in better houses, wear better clothes, and are more careful about the selection and preparation of their food. The churches, school houses, and public buildings are better ventilated and the mortality is lessened." In Lexington, the local Negro medical society frequently gives lectures on health topics, to help educate the people in the prevention, as well as treatment of disease, and special effort is made to decrease the mortality from tuberculosis.

Some of the Negro insurance companies are alive to the issue, and are taking steps to benefit the health and prolong the lives of their policy holders. The North Carolina Mutual and Provident Association, of Durham, N. C., through Dr. A. M. Moore, its medical director, advises that "The most potent method is the bedside instruction given by agents and superintendents while paying sick claims. This comes at a time when one is more inclined to receive instruction. Through our annual agents' conference, I give a daily lecture on sanitation, contagions, and preventable diseases, and explain the danger of flies and water supply, as well as buying second-hand bedding, carpets or clothes; moving into houses in which contagious sickness has been prior, especially tuberculosis cases. We try to make every agent a sanitary officer. We issue a quarterly bulletin which is an advertising chart, one page of which is devoted to 'Sanitation and Health Hints.'

"I have succeeded in having several district physicians' societies organized, which meet in different cities, holding public meetings on sanitation, hygiene, and contagious diseases. We are constantly urging the agents, by circular letters and talks, to strive in every way to better the condition of the people in as many ways as possible."

The Union Mutual Aid Association, of Mobile, Ala., distributes through its agents, from time to time, helpful literature. Health talks are given to the agents by physicians. The agents are required, as cause and opportunity present, to speak to the policy holders on improving their sanitary surroundings.

The Union Mutual Aid Association is inaugurating this year the plan of giving small sums of money to the health department of a number of municipalities of the state, to be applied to sanitary improvement. It is not expected that the fund presented will accomplish very much, but it will help to wake the colored people up to the fact that some of the more thoughtful of the race are alive to the necessity of making tangible effort along this line. The company is planning at some time in the future to give one yearly medical examination to its policy holders at any time the policy holder, in good standing, may elect to take the same.

The Hampton Normal and Agricultural Institute, Hampton, Va., is doing good work at its annual conferences, by bringing together race leaders and teachers, physicians, etc., and among other

subjects discussing the health conditions among the Negroes. At the 1909 conference the Anti-tuberculosis League of Virginia was organized. In Elizabeth City county they are trying to teach the people that consumption is curable if taken in hand in time, and to apply to an intelligent physician for treatment, instead of going to the druggist or taking patent medicines.

Great efforts are being made in Norfolk to prevent the spread of consumption. Some four years ago the Anti-tuberculosis League opened a free clinic for the treatment of consumption; three days in the week being devoted to colored patients, and for the year ending September 30, 1909, sixty-four colored patients were treated at this clinic. "These patients were supplied with sputum cups, medicine, and printed instructions as to how to take care of themselves and protect themselves from infection, thus aiding in their own cure and protecting others from becoming victims of the disease." In October, 1909, a tuberculosis clinic was opened in the city of Norfolk for the colored people, with a trained nurse in charge, and seven colored physicians on the clinic staff in charge of the work. The city paid the salary of the nurses and expenses of the clinic; the physicians volunteered their services. From October 1, 1909, to June 1, 1910, one hundred and three patients were treated at this clinic. The nurse was required to follow up the patients who attended the clinics and give them instructions in their houses. One thousand six hundred and eighty-five such visits were made during the past year.

An Anti-tuberculosis League was organized in Portsmouth, Va., April 30, 1909. On October 19, 1909, the Richmond branch of the colored Anti-tuberculosis League was organized. This league has held a series of public meetings at churches. The third Sunday in January, 1910, was observed as tuberculosis day. A sermon on tuberculosis was preached in nearly every colored church in Richmond, and literature bearing on the subject was distributed. The visiting committee of the league, with Miss Mary F. Clark, a registered nurse, as chairman, did very important work by affiliating with the city health authorities in hunting up tubercular patients and providing proper treatment. The committee divided the city into districts and nurses were assigned to each district. Food, clothing, medicine, and even fuel have been furnished for the sick. Persons have been taught how to care for the sick, and how to

clean and care for their houses, and in some instances cooking lessons were given, and in many other ways this committee has helped along the work. The membership of the league is about four hundred.

Another element in the work of improving the health of the Negroes is the rise of the Negro hospitals. Dr. George W. Hubbard, dean of Meharry Medical College, reports that the graduates of Meharry own and control six institutions of this kind in Tennessee, two in Oklahoma, five in Texas, and one each in Missouri, Colorado and Georgia. These hospitals and sanatoriums have been well patronized, and have proven financially successful and have done much to prevent the sufferings of the colored people. Space will not permit me to do more than barely mention the names of a great many others, which are either owned or controlled by Negroes: Provident Hospital, Chicago; Freedman's Hospital, Washington; The Frederick Douglass Memorial Hospital, Philadelphia; The Plymouth Hospital in Boston; the Provident Hospital in St. Louis; the Provident Hospital in Baltimore, Md.; the Mercy Hospital, Philadelphia; the Richmond Hospital, and the Woman's Central League Hospital in Richmond, Va.; the Lincoln Hospital at Durham, N. C.; the St. Agnes Hospital, and the Shaw University Hospital at Raleigh; the Hospital and Nurse Training School at Charleston, S. C.; the Charity Hospital at Savannah, Ga.; the McVicar Hospital at Spellman Seminary, Atlanta; the Fairhaven Infirmary, Atlanta; the Lamar Hospital, Augusta; the Burrus Sanatorium, Augusta; the Tuskegee Institute Hospital, Tuskagee Institute, Ala.; the Hale Infirmary, Montgomery; the Northcross Sanatorium, Montgomery; the Cottage Home Infirmary, Decatur; the Old Folks' Home and Hospital, Birmingham; the Burwell Sanitarium, Selma; the Harris Infirmary, Mobile; the Kenniebrew Sanatorium, in Jacksonville, Ill.; the Red Cross Sanatorium, Louisville, Ky.; the Burt Sanatorium, Clarksville, Tenn. and the Perry Sanatorium, Kansas City, Mo.

Along with the establishment of Negro hospitals have arisen the nurses' training schools. Most of the hospitals mentioned above have connected with them such schools, which are sending out from year to year, a large number of colored women, who are not only getting ready employment among the white people but are

taking their share of the burden of spreading the gospel of good health and right living among Negroes.

The Associated Charities of Birmingham, Ala., employs a colored nurse to do settlement work, and furnishes medical attention without charge where needed.

Under the supervision of the Visiting Nurses' Association, of Chicago, there are four of the graduate nurses of Provident Hospital working among the Negroes, also one graduate of this hospital is a member of the school nurses' force. Her work is in the school, where a large per cent of the pupils are Negroes. In all probability, in the near future, another Negro nurse will be added to the tuberculosis nurse force. A tuberculosis dispensary is about to be established in connection with Provident Hospital.

From the third annual report of the Chicago Tuberculosis Institute, 1908, we quote, "Early in February a mass meeting of colored people was held in Fulton Hall. The result of this meeting was the formation of a strong Negro committee, which has done active work during the year, and among other things arranged for a dozen or more Sunday services at the different colored churches in the city, with sermons on tuberculosis."

Dr. Anna R. Cooper, a colored physician, is the leader of a movement to establish the Paul Lawrence Dunbar Sanitarium for the treatment of tuberculosis among Negroes. "Governor Hadley, of Missouri, has recently appointed an important tuberculosis commission. The object of the commission is to find out just what the sanitary conditions are among the Negroes." The Municipal Health Leagues were recently formed by both the white and colored people of Raleigh, N. C.

At Asheville, N. C., in both colored and white schools, the modern health drinking faucets have been established, and other improvements in sanitation have been installed.

Much is being done to improve the conditions in Savannah, Ga. The Men's Sunday Club, colored, of that city was organized in 1905. It has had an average attendance since organization of two hundred people. About every colored physician in the city has spoken before the club. In the summer of 1905 a regular campaign for health improvement was carried on. All the colored churches were visited and addresses made at each one by physicians

and others. Mothers' clubs were organized especially to assist in improving health conditions.

The colored Knights of Pythias are helping to restore to health a great many people, by having established, in 1908, at Hot Springs, Ark., a bath house and sanitarium, where thousands of colored people have gone and received benefit by the scientific application of the waters.

The Tuskegee Institute has been alive to this movement, and in numerous ways has attempted to improve conditions in the school, in the surrounding communities and in other places. Several forces have co-operated along this line.

The American tuberculosis exhibition, under the direction of Mr. E. G. Routzahn, paid a visit to the Institute in December, 1908, remaining several days, giving stereopticon lectures, health talks, as well as displaying the exhibit to thousands of visitors, including those connected with the school, the town of Tuskegee and the surrounding community. At the same time a Tuberculosis Congress was held, where important subjects concerning tuberculosis and the health of the Negro were discussed.

At the annual Negro conference of 1909 the subject, "General Health Conditions of Negroes in the Southern States," was discussed under the following headings:

"How the ministers can assist in bringing about better health conditions;" "What the teacher can do to improve our health conditions;" "How the doctor can assist in improving our general health conditions;" "Food and its relations to health."

The late Dr. S. P. Lloyd, of Savannah, Ga., led the discussion with a paper on health conditions from the physician's standpoint. He gave as the general causes of the high death rate among the Negroes poor housing conditions, bad landlords, dissipation, ignorance. He advocated improving these conditions by general education, by public instruction through the newspapers, physicians and ministers; that the municipalities ought to see that better houses are built for the Negroes. He also advocated the systematic and permanent co-operation of the Negroes themselves.

Bishop Alstork told how the church could help. During the discussion individual communion cups were advocated, also that lodges should hold shorter sessions; that churches should not be swept out Sunday mornings just before services.

The Tuskegee Institute has also assisted in this work by the publication of bulletins of health, under the direction of the resident physician. These topics have included, "Tuberculosis," "Typhoid Fever," "The Danger of Flies," an dother topics along sanitary lines. Stereopticon lectures on tuberculosis, general sanitation, and the hookworm disease have been given, and other health talks to students and teachers in the school; also to the Macon County Farmers' Institute, the Macon County Teachers' Institute, and to some of the Negro churches.

Four years ago, in connection with the hospital, there was inaugurated among the women, what is known as the Hospital Aid Society, composed of an advisory board of ten women and members at large, from the school and community. This society has done a great deal to help improve conditions at the Institute Hospital; to make patients and nurses more comfortable; to visit the sick in the community; in many instances furnishing medical attention and nurse's services, as well as nourishment and medicine for those too poor to pay for these necessities. It also maintains a charity room and bed at the Institute Hospital in which suitable indigent patients are taken for operative and other treatment free of charge. At the last general meeting of this society it was interesting to hear some of these poor patients tell with gratitude how they have been helped.

Quite recently all of the school children attending the children's house, about two hundred, were examined by the resident physician and his assistants. A great many defects were found, parents were advised of the same, and directed to physicians, dentists and specialists, as the condition required, in order that the defects might be remedied.

The colored women's clubs are working to improve the homes through reading circles, by teaching domestic science, and by other means. Some of the clubs are conducting homes for aged men and women, and for boys and girls. The Boys' Reformatory at Mount Meigs, Ala., where thirty-seven boys and two men are cared for, on land that cost five hundred dollars, with a building costing twelve hundred dollars, is an example.

The Women's Club of Tuskegee Institute is especially active. Houses are visited with a view to teaching the people the simple principles of hygiene. The smallest details are looked after, as how

to prepare and serve their food, how and when to bathe, how to ventilate their houses, how to care for their hair, the washing of their clothing, cleaning their teeth, sleeping between sheets, and all such subjects as tend to improve their home conditions. The special subjects of tuberculosis and typhoid fever have been discussed before the people in the most elementary manner possible. Mrs. Booker T. Washington says, "The people themselves are most responsive and co-operative, and that as a result of the work which has been done along these lines, great improvements have been made."

PART TWO

# *Disease Carriers—The Control of Causes*

# THE RURAL HEALTH MOVEMENT.

By Ch. Wardell Stiles, Ph.D.,
Professor of Zoology, U. S. Public Health and Marine-Hospital Service.

*Rural and Urban Health.*—In the popular conception, rural life is more healthful than urban, and people have considerable to say about the "pure fresh country air." Unfortunately, however, fresh air is only one of the factors necessary for health, and by itself "fresh air" will not overcome our great national sanitary crime of "soil pollution." In plain unvarnished Anglo-Saxon, "fresh air" will not make up for the absence of a privy on 55.3 per cent. of the 4,822 American farm homes, in about 200 different localities, of which I have records.

In rural districts, medical attention is not as a rule so easily available as in cities, partly because of the long distances, partly because of poor roads, partly for other reasons, and in genera! the same standard of medical attention is relatively more expensive; free clinics are practically unknown, district nursing almost unheard of and hospital advantages rare, as compared with these advantages in the cities. Further, while the urban inhabitants receive more or less protection on the part of local boards of health, the inhabitants of the open country scarcely know what a health officer is, except in case of an outbreak of smallpox. In the city, the average American woman has the services of a physician in case of child-birth; in the rural districts the average American woman, so far as I have been able to learn, is not protected by medical attention at such time.

*Origin of the Present Movement.*—For more than two decades past, the American government has shown a keen interest in the health of the farmers' swine, but it remained for ex-President Roosevelt to initiate a more active interest in the health of the farmers' wives and children. Roosevelt's Commission on Country Life was in fact the real starting point of the present nation-wide active movement for a betterment of health conditions in our open country. Naturally there was certain preliminary work in this line in various places, especially by some of the state boards of health, and there

were certain investigations into rural medical conditions, especially by the boards of health of Georgia and Florida, and by the Department of Agriculture, the Bureau of Labor, and the Public Health and Marine-Hospital Service. But it was President Roosevelt's Commission on Country Life, despite the ridicule heaped upon it by part of the daily press, that opened the eyes of persons in many states interested in agriculture to the self-evident fact that the life of the wife of the poorer farmer is not what it is so often thought to be and that her health is more important than that of the swine. Among the many indirect results of the work of the Country Life Commission must be included the tremendously increased activity on the part of at least nine state boards of health.

*Status of Rural Sanitation.*—If any one wishes to see how far behind the present status of sanitary science this country really is, he should visit a number of small farms and note under what condition the milk is kept; he should examine the toilet facilities and see how the flies infect the "fresh country milk" with human feces; how poor the ventilation is; how, for instance, the death rate from tuberculosis would be even greater than it is at present, were it not that some fresh air does enter the house because of cracks between the boards.

These conditions are not typical for any one particular part of the country and for that section alone, although they are accentuated in localities with more than one race, as in those sections where the Chinaman, the Indian, the Japanese, the Mexican, and the Negro are found in numbers. It is popularly supposed that one must go to the mountains of North Carolina to find really wretched sanitary conditions; but this popular idea was shattered to atoms by the Commission on Country Life as it brought out the facts of the unsanitary conditions of the so-called "bunk-houses" on some of the California fruit ranches, or of some of the conditions just this side of the Canadian border, or in Illinois, or in Nebraska and Iowa, and of the miserable hovels of the Mexican "Greaser." Any sanitary missionary in any part of the country can find enough to keep him busy for some time if he undertakes to improve the sanitary conditions of the farms within a radius of ten miles of his home—the farms which are supplying his table with milk, butter, berries, celery, lettuce, and with these, human excreta. That the conditions in

question are not present on some of the large and rich estates is to be admitted. That they are present and the rule on the poorer and even on the average farm can not be truthfully denied. In fact, the sanitary crimes, especially the great crime of soil pollution, are so flagrant that to the practiced eye they are often recognizable even from the window of a car as the train passes through a given district. Soil pollution is evident between New Haven and Boston; near Lake Sunapee; it extends across to the Pacific, down to lower California, eastward to Florida, northward to Maine; but it increases in degree and danger as soon as the population becomes mixed, and as the warmer climates are approached.

In some states, the sanitation surrounding the rural schools is, relatively speaking, excellent, but in many of our states rural school sanitation is a disgrace to our land. The church sanitation is usually, so far as my observations go, very, very far inferior to that of the public schools and indicates that the average rural clergyman has forgotten the advice given in Deut. 23. 12-13.

*Result of Rural Insanitary Conditions.*—Typhoid fever is a typical filth disease. Any person who contracts typhoid has recently swallowed some germs from the urine or feces of some other person. Flies are typically filth animals, as they breed and feed in and on filth, notably horse and human excreta. Let any one think how common flies are in the average American dining room and kitchen and he can form some slight conception of the coprophagous habit of the American nation. In the cities, the sewer system decreases both the number and the danger of flies; in the rural districts, where the sewer is replaced by the privy, which is rarely cleaned, and where almost every house is near a manure pile, flies abound, water is in general more of a luxury, coprophagy, unintentional of course, naturally increases, and with this there is an increase of filth diseases, such as typhoid; further, there is likely to be an increase in all soil pollution diseases, such as amebic dysentery, Cochin China diarrhea, hookworm diseases, etc. The personal habits of the average farmer are not so clean as those of the urbanite; spitting is general, chewing and snuff taking common, especially in certain districts, and as a result when, as is more common than popularly supposed, a case of tuberculosis occurs in the family the disease is likely to spread rapidly.

*Conservatism of Rural Population.*—The conservatism of the rural population is proverbial. It need not therefore be expected that conditions will be changed in a day. In fact, it will take at least a generation to bring rural sanitation to where it should be. The American farmer, at least in my experience, is not abnormally concerned about the health of his wife and children, whatever may be his solicitude for the health of his mares, cows, and sows. The farmer's wife, however, is deeply interested in the health of her children, and it is chiefly through the wife and children that a change in the present, often medieval, conditions will be brought about.

*Plan of Campaign.*—The most striking point in regard to the present campaign for improvement in rural conditions is the way the health officers and the school teachers have made friends and are working together. Of 77,127 answers to the question "Are the sanitary conditions on the farms in your locality satisfactory?" those from the school teachers came nearest to the real conditions as evidenced by the typhoid death rate. The present miserable sanitary conditions of the school houses are not due to the teachers but to the school boards. The rural school teachers are teaching sanitation in plain English and are eager to learn more that they may impart to the rising generation, and when, say fifty years from now, the history of the present movement for improved rural sanitation is written, there are certain persons who will be generally recognized as the people who made it possible, who launched it, and who carried it out. Were I to prophesy who would be mentioned in this connection I would say: Theodore Roosevelt, John D. Rockefeller, Walter Wyman, the field men of the various boards of health, and the rural school teachers.

*A Great Need.*—Aside from the factors at work in various parts of the country, looking to better rural sanitation in general, there are a few, *very, very* few, rural district nurses, and a few Y. M. C. A. rural secretaries who are doing work of a more special nature, the former helping the mothers and girls, the latter helping the men. Both of these movements are really in their infancy, but they both deserve the greatest good will and encouragement on the part of all people. The influence for good of a sensible rural "district nurse" is enough to make any person wish he were a millionaire for the one purpose of endowing this movement, one of the newest welfare policies.

# SANITATION IN RURAL COMMUNITIES

By Charles E. North, M.D.,
New York.

Sanitation is man's best defense against his surroundings. Disease and death have become recognized as due not only to inherited weaknesses of the individual, but in a large measure to the influence of the external world upon him. This outer world is the medium which contributes the bacteria of infectious disease. One after another the diseases in the list of causes of death have been discovered to be due to bacteria which invade the human body and destroy it by the growth of their colonies and the formation of poisonous products.

Public interest has followed the lead of the scientific investigators. Under the name of sanitary science the fight against these poisonous plants, so-called bacteria, is being carried on. By sanitation the numerous avenues by which the bacteria are accustomed to travel to produce their outbreaks of disease are being closed up, their resting places are being destroyed, and the original sources of infection are being discovered.

The principles involved in the sanitation of rural communities differ in no respect from those of sanitary science in general. The gathering together of men into large cities or small towns or isolated dwellings modifies only the method of applying these principles.

## *Rural Population*

In the year 1790 the population of the United States was about four million persons of which 96.7 per cent lived in a rural state and 3.3 per cent lived in cities. In the year 1900, with a population of about eighty million, there was 66.9 per cent living in rural districts and 33.1 per cent in cities. These figures may be one reason for the often repeated statement that the farm is being deserted and the people flocking to the cities. There is certainly no doubt that some of the farming districts in the eastern part of the country, particularly in New England, are suffering from depopulation;

but on the other hand it is equally certain that in the middle and western part of the country the rural districts are becoming more thickly settled. The rural situation appears more plainly if the figures are tabulated as follows:

| Year. | Population. | Urban. | Rural. |
|---|---|---|---|
| 1790 | 4,000,000 | 132,000 | 3,868,000 |
| 1900 | 80,000,000 | 26,480,000 | 53,520,000 |

Thus, while the number of persons living in cities is relatively larger than during the century past, the rural communities have received an actual addition of over fifty million inhabitants while the cities have increased by twenty-six millions, or by one half the number.

### *Absence of Official Supervision of Rural Sanitation*

The mere fact that country life is more natural to man and that he is by nature an outdoor animal, tends in some respects to make him revert toward the savage mode of existence, while sojourning in the country. The more ignorant and untrained he is, the more is this likely to be true. In the city he is a part of a civilized community and subject to its laws and customs. In the country, on the other hand, he is chiefly a law unto himself.

Among the institutions established for better administration of city life is the city department of health, whose function is the enforcement of rules and regulations controlling the character of buildings in which the people live, the protection of their foods and drinks against transmissible diseases, the proper removal of all household wastes, and the care of the sick, and especially of those suffering from transmissible disease. In large cities this control is comparatively rigid and efficient. In smaller towns it is much less so, while in rural communities it is still less. Thus, in a large city public authorities define the number of windows and the amount of ventilation required for dwellings. The water supply, the sewerage system, the garbage and ash removal are all in charge of public officers. Milk, meat, vegetables, fruits and all other foods are inspected and under the control of the health authorities. Hospitals and sanitariums are established for the sick and for the quarantining of contagious diseases. In rural districts, on the other hand, each man's home is as he may desire to make it. His water

and sewerage system, his method of disposal of waste, his milk and food supplies are all under his own personal control. Public authorities do not interfere with him in his management of such matters. The quarantining of infectious diseases is usually the only function performed by his town or county health officers, to protect him from preventable diseases.

### *Death Rates—Rural vs. Urban*

In the year 1908, seventeen states in the Union gathered records of the deaths occurring within their boundaries. These included all of the New England states, the Middle Atlantic states with the exception of Delaware, four states in the middle West, and three in the extreme West. None of the Southern states furnished any reliable statistics and the greater part of the middle and western states are also lacking in this respect. Consequently the statistics received concerned chiefly the northeastern part of the country, and for this reason the reports must be accepted with some reservation. When the great Negro population in the South and the large agricultural districts of the middle and western part of the country are included, the figures will without doubt be considerably modified. A partial list of the deaths occurring in the registration area, in cities and in rural communities is as follows:

| Disease. | Deaths per 100,000. Cities. | Rural. |
|---|---|---|
| All causes | 1,654.6 | 1,396.0 |
| Typhoid | 24.5 | 24.3 |
| Malaria | 1.1 | 1.7 |
| Smallpox | 0.1 | 0.2 |
| Measles | 13.5 | 8.2 |
| Scarlet fever | 17.4 | 8.0 |
| Whooping cough | 10.4 | 11.9 |
| Diphtheria and croup | 27.9 | 17.3 |
| Influenza | 16.8 | 27.9 |
| All other epidemic diseases | 10.6 | 13.3 |
| Tuberculosis of the lungs | 169.1 | 117.3 |
| All other forms of tuberculosis | 29.2 | 19.3 |
| Cancer | 80.5 | 68.0 |
| Tumor | 1.1 | 0.9 |
| Diabetes | 15.1 | 13.6 |
| Meningitis | 21.4 | 17.1 |
| Other nervous diseases | 131.6 | 153.2 |
| Diseases circulatory system | 190.4 | 175.1 |

| Disease. | Deaths per 100,000. Cities. | Rural. |
|---|---|---|
| Pneumonia | 107.8 | 82.9 |
| Other respiratory diseases | 103.3 | 61.9 |
| Diarrhea and enteritis | 133.5 | 96.9 |
| Other diseases digestive system. | 85.8 | 74.3 |
| Bright's disease and nephritis | 113.9 | 73.7 |
| Infancy | 84.3 | 58.9 |
| Suicide | 20.4 | 14.4 |
| Accident | 96.8 | 101.0 |
| Ill defined | 26.9 | 26.7 |
| All other causes | 120.1 | 122.7 |
| Unknown | 1.0 | 5.3 |

In the first place it appears that the total number of deaths from all causes is less in rural districts than in cities. If the percentage given in the table be applied to the estimated population at the present time, assuming that the percentage of persons living in cities is approximately the same as it was in the year 1900, we would obtain the following results.

Total population, 1910, 92,000,000; of which about 67 per cent live in rural communities, or 61,640,000; while the city population, representing about 33 per cent amounts to 30,360,000. Applying the death rate in the above table for cities to the city population, we would have a total of 502,336 deaths occurring in the cities. Taking an equal population in rural districts and applying the rural death rate, we obtain 423,825 deaths in an equivalent rural population. This gives a difference of 78,511 more deaths occurring in the cities in the year than in an equivalent population living in rural districts. It may not be unfair, therefore, to attribute this excess of deaths to the unfavorable conditions of city life. It seems to me that we must include in our list of causes of death "city life," and place it in the list with tuberculosis, pneumonia, and other causes.

Some of the comparative death rates from specific diseases in the table are of great interest. It is noteworthy that the typhoid death rate is about the same both in cities and in rural communities; on the other hand there is more malaria in the country than in the city. The deaths from measles, scarlet fever, diphtheria, however, are much more numerous in cities than in the country. All forms of tuberculosis and pneumonia are also greater in cities. Diarrheal diseases, which include infant diarrheas, are

also greater in cities; Bright's disease is considerably greater, and diseases of the circulatory system; while deaths from accident on the other hand are greater in the country districts.

Tuberculosis, pneumonia, bronchitis to which overcrowding and impure air contribute, and measles, scarlet fever, and diphtheria are transmitted from person to person to which overcrowding gives opportunities and are naturally greater in cities. The impure milk and summer heat of cities account for the excess of infant diarrheas. Lack of exercise, the sedentary life of business men, and improper food would account to a certain extent for the excess of deaths from Bright's disease in cities. The presence of mosquitoes in country districts is a reason for the higher death rate from malaria. Impure water supplies and milk supplies is the chief reason for the typhoid death rate being at least as great in the country districts as in the cities. There are, of course, numerous differences in the table which cannot be readily explained. Cancer is not sufficiently understood. The greater death rate from nervous diseases in the country districts is also not so easy to understand.

It is obvious on the whole that there are a number of diseases in the list which cause deaths in rural communities which can be largely prevented by proper sanitary measures. These diseases are the following: Typhoid, malaria, smallpox, measles, scarlet fever, whooping cough, diphtheria, influenza, tuberculosis, meningitis, pneumonia and diarrheas.

### *Morbidity—Rural vs. Urban*

It is not possible to secure accurate statistics of the kind and of the extent of illness existing in rural districts as compared with other sections. One can see how in general the number of diseased persons at any one time in rural districts is likely to be less than the number in cities, because the death rate is less. Yet this only applies to those diseases which are common to both city and country, and which are common causes of death. There are diseases on the other hand which are not common to the country and city, and which may not be included in the usual list of mortality statistics.

Prominent among the diseases peculiar to country districts must be mentioned infection with intestinal parasites. In Porto Rico from 90 per cent to 100 per cent of the population in the year 1900

were infected with hookworm. Over 31 per cent were infected with a parasite known as the eelworm, while infections with other parasites existed to a less degree. In the middle and northern United States 7.69 per cent of the population are infected with the whipworm and with other parasites to a lesser degree. In the Southern states the number of persons infected with hookworm exceed the infections with all other parasites combined.

In the Philippines 80 per cent of the population are infected with intestinal parasites of one or more kinds. All of these infections are peculiar to country districts and are not found so commonly in cities. They fall into the catalogue of preventable infections and for that reason come within the scope of the diseases to be considered by sanitary science.

### *Household Sanitation*

In the application of sanitary measures to rural communities, as in fact to any community, perhaps the first item to be considered is the cleanliness of the dwelling. More attention has been given to this branch of sanitation in the past than to any other. In fact it has not been the sanitary expert or the professor of sanitary science who has emphasized the importance of cleanliness in the household, so much as the housekeepers themselves. Dutch housewives for centuries have been proverbial. In certain parts of New England extreme attention is given by housewives to certain features of cleanliness. One may visit almost any rural community in the New England states and be impressed with the degree of anxiety shown by the housewives for the removal of dust and the sweeping of rooms. The semi-annual "house-cleaning" is almost a religious ceremony. It is, perhaps, unfair to remark that the degree of attention given to this branch of sanitation is out of all proportion to its importance, and that the very home in which it is exercised to the highest degree may be drinking polluted water and may possess unsanitary methods for the disposal of sewage, drainage and household waste, and is very likely to have a large manure pile within easy distance of the kitchen door. It is a fact that these external conditions have only come to be recognized as important factors to the health of the household in comparatively recent years.

### *Dish Washing*

The necessity for internal cleanliness of the building, its floors and walls, of rooms and of the removal of dust and dirt is so deeply impressed upon the housekeeper in rural communities that it needs no further emphasis. There is one feature of household sanitation, however, which does deserve special attention. This is the washing of dishes and other utensils used in the kitchen and dining room. The transmission of the bacteria inhabiting the nose and mouth and throat and lungs, and such bacteria as may be clinging to the hands and fingers is particularly easy by means of the kitchen and table ware. The handling which such implements receive during the family meal is one which readily conveys any personal infections to their surfaces. Influenza, tuberculosis, pneumonia, bronchitis, sore-throat, tonsilitis, diphtheria, scarlet fever, measles, typhoid fever, dysentery, and other infections which cause discharges from any portion of the body, particularly from the mouth and nose, can become attached to table ware in a way which prevents them from being removed unless they are thoroughly washed and sterilized. It is a common thing for knives and forks used by a person infected with tuberculosis at one meal to be used by some other person at the next meal, and in this way serious chances of infection may occur. Consequently the washing of these implements is a most important matter.

A survey of the methods in common use in the average household shows that this operation is often a hasty one or is left in the hands of some ignorant servant or even when done under the supervision of the mistress herself is not done in a scientific manner. Soaps which do not dissolve grease or remove clinging matter are used instead of solutions of soda. The use of one pan of water unchanged, or infrequently changed is common rather than several pans of water frequently changed so that all utensils shall receive a thoroughly clean rinsing. Dish rags are used instead of brushes, and the final scalding with boiling hot water is frequently omitted. By the use of brushes, solutions of soda, a thoroughly clean rinsing, and finally scalding water, dishes and table ware can be washed and sterilized so that they stand no chance of conveying infection from person to person.

*Air*

One of the highest places in the list of causes of death in rural communities is occupied by tuberculosis. The only disease approaching it as a cause of death is heart disease and other diseases of the circulatory system. At first thought, the open air life of persons residing in rural districts is hard to reconcile with the great extent of tuberculosis in such communities. It is, of course, necessary to remember that tuberculosis is caused by bacteria and that it is commonly a chronic disease which means that the person infected therewith carries the bacteria in his system for a considerable length of time and is usually a source of infection to those among whom he dwells. Houses have been credited with being haunted by tuberculosis. Records show that persons dwelling in certain houses come down with the disease while those dwelling in other houses do not. In large cities, departments of health show by their maps certain blocks, and particularly tenement houses, in which large numbers of cases of tuberculosis have occurred year after year. In rural communities the same thing is true, and certain houses are pointed to as being the home of this disease; but while it is true to an extent that the floors and walls of dwellings may for a limited period retain tubercular infection, we now know that the transmission of the disease is usually more direct and that it is the fresh discharges from tuberculous persons that are most to be dreaded, and are the principal causes for the prevalence of this disease. It is the carriers of tuberculosis living in rural communities who transmit the disease to the members of their families and to those with whom they come in contact.

But in the pure air of the country one would naturally expect to find a very much smaller death rate from tuberculosis than in the cities. Summarizing the figures in the previous table it appears that in cities the death rate from tuberculosis is 198.3, while in rural districts it is 136.6 per hundred thousand population.

One of the chief reasons for this high mortality in rural districts is the practice of sleeping with closed windows. This is almost universal on farms and in villages. While the farmer may breathe pure air all day long yet when he retires at night he conceives it to be necessary for his comfort to have his bedroom window tightly closed. Whether the reason for this be that in the winter

time he fears the cold and in the summer time he fears invasion of insects, yet it is a common experience to find the air of country bedrooms foul and close. For this reason at that period in the twenty-four hours when the process of repair is uppermost, the dweller in rural districts probably breathes air as foul, if not more so, than the dweller in the large city.

The ventilation of the country house is rendered comparatively easy because open fire places are so common. The proper management of the windows of the dwelling is all that is necessary to insure an abundant supply of fresh air to the inhabitants at all times. The use of stoves, open fire places and kerosene lamps which rapidly consume oxygen makes window ventilation even more necessary.

In the country house proper attention must be given to the condition of cellars to prevent dampness and damp air on the first floor and to the removal of all decaying vegetables and refuse and to the prevention of odors from manure and from the stable.

### *Light*

The necessity of sufficient light to the country dwelling is so elementary that it seems hardly necessary to mention, yet it is worthy of remark because of the common practise in rural communities of keeping certain portions of the dwelling in constant darkness. Parlors which are only used for weddings and funerals are common, and shutters and curtains are used to darken rooms to prevent carpets and upholstery from fading. But the absence of light results in dampness and deprives these rooms of the benefits of nature's own best disinfectant. I think, however, that the disinfecting power of light as applied to dwellings has been somewhat over-emphasized. At the same time it must be remembered that human beings were not made to live in darkness and that light has an important stimulating action on the human organism. The late lamented Commissioner Waring was accustomed to say that "Faded carpets were of much less importance than faded cheeks."

### *Water Supply*

If one were to attempt to determine just what class of diseases was increased by existence in rural districts, one would naturally examine the results upon those who have been accustomed

to dwell in cities when a change is made to a rural existence. In this connection we may refer to the history of disease in armies on the march and in time of war, when large bodies of men leave their settled camps and enter into a strictly rural type of life. In the Mexican war the chief cause of death was diarrhea; in the Crimea, typhus, malaria and typhoid were the causes of death; in the Civil war dysentery and malaria were at the head of the list; in the late Spanish war the order was malaria, dysentery and typhoid; in the Boer war the chief diseases were typhoid and dysentery; in the Japanese army beri-beri, dysentery and typhoid were the prevailing diseases. Inflammation of the intestines were in most of these instances the cause of death.

The water supply is without question the readiest means for the transmission of infections which cause intestinal disease. This is because the bacteria of intestinal infections so often contaminate water supplies through contact with sewage or the drainage from outhouses. The dug well is the most common form of water supply used by rural dwellers. It is usually the easiest method for obtaining water and can be located at a point convenient to the kitchen door. It is also a common practice to have out-door privies located at a convenient distance to the house, and in many instances their location is one which makes contamination of the well easy. Well water is also frequently contaminated by barn-yard drainage and stable drainage. Surface washings from the door-yard and from the laundry and from the kitchen sink may also find their way into the well. A large number of examinations have been made of wells on farms both in the east and in the western part of the United States, and a summary of the results shows that at least 60 per cent of the wells examined were seriously contaminated with the bacteria which are identified with sewage.

Cisterns and springs in like manner may be contaminated. Outbreaks of typhoid fever from these contaminations are so numerous that the literature is filled with their reports. I may quote one instance which came under my personal observation, namely, that of an Episcopal parsonage on Long Island, where a number of cases of typhoid appeared in the family without apparent cause. Drinking water was obtained from a cement cistern which was supplied by rain water collected on the slate roof. This water supply seemed to be most carefully protected from contaminations.

The house was equipped with modern plumbing, and the drainage ran through sewer pipes to a cesspool which was located several hundred feet away from the cistern. When a lantern was lowered into the cistern black streaks were noted oozing through a crack in the cement wall. When an excavation was made in the earth at the side of the cistern a break was discovered in the sewer pipe leading from the house, and the ground between the pipe and the cistern was saturated with sewage. There is no doubt that some visitor to the family caused the first typhoid case by polluting the drinking water, and that the disease was continued by further pollutions of succeeding cases.

A pure water supply is positively necessary for health. A reasonable per diem allowance is from fifty to seventy-five gallons per capita. The running water of brooks is a safe source of supply, provided there are no dwellings which drain into it. Rivers and lakes, while often a source of supply for cities, can be of use only to the rural districts located on their shores. Wells and cisterns must continue to be the main reliance of country dwellings. Among these the driven and artesian wells are the best type. A reason for this is that when properly constructed they do not receive surface washings or surface water, but are sealed at the top and draw their supply from a considerable depth beneath the surface. Deep ground water usually comes from a considerable distance, and has passed through such an extent of soil and rock that it has been thoroughly purified.

Dug wells, which draw their water only from the surface layers of the soil, may furnish safe supplies only when located at a considerable distance from possible sources of pollution, and when properly protected against surface washings. One good method of protection is to dig a circular trench three or four feet deep at a distance of about six feet from the edge of the well which can be filled with rough stone so that all surface washings will fall into this trench rather than into the well; by a suitable underdrain leading off from this ditch all surface water can be led away from the well. Another safeguard is to close entirely the top of the well, using no ropes or buckets, but having a pump attached which discharges the water considerably to one side of the well opening, thereby preventing any of the discharged water from falling back into the well.

There are now a number of types of efficient filters at reasonable prices, which can be supplied for country residences and can be attached to wells or cisterns or other sources of supply, and when properly operated will remove any chance pollutions that may occur in the waters. In emergencies sterilization of the water can be performed by boiling and by the use of chemicals, among which chloride of lime is best.

### *Foods*

Fresh food of all kinds is associated in one's mind with country life. Consequently at first thought one would assume that sanitary science had little comment to make on this subject. In the matter of vegetables and fruits there is in fact but little to be said, not only for the reason that such fruits are usually produced on the premises, but because their preservation has been such a matter of study and practice in rural communities that most country housewives are proficient in the canning and drying of fruits and in the proper care of winter vegetables.

In the matter of meat and fish, however, there are some improvements that can be made. The lack of ice and facilities for refrigeration is very common. The cellar is often the only means for keeping food cool. The temperature of a cellar is not sufficiently cool to furnish any real preservative action on meats or on fish. The decay of meat and fish is caused by the bacteria of putrefaction which produce poisonous substances known as "ptomaines." Ptomaine poisoning is the name given to the severe symptoms which follow the eating of decayed meat and other foods.

It is therefore to be recommended that in those parts of the country at least where ice forms in the winter, rural communities make a practice of gathering ice and using it for refrigeration during the warm months of the year.

Meat and pork used in country districts are for the most part killed by local butchers and are a local product. The meat of these animals is not subject to scientific inspection and for this reason may at times be diseased. Tuberculosis has become very common among beef cattle in this country. In Europe it is estimated that forty per cent of the cattle are diseased with bovine tuberculosis; and in the United States a summary of the various estimates range from thirty-three to three per cent, with the disease probably on

the increase. From the examinations which have been made of human beings afflicted with tuberculosis it appears that the bovine type is practically limited to children. For this reason it seems likely that it is not often transmitted through diseased beef. The cooking of meat may be one reason for this. At the same time it would be in the interest of the inhabitants of rural communities if a better system of meat inspection could be established.

A more serious threat against the health of rural communities is found in the parasites which inhabit both beef and pork. The term "measly" beef and "measly" pork is used to describe the flesh of animals marked by the larvæ of tape-worms. Unless such meat is thoroughly cooked it causes tape-worms to develop in the intestines of those who consume it. Swine are particularly likely to be infected with this disease, and the thorough cooking of pork and of ham must be carried out to prevent the infection from being transmitted.

Trichina is the name of a species of worm which infects at least two per cent of the hogs in the United States. These also infect man and cause much physical discomfort. They are easily killed in pork by proper cooking.

### *Milk*

A leading physician in one of our large cities stated to the writer that it was a great pleasure for him to take a trip to the country so that he could secure a drink of milk which had in it the real "cowey" flavor. He expressed surprise that the flavor which he so desired was entirely absent from the glass of milk he was drinking on the premises of a certified dairy. It was necessary to explain to him that this "cowey" taste was not natural to milk, but was due to its pollution with cow manure. His remark, however, illustrates how common the pollution of milk with cow manure is because he is no exception in believing that the so-called "cowey" flavor is natural to milk.

Milk in the country is fresh, but it is not necessarily clean or free from infectious diseases. Those who dwell in country districts have the great advantage of securing milk before it has become many hours old; but in many instances the milk is obtained from cattle which are diseased, and is handled in a manner which exposes it to contaminations with dirt and with bacteria.

A prominent veterinarian who has examined over twelve thousand cows in New York State by means of the tuberculin test, asserts that in his opinion sixty per cent of the dairy cattle furnishing milk to New York City are infected with tuberculosis in some degree. Examinations made of milk sold on the streets of New York City and of the cities of Washington and Chicago, and of Leipsic, Germany, show that the bacteria of tuberculosis are present in more than ten per cent of the samples examined. Consequently we must believe that a considerable part of the milk which is used in rural communities is infected with tuberculosis. This is a matter more serious for the children and babies than for the adults.

Manure and dirt from the stable or from the cows' udders and coats, from the hands of the milkers and from the milking pails and pans are all offensive to the sense of decency, if not a menace to health.

Bacteria of typhoid fever, scarlet fever and diphtheria are often transmitted through milk. These bacteria get into milk from persons engaged in milk handling or from the water in which milk utensils are washed.

It is possible for the average farmer to produce a clean and safe milk for his own use and for the use of his neighbors by very simple and inexpensive means. His cattle can be kept in perfect health with the assistance of a competent veterinarian, and it is to the financial interest of the farmer in the long run to see that this is done.

By the use of tar paper and whitewash and home-made cement he can have a sanitary cow stable at small cost.

A covered milking pail or milking can in place of the old-fashioned wide-mouthed pail will keep nine-tenths of the dirt and bacteria out of the milk during milking time. By the use of a brush and a solution of soda followed by a rinsing in perfectly clean water and a final scalding with boiling water all milk utensils can be kept clean and sterile.

Milk for family use may be had twice daily and should be used on the farm as fresh as possible. For all milk that is to be carried to a village or town, preservation with ice is positively necessary. Where ice cannot be had upon the farm, several farmers in the district can combine their interests, and by co-operation se-

cure a supply of ice at some central place to which their milk can be carried for refrigeration. This plan makes the cost to each farmer a very reasonable one.

### *Sewage Disposal*

Perhaps the most difficult problem to be faced in rural communities is the proper handling of sewage. This includes not only the bowel discharges of the inhabitants, but the drainage from laundries, kitchens, barnyards, etc. Large cities are usually located upon rivers and lakes, into which the sewage can be discharged and disposed of by dilution with great quantities of water. Rural communities, which are for the most part located inland, have no such facilities and must find some means of disposing of their sewage in the earth.

The discharge of sewage into a brook or running stream is a most dangerous proceeding because of the chance that the water of this stream will be used further down for drinking purposes. Many of the states have laws prohibiting the pollution of streams in this manner, and therefore streams should not be looked upon as available for these purposes. In the Southern states conditions are probably worse than in any other part of the country. The climate encourages a continued outdoor existence throughout the year and many of the inhabitants are ignorant and unsanitary in their habits. This leads to the promiscuous distribution of bowel discharges on the ground in country districts. Such exposure is believed to be the chief cause of the wide-spread infection of hookworm. The hookworm inhabits the bowels and infects the soil wherever discharges are deposited. A large percentage of the inhabitants wear no shoes, and the mud clinging to their bare feet often contains the parasites. The hookworm pierces the skin of the feet and finds its way to the intestines, where the eggs of the next generation are hatched.

Bowel discharges of typhoid patients are of course a most serious threat against the health of those who dwell in the neighborhood. If such a discharge is made on open ground it is exposed to flies, which may carry the infection to the nearest kitchen and transmit it to food or to milk. Many cases are recorded where rain has washed the infection from such discharges into a nearby

well or stream which was used as a water supply, and which produced typhoid fever in the persons drinking the water.

One case may be mentioned which came under the writer's observation, where Italians, camped on the bank of a brook, deposited their bowel discharges on open ground. One of their number having typhoid fever, thereby infected the waters of the brook which was used as a source of supply by five different villages, in which there occurred immediately a typhoid outbreak of over forty cases and seven deaths.

Cesspools and wooden privies are the most common establishments in rural districts for the disposal of the bowel discharges of the inhabitants. The vaults of these are often made of loose stones without any provision for overflow. There is consequently not only a leaching through nearby soil, but an actual overflow on to the surface of the soil. From this exposure, both by means of insects flying to the houses and by the washing of rains into water supplies, infections can be easily carried to the inhabitants of the surrounding country.

The earth closet is the readiest means for the sanitary disposal of the bowel discharges of those who dwell in isolated houses. This consists of the ordinary small wooden building supplied with water-tight cans of metal into which the discharges are received and into which is thrown at the same time a certain quantity of fresh earth shoveled from a box kept in the closet. Lime is also a very good material to mix with such discharges. The iron receptacle should receive a sufficient amount of earth to absorb liquids, so that when it is filled the contents are solid. It should, of course, be frequently emptied and carried to a remote place where the contents can be buried at a suitable depth and covered up with earth. This method of disposal is safe, simple, and cheap, and can be adopted by any isolated farm-house.

Cesspools are only permissible when they are made tight and small and frequently cleaned, and are not allowed to overflow on the surface of the soil or to leak into the surrounding soil in a way which is likely to contaminate water supplies.

The burning of bowel discharges, as it is carried out at times in armies, is an ideal method because it absolutely destroys all chances of infection. The use of disinfectants, such as chloride of lime, is also to be highly recommended.

Where houses are gathered together in groups and in small villages or camps it is economy to provide a common system of sewage disposal, so that all sewage will be delivered through pipes to one plant. Such a plant should be so located that it will not constitute a nuisance to any of the dwellings. Some of the simpler from among the many and expensive plans for the disposal of sewage are adapted for use in small communities. Among these may be mentioned the system called "sub-surface irrigation," in which shallow ditches beneath the soil intermittently receive the sewage and it is digested and absorbed by the biolytical processes of the upper layers of earth. Another method adapted for this purpose is one where a preliminary screening and filtration is followed by the disinfection of the fluid effluent, with such chemicals as chloride of lime. The handling of propositions of this kind is of course beyond the powers of the average citizen, and such installations must necessarily be placed in the hands of specialists.

Water from sinks and laundries in farm houses is usually allowed to run out on to the surface of the ground, where it is likely to collect and to form a wet and unsightly and ill-smelling place. Such water should be led away from the house through pipes, where it can be caught in a cesspool filled with gravel or broken stone. Most of the solids will be retained in this way and the liquid portion carried off by seepage into the surrounding soil. The location of such a drain should of course be one which is remote from the source of water supply.

### *Garbage Disposal*

A pig pen is a valuable institution in one respect, namely, that in many parts of the country it is a ready and sure means for garbage disposal. All waste food and kitchen refuse can be carried to the pigs and will be consumed by them, so that there is no nuisance other than the pig pen itself. Where garbage cannot be gotten rid of in this manner it is necessary to devise a system of garbage disposal which will prevent the indiscriminate throwing of waste food on to the ground in the neighborhood of the house. Accumulations of this sort are bad from a sanitary standpoint not only because they are unsightly and cause offensive odors, but particularly because they attract flies which breed and multiply in such places and may transmit infection to the household.

Wet garbage and food of all kinds should be kept separate from ashes and from trash. A water-tight can is the best sort of receptacle for garbage. Ashes should be placed in another can and trash can be placed in a box. Ashes are not seriously objectionable in character. They can be utilized for walks and roadways and thrown upon the ground without harm. Cans of wet garbage and trash are best disposed of by burning. Rural communities composed of several houses or villages can afford to maintain a crematory of simple form where all of these wastes can be burned up. One of the simplest of these is called a "rock pile" crematory. It consists of stones so grouped together that liquids will filter down between them while solids are retained on the surface. A good supply of air is received through the crevices in the stones and all of the contents can be easily burned up.

In isolated houses, where it is not convenient to maintain a crematory combustible trash can be burned up while wet garbage can be carted off and buried or dumped at a distance remote from the dwelling.

### *Manure*

The manure pile has lately gained recognition as deserving more than ordinary consideration by the sanitarian because it is the headquarters for flies in its immediate neighborhood. Flies breed best in manure. The manure pile has for many years been looked upon as a necessary part of the farm business. The wealth of a farmer used to be judged by the size of the manure pile in his barnyard. The study of agriculture has now shown that the accumulation of manure from horse stables and cow stables in a pile is not the best method for its preservation, but that great waste takes place due to the fermentations and escape of gases from such a deposit. The largest dairies now make a practice of spreading all manure upon the ground daily and none of it is accumulated.

The odors from the manure pile while offensive are not necessarily injurious to health. One of the most recent faults found with these accumulations is due to the discovery that the germs of tuberculosis are very often discharged through the bowels of tuberculous cattle, and consequently the manure pile may be filled with this infection. The breeding of flies in the manure pile is one of the reasons why the household is afflicted with flies in the

summer time. These insects are a menace to health not only because of the material which they may carry from the manure pile, but because they may travel to the surrounding country and feed on matter which contains infection. Much of the typhoid which occurs during the summer and fall months is attributed by some authorities to the prevalence of flies during those seasons of the year.

Recently the writer made an investigation of a typhoid fever outbreak in which at least twenty cases occurring in one summer encampment were probably due to the infection of food with the germs of typhoid fever by flies which had been bred in a nearby manure pile which at times received the discharges of a man who was afflicted with typhoid in a chronic form.

The best remedy for the manure pile is to have none. If it is necessary it should be placed as far as possible from the house. If this cannot be done another easy remedy is to surround it with screens so that flies cannot gain access to it. The application of disinfectants, such as chloride of lime and ordinary unslacked lime, are also measures which will prevent odors and make the heap unattractive for flies.

### *Mosquitoes*

The mosquito is now held chiefly accountable for the spread of malaria, yellow fever, black water fever, dengue, and filariasis. Malaria is the disease of greatest interest to the inhabitants of the United States, because the other diseases are comparatively rare in this country. Mosquitoes lay their eggs in water. The eggs float on the surface of the water and hatch out, forming larvæ which live near the surface. These in a short time grow and develop into adult mosquitoes whch fly up from the surface of the water and begin their adult life. Standing water is necessary for these purposes. Running brooks and rivers are not breeding grounds for these insects. In Cuba, Mexico and Central America the common source of water supply is cisterns. Mosquitoes have access to many of these and use them as breeding grounds. The substitution of city water supplies by pipe lines and the abandonment of cisterns have reduced the number of mosquitoes and the diseases contracted from them in a remarkable manner in some of these cities. One of the most remarkable instances is the banish-

ment of yellow fever from the city of Havana, which was accomplished not only by removing the cisterns and standing water but by protecting buildings with proper screens against these insects. In the Panama Canal the fight against the mosquito is the real secret of the success of the American enterprise in that region.

Malaria is transmitted by the mosquito through the biting of some person suffering from that disease whose blood contains the parasites which are sucked with it into the body of the mosquito where the parasites remain. Such a mosquito may later on bite some other person and inject the parasites into his blood, giving rise to malaria in him. The vital statistics show a greater prevalence of malaria in rural communities than in cities. It is obvious that cities are not so favorable to the growth of mosquitoes as are rural districts. In the country there is not only likely to be some standing water, but a greater abundance of the green plants on which the mosquito commonly feeds.

The fight against mosquitoes in rural districts must be carried on first by the drainage of all standing water in the neighborhood of the house. Even old tin cans and pails and the rain barrel and the horse trough are places where mosquitoes will breed. Where they have become a pest and standing water cannot be drained off, the application of kerosene to the water every two weeks will prevent the multiplication of these insects. The kerosene spreads over the surface of the water and kills the eggs and the larvæ.

When insects have once invaded a house so that they cannot be driven out by ordinary means they can be killed by fumigation. Sulphur is the best material to use for this purpose. The burning of a sulphur candle in a properly closed room will kill all the mosquitoes and other insects. The screening of windows and of doors is another important item in the prevention of malaria. Screening is being constantly more widely adopted, and it is a practice which should be insisted upon in rural districts.

This screening should include not only the house but also the place where garbage is kept, and if the garbage-can itself is not covered a screen cover is a good thing to use. The privy must also be thoroughly screened against flies, so that by no possibility can they gain access to the discharges contained there. Where cases of malaria exist the patients should be thoroughly protected against mosquitoes, for in this way it is possible to prevent the disease

from being transmitted from a malarial patient to those who dwell in the neighborhood.

### *Education*

The most important of all sanitary considerations in connection with rural communities is the matter of education. The people themselves must be informed concerning the progress of sanitary science and how to follow a system of clean living if they are to gain the benefits which are to be derived from sanitary knowledge. The best place to begin sanitary education is in the district schools. The old system of teaching physiology and hygiene and the "nature studies" which are now used in the district schools are not sufficient to give the children correct ideas on sanitary matters. There is a movement on foot at the present time to bring about this kind of sanitary instruction in the public schools. It is delayed in the first place because the teachers themselves are comparatively ignorant on sanitary matters. It is therefore necessary to establish a system of sanitary instruction for school teachers, and through them eventually the children in the schools can be reached. Children should be made familiar with the meaning of the word "bacteria" and especially taught the nature of infectious diseases so that they will know them by name. They should also be clearly instructed as to the cause of infectious diseases, and particularly such diseases as are likely to occur in their own part of the country. Simple but important instruction on water supplies, milk supplies, and sewage can be given.

Next to the district schools, the state and county boards of health can play a most important part in education by the regular publication and distribution of bulletins on public health matters. The activity displayed by the Department of Agriculture and the experiment stations established in different states is an illustration of how this kind of work can be done. Persons living in rural communities are all familiar with the bulletins on agriculture. If they could be made equally familiar with bulletins on public health matters it would lead to a great improvement in the sanitation of their dwellings and of their surroundings. Realizing this, some of the states have made a commendable beginning by the publication of occasional bulletins on such matters, but the appropriations of

money for these purposes are so small that the bulletins do not cover the ground and are not regularly distributed.

### *The Sick are Carriers of Disease*

Perhaps one of the most vital reasons for popular education on these subjects lies in the discoveries which have lately been made of the existence of chronic cases of infectious diseases which were formerly thought to be entirely limited to cases in the acute form. It is now known that typhoid fever is not entirely limited to those persons who suffer from acute attacks, but that it may become established in a chronic form and the bacteria remain in the system of some persons for many years. The records show that these bacteria have been carried for more than fifty years in persons who gave no external appearance of having the disease. A recent estimate by one investigator shows that as many as four per cent of the persons having typhoid fever continue to carry the bacteria in their bodies and to discharge them for as long as three years after they have apparently recovered from the disease. One investigator estimates that there are at the present time eighteen thousand persons in apparently good health in the United States who carry the germs of typhoid fever and who must be looked upon as a threat against the health of the communities in which they live. At any time such a person may be the cause of a typhoid outbreak. Tuberculosis has of course for many years been recognized as a chronic disease and the persons afflicted with it as sources of infection. More recently diphtheria has been shown to exist in a chronic condition, and it is beginning to be accepted that in this way the disease is carried on from year to year. There are rumors that scarlet fever is also a disease which exists in a chronic form in some persons, and that it may be passed on in this manner. Possibly in time other infectious diseases will come into the same category. These things being so the matter of personal hygiene on the part of those who are afflicted with these infections in a chronic form is positively necessary to protect their neighbors from contracting the disease from them. On the other hand, the personal care exercised by the individual in his daily conduct toward his neighbors, the food he eats, and the liquids he drinks are the only means at his command for protecting himself against these chronic carriers of disease. It is obvious that public education on these matters at

the present time is the best form of defense. The majority of persons carrying these diseases are undiscovered. The more closely therefore that one adheres to strict personal cleanliness and avoids contact with one's neighbor is one likely to escape accidental transfer of these diseases.

It is to be hoped that public sentiment on matters of sanitation and of general health will in the course of time reach the same degree of interest that is displayed in the study of agriculture. It does not seem unfair to suggest to the public authorities that at least as much money should be spent in instructing the dwellers in rural communities how to raise their own children and to protect themselves against infectious disease, as is now expended in informing them how to raise pigs and how to breed cattle and horses.

# TROPICAL DISEASES AND HEALTH IN THE UNITED STATES

By John M. Swan, M.D.,
Medical Director of The Glen Springs; Secretary of the American Society of Tropical Medicine, Watkins, N. Y.

*Introduction.*—Many of the problems that demand solution at the hands of the sociologist concern the parasites that infest the body politic, impairing its efficiency. The physician, on the other hand, particularly he who is engaged in the solution of the problems of sanitation, is concerned to a very large extent with the study of the parasites that infest the physical body, producing sickness and death.

Since the development of modern bacteriology, which saw its beginning in about 1870, the knowledge of the causes of the acute infectious diseases of man has had an interesting and rapid evolution. Following naturally the discovery of the exciting causes of various diseases, the methods of preventing the development of those maladies were rapidly worked out. But it was soon found that some affections that acted like other acute infectious diseases of known etiology could not be associated with a discoverable bacterium in the relation of cause and effect. The discovery by Laveran, in 1880, of the Plasmodium malariæ and the demonstration of its animal characteristics led to fresh investigations. These studies, in turn, showed that some of the acute infections were due to animal parasites. The understanding of the life history of these organisms, however, has proved to be a much more complicated matter than the description of the biological characters of the vegetable parasites.

It has been found that many of the animal parasites of which man is the host cannot be transmitted from one individual directly to another. The parasitic organism requires a developmental period in an intermediate host before it can be inoculated into another individual there to develop and produce disease. The parasitic form which infects the intermediate host is usually different in

morphology from that which produces the disease in man. The intermediate hosts are usually insects or some other animal low in the zoological scale. These low animal forms require warmth, moisture, and oxygen for their development. These three requisites are also necessary for the development of the parasites themselves, as well as for the growth of the vegetable parasites, bacteria, that produce disease.

All of the lower forms of life, whether animal or vegetable, flourish best in warm, moist climates, so that we find some regions of the earth more unhealthy than other regions, on account of the greater amount of moisture and heat with the resulting profuse growth of the lowest forms of life. In addition to heat and moisture, the lower forms of life require a certain amount of food in the nature of decomposing animal and vegetable material. This is found in abundance in hot, moist climates, particularly when no effort is made to prevent the accumulation of such decomposing masses. Furthermore, a hot, moist climate is debilitating to the human organism, so that initiative and energy are lacking and a disposition is developed to let things go as nature apparently means that they shall go: the spirit to improve conditions is lacking. Consequently, we observe the establishment of a vicious circle; the native is lacking in energy; he permits masses of decomposing animal and vegetable matter to accumulate in the vicinity of his dwelling; this breeds the lower forms of life which are able to develop the parasites that produce disease; these parasites infect the dweller in their neighborhood. Those inhabitants that escape death are still further reduced in vitality and their efficiency is still further impaired. Furthermore, they are carriers of disease-producing parasites which increase in number, until finally, the neighborhood acquires an unenviable reputation as a pest hole.

*Climate.*—The climates of the world are divided by Dr. C. Hart Merriam (National Geographic Magazine, 1894, Vol. VI) into the Tropical Zone, the Lower Austral Zone, the Upper Austral Zone, the Transitional Zone, and the Boreal Zone, according to the total amount of heat present during the year. In the Tropical Zone there is 26,000° F. of heat during a year, the hottest period showing a maximum temperature of 78.8° or over. In the Lower Austral Zone the total heat amounts to 18,000° F. with the hottest period above 78.8°. In the Upper Austral Zone the total heat is 11,500° F.,

with the hottest period below 78.8° F. In the Transitional Zone the total heat is 10,000° F., with the hottest period below 71.6° F. In the Boreal Zone the total heat for the year is below 10,000° F. and the hottest period is below 64.4° F.

The Tropical Zone extends from the Tropic of Cancer, 23° 30′ north of the equator, to the Tropic of Capricon, 23° 30′ south of the equator. But north of the Tropic of Cancer and south of the Tropic of Capricorn there is a belt, the Lower Austral Zone, in which for a considerable part of the year the climatic conditions are similar to those in the Tropical Zone. In the United States, this zone includes all of the Southern and Western states below the thirty-fifth parallel of north latitude: South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, and Texas, and parts of North Carolina, Arkansas, Indian Territory, Oklahoma, New Mexico, Arizona, and California. It is even probable that this line could be pushed as far north as the fortieth parallel. In 1909, for example, Philadelphia had a total amount of heat of 20,153° F., this is over 18,000° F. During the hottest period the thermometer registered above 78.8° F. Even subtracting the 558 degrees excess temperature over the normal temperature for Philadelphia in 1909 the total heat would be 19,593 degrees, enough to include Philadelphia, which is 39° 57′ north latitude, in the Lower Austral Zone. In 1910 the total amount of heat was 19,861° F., with the hottest period above 78.8° F. Similar studies would show that many places in the United States possess the necessary amount of temperature for their inclusion in this zone.

*Requisites for the Development of a Disease from the Tropics.* In order, however, that any disease shall develop in a given region of the world, three essentials, in addition to a proper climatic condition, must be present: the cause of the disease, the proper transmitting agent, and susceptible individuals. Climatic features may be suitable, the cause of the disease may be present, susceptible individuals may reside in the district; but if the transmitting agent is absent the disease will not develop. If now the transmitting agent is suddenly introduced into that locality an epidemic of the disease will result.

On the other hand, the transmitting agent may be present and susceptible individuals may reside in a locality; but if individuals harboring the parasites be not present, the disease will not be

found. If now human hosts of the parasite come to the region in question bringing the parasites with them an epidemic will follow.

*Relations of the United States with the Tropics.*—The Anglo-Saxon race has had intimate relations with the tropics for over three hundred years. In 1579 Thomas Stevens sailed from Lisbon to Goa in India. So far as is known he was the first Englishman to visit that great empire. In 1583 three London merchants started overland for India. This enterprise was followed by the endeavor of three ships to make the journey around the Cape of Good Hope in 1591. The fabulous wealth reported to be in existence led to the formation of the British East India Company, which was chartered in 1600, and sent out its first expedition in 1601. Ever since then England has had intimate relations with the tropics and has known at first hand of the ravages of its diseases. That part of the Anglo-Saxon race which resides in the Western Hemisphere has had a merely casual acquaintance with the tropics until the occurrence of the Spanish-American War, in 1898. The acquisition of the Philippine Islands, Puerto Rico, and Guam, followed by our intimate relations with Cuba and the undertaking of the Panama Canal has brought the problems of tropical pathology and tropical hygiene strongly to our attention. We suddenly realize that many of our home ports are within the limits of the Lower Austral Zone: Galveston, 28° 18′ N.; New Orleans, 29° 57′ N.; Mobile, 30° 45′ N.; Jacksonville, 30° 45′ N.; Savannah, 32° 4′ N., and that the United States-Mexican border extends for a varying distance north and south of the thirtieth parallel of north latitude. We then find that other of our ports have a total degree of heat that would be suitable, for a portion of the year at least, for the development of diseases supposed to be peculiar to the tropics, provided all the essentials were present.

We find 424,313 immigrants landing on our shores from tropical and subtropical countries in 1907, and 224,930 immigrants from the same regions in 1908. Our soldiers, our sailors, our missionaries and our business men are visiting the tropics in greater numbers with the advancing years. We further find that at home we have had for many years a disease common in the tropics, uncinariasis, or hookworm disease, probably imported from Africa with slaves. Tropical medicine, consequently, is a matter of intimate concern to the health authorities of our country, and not a mere academic

question. The immigrant and the homecoming citizen are important enough to require consideration in this respect, if we had never had an epidemic of yellow fever, of plague, or of cholera in our home territory. The prevention of an epidemic of imported disease, however, is a comparatively easy matter when the cause is known, and, at the hands of the United States Public Health and Marine-Hospital Service the introduction of epidemics has been and will be prevented so far as foreknowledge, foresight, and purisdiction can accomplish the result.

*The Essential Feature of the Prevention of Tropical Disease.*—The one essential feature of prevention of tropical diseases is the cleanliness of our seaports, the cleanliness of our inhabitants, the cleanliness of our houses. By cleanliness is meant the drainage of mosquito breeding marshes and streams, the prevention of the development of flies, and the destruction of rats and mice, as well as the washing of bodies, the fumigation of houses and vessels, the sweeping of streets, the proper disposition of sewage and garbage, and the inspection of food products.

*The Tropical Diseases.*—The following list of disorders may be looked upon as including the diseases indigenous to tropical and subtropical countries which can be transmitted to temperate climates, upper austral and transitional, provided the requisite conditions of heat, moisture, intermediate hosts, parasites, and susceptible population are present in the given locality.

A. Disease due to protozoan (one-celled) parasites:
   1, malaria; 2, hemoglobinuric fever; 3, amebiasis; 4, trypanosomiasis; 5, kala azar; 6, spirochetosis: (*a*), relapsing fever; (*b*), Rocky Mountain fever; (*c*), tabardillo.

B. Diseases due to metazoan (many-celled) parasites:
   1, trematode infection; 2, cestode infection; 3 nematode infection.

C. Diseases due to bacteria:
   1, plague; 2, cholera; 3, dysentery; 4, Malta fever; 5, leprosy.

D. Diseases of unknown etiology:
   1, yellow fever; 2, dengue; 3, beriberi; 4, pellagra.

Malaria is a disease indigenous to the tropics and to subtropical countries. It is caused by a genus of protozoan parasites, known as Plasmodium, of which there are at least three, and, according to some writers, more species. The parasite is known to undergo a cycle of development within its human host, which perpetuates the disease in the individual. While the various steps in this cycle are taking place regularly, a second form of development of the parasite takes place, which results in the production of forms that produce no symptoms in the human host; but which are capable of infecting the intermediate host. The intermediate host of the Plasmodium is the female mosquito of the subfamily Anophelinæ. Not all species of anopheles mosquitoes can become infected from the human host, but at least seven have been shown by actual experiment to be the efficient agents for the transmission of the disease. Manson, however, gives a list of thirty-two species from various parts of the world which are known or suspected to be efficient hosts of the Plasmodium. After the parasite has passed through its developmental stage in the body of the mosquito, forms result that can be inoculated into a susceptible human subject by the bite of the insect, and so the disease is spread. No other method of transmission from man to man is known.

Mosquitoes always breed in water. Some species prefer clean, slowly running water; others prefer stagnant water; still others breed in collections of water in artificial containers. The members of the subfamily Anophelinæ prefer, as a rule, the clean, slowly running water found at the edges of streams and in marshes in which there is some current.

The amount of sickness due to malaria in a malarial country is incalculable. Woldert (*Texas Medical News*, April, 1908) estimates that malaria causes the loss of an equivalent of over five million dollars a year in the State of Texas alone. The most efficient way to prevent the sickness and death due to this disease is the destruction of the breeding places of the intermediate host of the parasite. Marshes should be drained or filled in. Streams should be cleaned of the growth of grasses, flags, and sedges which are found near the banks, delaying the currents, and providing by their interlacing roots safe retreats for the mosquito larvæ from their natural enemies. Artificial collections of water should be destroyed or efficiently screened so that the adult female cannot

gain access to them for the purpose of depositing her eggs. All money spent by the state in this work is well invested. The return is seen in the increased efficiency of the individual, in the lowered death rate and sick rate, and, in the case of drained marshes, in the increase in the area of arable land.

A district in which there is no malaria may owe its freedom to the absence of the proper malaria carrying mosquito, to the absence of individuals harboring that form of the malarial parasite in their blood which can infect the mosquito, or to both. If the proper mosquitoes exist in a given neighborhood, but no infected individuals are present, no malaria will be found; but if human hosts, apparently in perfect health, with the suitable form of the malarial parasite in the blood are brought to the region, an epidemic of malaria will result. For example, if a rural district contains swamps or choked streams in which anopheles mosquitoes are breeding, and a gang of Italian or West Indian laborers, many of whom harbor malarial parasites, are imported for the purpose of some public work such as road building or canal excavating, an epidemic of malaria will follow.

On the other hand, a malarial district may be rendered almost nonmalarial by destroying the breeding places of the mosquitoes. The active work of the Department of Sanitation of the Isthmian Canal Commission in searching for and destroying the breeding places of mosquitoes in the Canal Zone, and screening the quarters of the employees, has resulted in the reduction of the morbidity from malaria from 821 per 1,000, in 1906, to 282 per 1,000 in 1908, and 215 per 1,000 in 1909. The mortality was reduced from 8.77 per 1,000 in 1906, to 1.34 per 1,000 in 1908, and 1.10 per 1,000 in 1909. This result can be paralleled in any American community by similar methods with a relatively small outlay of money.

The Italian method of furnishing quinine to the inhabitants for prophylactic purposes is not nearly so efficient; nor is a method which relies on screening the dwellings of the inhabitants without a campaign for the destruction of the mosquitoes and their breeding places.

Hemoglobinuric fever, or blackwater fever, is believed by many writers to be dependent upon previous malaria. If this be so, the control of the latter will be attended by the disappearance of the former disease. There are students of tropical problems,

however, who believe that hemoglobinuric fever is an independent disease. If this be true it should be placed among the diseases of unknown etiology. Hemoglobinuric fever is present in the Philippine Islands, in the West Indies, in Central and South America, in the Canal Zone, in Texas, and in Arkansas, and probably in other parts of the lower austral zone of the United States. So far as we know at present its deleterious influence upon the public health is not great and no alarm need be felt for an extensive propagation of cases.

Amebiasis is a disease due to a protozoan parasite, Entameba histolytica, which attacks the large intestine of man and of the lower animals. The infection manifests itself by attacks of dysentery, and in many of the cases, as high as 33 per cent in some instances, it is followed by abscess of the liver. The parasite is apparently transmitted from man to man by potable water. It is possible that it may be transmitted by green vegetables, in localities where human feces is used as a fertilizer, as is the custom in China and other Eastern countries. Its spread may be stopped by boiling the drinking water, by the prohibition of the use of human excrement as a fertilizer, and by the prohibition of indiscriminate defecation into streams or other sources of water supply for towns, villages, or isolated farm houses.

Amebiasis is prevalent in the Canal Zone, certain of the West India Islands, some of the Southern states, for example, Louisiana, Puerto Rico, and the Philippine Islands. Individuals with intestinal trouble returning from these countries should be carefully studied for the detection of these parasites.

Trypanosomiasis is a disease due to a protozoan parasite, Trypanosoma gambiense. It is at first a febrile complaint which bears some resemblance in its clinical manifestations to malaria; but in its last stages it is accompanied by a marked degree of lethargy and is commonly known as sleeping sickness. The parasite is transmitted from man to man by a dipterous insect; the Tsetse fly, Glossina palpalis. The disease is confined to the valley of the Congo River, the shores of Victoria Nyanza, and other parts of tropical Africa. So far as is known Glossina palpalis does not breed on the American Continent, consequently no harm is to be apprehended from this disease in the United States, even if an infected individual should land upon our shores. If Glossina pal-

palis can be bred in our own lower austral region, the United States Public Health and Marine-Hospital Service will have to institute active fumigation measures on all ships coming from African ports to our Gulf and South Atlantic ports to prevent the domestication of the fly.

Kala Azar is a disease due to a protozoan parasite, Leishmania Donovani. It is found in Assam, Madras and Bengal. The method of transmission of the parasite is not known, and no danger is to be apprehended from this disease. Dr. S. T. Darling, however, has observed a few cases in the Canal Zone similar to Kala Azar, and has found a parasite of similar appearance in the organs of the patients at necropsy. This parasite has been called Histoplasma capsulatum. The possibility of serious danger to the public health from such a source is remote.

The best known example of spirochetosis is the European relapsing fever, due to an organism known as Spirocheta recurrens. A few imported cases have been seen in this country and small epidemics have been recorded in New York and in Philadelphia in past years. The parasite is supposed to be transmitted by the bed-bug or the body louse. No extensive epidemic of this disease has been observed in this country and its further prevention will be accomplished by isolating imported cases and by the disinfection of the belongings of the patients for the destruction of any vermin that they may harbor.

In the Bitter Root Valley of Wyoming, and in some other parts of our Rocky Mountain region there is an epidemic disease, known as Rocky Mountain fever, which is known to be transmitted by the bites of certain ticks, Dermacentor occidentalis. It is probable that this is a spirochetosis.

The disease endemic in Mexico known as tabardillo, which caused the death of the investigator who proved the transmission of Rocky Mountain fever by the bites of infected ticks, Dr. H. T. Ricketts, is in all probability of the same nature. The public health authorities of the states forming the United States-Mexican border, Texas, Arizona, New Mexico and California, will have to meet the problem of the prevention of the importation of this infection into our domain with the increased communication across the border.

The disease caused by metazoan parasites are, as a rule, intes-

tinal disturbances due to the presence of the parasites in the alimentary tract. There are one or two exceptions to this rule, notably the disease known as schistosomiasis, in which the parasites and their eggs are found in the blood vessels of the gastro-intestinal canal or of the genito-urinary organs, and the disease known as filariasis, in which the parasites are found in the lymphodes or the connective tissue in the various parts of the body. In filariasis the embryos are found in the circulating blood.

Many of these parasites gain entrance to the human body with food or drink, others require development up to a certain stage in intermediary hosts, still others gain entrance to the human body through the skin. Much work remains to be done on the life histories of many of these animals before definite knowledge of the manner of infection is to be had.

The trematodes are low forms of the natural order Vermes. With one exception they are hermaphroditic organisms which infect the various parts of the gastro-intestinal tract. One variety, which is indigenous to the Philippine Islands and other far Eastern countries, is found in the lungs. The parasites are not known to be indigenous to any part of the United States although it is not beyond the range of possibility that they may be represented in our home territory. However, climatic conditions are such in our lower austral zone that, provided suitable intermediary hosts are present, they may become established in this country. So far as we know, cleanliness in personal habits, care in the preparation of food, and abstention from eating uncooked fruit and vegetables are all that is necessary to prevent the spread of such infections.

Schistosomiasis is the disease produced by a trematode parasite, in which the male and female generative organs are contained in separate bodies. The disease is also known as bilharziasis. It is common in Egypt and in some other parts of Africa, and in Asia. A form of the disease has been met with in the West Indies and in some parts of Central and South America. The symptoms depend upon the location of the parasites and their ova. Sometimes an inflammation of the bladder results; in other cases the symptoms resemble those of dysentery. A variety of this infection is met with in China and Japan, one case of which has been imported into this country.

The cestodes are the tapeworms. Infection with these parasites

is by no means confined to the tropics or to subtropical countries; but in both these regions cestode infection is more common than in temperate climates. Nearly all of these parasites depend for their development in man upon the eating of insufficiently cooked meat. The inspection of our abattoirs by the officials of the United States Department of Agriculture prevents the marketing of infected meat, and is a public health measure of the first order. The proper cooking of meat is further responsible for the rarity of the occurrence of these worms in Americans.

The nematodes are the round worms. Infection with one of these is fairly common even among the children of the better class. Infection with the hookworm, Necator americanus, has been shown within the past ten years to be very common in the Southern states. Trichiniasis, infection with Trichina spiralis, is seen in rare cases. Filarial infections have been reported in our home territory. Prevention of these infections varies with the individual parasite.

Ascaris lumbricoides infection is to be prevented by teaching children to be careful of the things which they put into their mouths. We do not know the life history of this parasite, but infection appears to be the result of taking the embryos or the ova into the digestive tract.

Hookworm disease, uncinariasis, is a serious problem in our Southern states. The embryos develop in moist, sandy soil, and gain entrance to the body through the skin. The wet sand adheres to the skin of the legs and feet, and the embryos burrow into the underlying tissues and finally reach the intestine by a circuitous route. The disease has long been known in Egypt and other parts of the tropics of the Eastern Hemisphere as anchylostomiasis. It was a serious public health problem during the construction of the St. Gothard Tunnel, in 1880. Our army medical men found it in Puerto Rico, and subsequently the parasites were discovered in the South. Its presence results in a severe anemia which may be fatal. The prevention of the extension of the disease can be accomplished by the prohibition of soil pollution and by educating the people to wear shoes. In many localities the inhabitants are too poor to buy shoes. In such circumstances prevention of indiscriminate soil pollution is first in order. The amelioration of poverty, on the other hand, so that each individual can obtain enough

compensation for his work to be able to buy shoes for his family is a question for the political economist and the tariff commission.

It has been found in Puerto Rico that in cases of certain ladies of the better class who harbored Necator americanus, the infection had occurred through the skin of the hands from working in flower gardens, the soil of which had been fertilized by human feces. It has also been suggested that uncinariasis was one of the causes of the high morbidity and mortality among the Union prisoners in Confederate prisons from 1861 to 1865, particularly in Andersonville.

The Rockefeller commission will undoubtedly succeed in banishing this infection from our Southern States. It must, however, prosecute a long campaign of education before it can improve the sanitary conditions in the rural districts and inculcate new habits of personal hygiene in the inhabitants.

In filariasis the adult parasite inhabits the lymphnodes and the connective tissues. The embryos circulate in the peripheral blood. The presence of these parasites excites a train of diseases, the best known of which is elephantiasis. The disease is present in certain of the West India Islands. The embryos are taken into the stomach of a female mosquito and undergo a metamorphosis in the thoracic muscle of the insect. After the change in the embryos is completed, they migrate to the proboscis of the mosquito and are inoculated into the new individual by the bite of the insect.

Whatever of danger there may be in the importation of filariasis into the United States is to be obviated by a mosquito campaign. In this infection the intermediate host is not only the mosquito of the subfamily Anophelinæ but also certain species of the subfamily Culicinæ. The culex mosquito will breed in any kind of water, some species developing in almost pure filth. Consequently, it is not only necessary to drain marshes and to clean out streams, but also to dispose of all collections of still or stagnant water; the water in flowerpots in cemeteries, in discarded tin cans, in broken bottles, drains, cisterns, etc., has been found swarming with culex larvæ. The collections of water in the hollow branches and the trunks of trees, and in the corollas of many plants, such as the pitcher plant, have been found to be breeding places for these insects. There is no danger of the direct transmission of filarial infection from man to man.

Of the diseases due to bacteria, plague is the one of most

interest to the American health officer. The disease is due to an organism known as Bacillus pestis. Through the work of the English Plague Commission, done in Bombay and its environs, it has been definitely established that the disease is originally one of rats and mice and that it is carried from rat to rat by the bites of infected fleas. After the rat population of a city has been reduced by the epizootic, the fleas, no longer finding sufficient animal food, turn their endeavors to and become temporary ectoparasites of man. The epidemic then spreads from man to man by the bites of infected fleas. In a few cases, about one per cent in a large epidemic, the disease exists in man as a pneumonia excited by the Bacillus pestis, and this form of the infection is transmissible from man to man directly by infected sputum, which is disseminated by coughing, and by soiled bed linen and personal linen.

In the prevention of an epidemic of plague, the destruction of rats and mice, is the important sanitary problem. The isolated patient is not dangerous provided he is not suffering from the pneumonic form of the disease. Plague has been present in San Francisco twice within the past ten years. In 1900 the business men and health officials of San Francisco and California made a serious blunder in denying the existence of the disease, and, by their attitude, causing the resignation of an officer of the United States Public Health and Marine-Hospital Service who was eminently equipped for coping with the situation. As a result, the disease ran for a period of two or three years with occasional cases reported, and the rat population of San Francisco became generally infected so that in 1907 plague again appeared in that city. This time, however, profiting by the former error, the health authorities of California and of San Francisco summoned the federal authorities to their aid and, by placing the matter entirely in the hands of the latter, had the satisfaction of seeing the epidemic stopped in eight months with a total of 160 cases and 78 deaths. Fifteen cases occurred in Oakland and Seattle with 10 deaths. During this period the Public Health and Marine-Hospital men were killing 10,000 rats a week, about three per cent of which were found infected with Bacillus pestis. The officers in charge of the work further developed the fact that the wood squirrels about Oakland were infected with plague, and measures have been taken to destroy these rodents.

The destruction of rats in our seaports is a problem that should at once receive attention from the proper sanitary authorities. A ship coming from a plague port with infected rats in its hold should be so moored that these animals cannot get ashore. For this purpose rat guards have been devised for the purpose of preventing the rodents from leaving the vessel at night by way of the hawsers, and starting an epizootic among the rats on land. Once started in New York or Philadelphia these cities would pass through an experience similar to that of San Francisco. The rat population is ready to hand, the rat flea is ready with his host, and the climatic conditions from May to October are suitable.

No advantage except a temporary one, is ever gained by denying the exisence of an epidemic in any city. The hiding of the facts gives a chance for the disease to gain headway and to result finally in a greater loss to business and a more appalling loss of life than though the disease were admitted to exist from the beginning and proper prophylactic measures immediately instituted.

Cholera is due to the Bacillus choleræ. It is a water-borne disease, the infected individual polluting the water supply by improper disposition of his feces. Flies are sometimes responsible for epidemics by first alighting on objects contaminated with the bacilli and then alighting upon exposed food stuffs. It is hardly to be conceived that an epidemic of this disease should start in any of our American cities. The quarantine officers are constantly on the lookout for cases of intestinal disturbance in immigrants from parts in which cholera exists, as well as in the members of the crews of the vessels.

In Mohammedan countries many pilgrims returning from Mecca bring holy water with them from the Holy City. In order to give all the faithful an opportunity to benefit from the water, the contents of the bottle are emptied into the well or other source of water supply of the village to which the pilgrim belongs. Since the holy water frequently contains cholera bacilli, an epidemic results. With the increasing Mohammedan population of the Pacific coast this is a problem that may confront our health officers in the future. Infection of the individual is to be prevented by boiling the drinking water, by abstaining from the use of uncooked foods, and by care in the production of the milk supply. The house fly should not be neglected. The patient is not dan-

gerous provided his intestinal and other discharges are properly sterilized before being consigned to the cesspool or sewer. Burning is the most efficacious method of disposing of infected human feces.

Dysentery, except the amebic form, already referred to under the head of amebiasis, is due to Bacillus dysenteriæ. The epidemics are of minor import, so far as they have occurred in our own land. In the tropics and in subtropical countries, where the climate is depressing and where the poorer classes are more constantly underfed and overworked than with us, the disease often assumes serious proportions. It is water-borne and requires the same preventive measures that apply to cholera. The fly problem is important in its relation to this infection.

Malta fever is caused by the Micrococcus meltensis. Cases of the disease are found in the Mediterranean littoral in greatest numbers. Cases have been found in Cuba and Puerto Rico, Central and South America, and it is not beyond the range of possibility that cases occur along the United States shores of the Gulf of Mexico. In Malta, the disease is supposed to be transmitted by drinking the milk of infected goats; these animals supplying the milk for the inhabitants of the island. The disease is not very severe and the death rate is small, about three per cent. It is responsible, however, for a large amount of invalidism. The problems to be solved in case it should ever be found in our country are entirely hypothetical.

The attitude of the public toward leprosy is a blot upon our civilization. The disease is caused by the Bacillus lepræ. It is not, strictly speaking, a tropical disease, Norway and Iceland being countries in which it is indigenous. It is transmitted only by very intimate personal contact. The patient is not a danger to the community in which he dwells, unless it be proved that the suspicion, now entertained, that the organism is transmitted by the bites of infected bedbugs is warranted. Even then cleanliness is the answer to the public health question involved. The segregation of lepers in colonies is advisable on account of the repulsive nature of the deformities seen in the advanced cases; but not because there is any fear of an epidemic.

Leprosy is endemic in many Central and South American States. There is a leper colony in Louisiana. It is common in

the Hawaiian Islands, in China, in Japan, and in the Philippine Islands. The treatment of the unfortunate victim of this disease who was discovered in a village in Maryland about two years ago is shameful, productive of no good to the general public, and an insult to twentieth century knowledge.

Of the diseases of unknown etiology, yellow fever has been our most serious tropical problem. The disease is endemic in Cuba and in Brazil and has frequently been seen in epidemic outbreaks in our Southern states and in Central and South America. Some cases have been seen on the west coast of Africa, and epidemics have occurred in the past in Philadelphia, New York, and Baltimore.

The work of the Yellow Fever Commission of the United States Army in Havana, in 1900, has proved that the disease is transmitted by the bite of infected Stegomyia calopus mosquitoes. The problem of prevention of epidemics, therefore, resolves itself into the destruction of Stegomyia calopus. This was successfully demonstated in New Orleans in 1908. Stegomyia calopus apparently always breeds in artificial collections of fairly clean water. Consequently the screening of cisterns, wells and reservoirs is absolutely necessary. The patient must be treated in a ward or an apartment screened from the access of mosquitoes, and the apartment from which he was removed at the onset of the disease must be fumigated for the purpose of killing what adult mosquitoes may be contained in it; but for no other reason. The patient is harmless, except he is bitten during the first three or four days of his illness.

The American people owe a debt of gratitude to Dr. James Carroll, Dr. Walter Reed, Dr. Jesse Lazear, and Dr. Aristides Agramonte which pensions and monuments can but partially repay. It is a parsimonious congress indeed that will neglect the widows of Dr. Carroll and Dr. Reed while it corrects the military records of patriotic deserters.

Dengue is frequently met with in epidemic form in the Southern United States and in the West Indies. It is a considerable factor in morbidity statistics in the Philippine Islands. It is met with in many tropical and subtropical countries. It is not dangerous to life, the death rate being less than one per cent, and the fatal cases being seen in individuals who were already suffering from some chronic complaint when attacked by dengue. Our knowledge of

the transmission of dengue is due to the work of the United States Army Board for the study of tropical diseases as they occur in the Philippine Islands, Dr. P. M. Ashburn and Dr. Charles F. Craig. These investigators, following the methods pursued by the Yellow Fever Commission in Cuba, have demonstrated the transmission of the disease by the mosquito Culex fatigans. The prevention of epidemics of dengue is a question of mosquito extermination.

Beriberi is a disease indigenous to China, Japan, the Philippine Islands, the Malay Peninsula, and India. It is characterized by an acute febrile period, followed by dropsy, and later, by paralysis. The cause of the disease is unknown. The majority of students of tropical pathology are of the opinion that it is the result of the consumption of spoiled rice. Some few observers believe it to be dependent upon an unknown parasite.

The presence of a case of beriberi upon a vessel from an Indian, a Chinese, or a Japanese port is no excuse for scareheads in the newspapers. It is perfectly safe to treat such a patient in the general wards of a New York hospital.

*Conclusion.*—It is no part of the intention of the writer of this paper to increase the causes of uneasiness of certain susceptible individuals among his countrymen. The knowledge that certain diseases exist, that they have well known causes, that they are disseminated by well understood agents, and that their spread can be prevented by well tried methods, should make for peace of mind rather than for worry. A man who is on his way home at night will not fall into the ditch, provided he knows where the ditch is. The knowledge of the existence of an epidemic disease is the most important element of the campaign to eradicate the disorder.

The application of the various sanitary methods referred to in the course of this paper is of the first importance wherever men are gathered together. We are fairly well informed as to the value of a noncontaminated water supply, of a clean milk supply, of clean streets, of proper garbage and sewage disposition. All these things cost money, but we now know that the money is well spent. Campaigns of mosquito extermination, of fly destruction, of rat and mouse extirpation will be found to be investments that will pay.

In the Nobel Lecture at Harvard on December 14, 1910, ex-President Roosevelt said:

> Many men have rendered high and honorable service to the United States in connection with the work of the Panama Canal, but by far the greatest and most important work has been rendered by Colonel Goethals. It is to him more than to any other one man that we owe the successful accomplishment of one of the great business and engineering feats of all the ages.

When it is completed, Colonel William C. Gorgas will have made possible "more than any other one man" the construction of the Panama Canal. The Canal would have been a French achievement, had it not been for yellow fever and malaria. Whatever of dishonesty in affairs may have existed in the French company was of small import beside these two tropical diseases. Shoulder straps have never prevented the bite of a malaria carrier, nor of a yellow fever carrier.

[NOTE.—The author would acknowledge his indebtedness to Mr. George S. Bliss, of the Philadelphia office of the United States Weather Bureau, for valuable help concerning the climatological data herein contained.]

# THE HOUSE FLY AS A CARRIER OF DISEASE

By Edward Hatch, Jr.,
Chairman, Fly-Fighting Committee, American Civic Association, New York.

The common house fly has been a follower of mankind since the beginning of history, as doubtless he was for ages before. He is found only where man has made his home; and the newest pioneer settlements soon have a fly population proportionately larger than the older communities. The Egyptian plague of flies is recorded in the Book of Exodus in terms which indicate that the author of the Pentateuch looked upon these insects as something more than mere nuisances; for he says: "The land was corrupted by reason of the swarm of flies" (Ex. viii. 24); and their potentialities for evil were more than hinted at in the name of the Canaanite god Baal-Zebub (Prince of Flies), which in the religious language of a later day became an alternative term for the devil himself.

While the sacred writers seem to have had some appreciation of the pestiferous nature of the fly, references to him in modern literature have been usually of a sportive and flippant character; he has been either the subject of jests or a symbol of weakness and harmlessness. Children have been taught that they must save the interesting little creature when he seems likely to drown in a mug of milk. It is only comparatively recently that he has been revealed in his true colors and shown to have earned the title of "the most dangerous animal on earth."[1]

When the Water Pollution Committee of the New York Merchants' Association was founded a few years ago, one of the first questions for its consideration was the menace to health constituted by the pollution of New York Harbor—a menace whose existence had been denied by certain scientific authorities. The committee therefore made an investigation of the conditions prevailing along the waterfront of Manhattan Island, and proceeded to show the relation between them and the death rate of the districts in the immediate neighborhood of the docks. Dr. Daniel D. Jackson, who conducted the investigation as a member of the com-

[1] Daniel D. Jackson in "The House-Fly at the Bar."

mittee, finding that flies, attracted by the dry and floating sewage in slips and on the wharves, swarmed along the waterfront, set a large number of traps at different points on the North and East river shores. Counting the flies every day, he grouped his results by weeks, thus allowing for both sunny and rainy days. His captives carried innumerable fecal bacilli on their legs and bodies—one fly, taken in South street, having more than 125,000 about him. He found that the increase in the number of such intestinal diseases as typhoid fever and the summer diarrhœa of infants was in direct proportion to the increase in the number and activity of flies. He presented with the report a map of the Borough of Manhattan, with cases of typhoid and intestinal diseases indicated by black dots, by which it was shown that the vast majority of these cases were to be found in the parts of the city nearest the polluted waterfront. A thoroughgoing reform of general sanitary conditions in the districts affected, including the adoption of some system of sewage disposal, would, the report stated, reduce the yearly typhoid deaths in New York very considerably, and the diarrhœal deaths from 7,000 to 2,000—if germ-infected flies were not permitted to contaminate the milk supply before it reached the city or after. In addition to the lives thus saved, the reforms recommended would reduce the number of cases of illness from these causes about 50,000 annually.

The Jackson report, published by the committee under the title "Pollution of New York Harbor as a Menace to Health by the Dissemination of Intestinal Diseases through the Agency of the Common House-Fly" (December, 1907), was widely circulated, and is perhaps the best known record of experiments tending to establish the responsibility of flies for the spread of disease-producing bacteria. Confirmatory testimony is furnished by many other authorities, as the result of investigations carried on in various parts of the world, so that we need no longer speak of an hypothesis of disease transmission by flies, but may regard the fact of such transmission as scientifically established. I shall in this paper adduce only a small part of the great body of testimony, before proceeding to the discussion of the means which to me as a layman —but a layman who has given much time and attention to the problem—seem most likely to accomplish the extermination of the pest. I may say in passing that, though to the readers of THE

ANNALS it is not necessary to apologize for the plain treatment of the disagreeable phases of the subject, such treatment is sometimes offensive to over-sensitive members of a popular audience, as the committee has more than once found to its sorrow—as when in a city in Indiana the authorities forbade the showing of its moving pictures illustrating the dangers of the fly nuisance, on the ground that they were too disgusting to be presented in public.

A little more than a year ago, Dr. L. O. Howard, Entomologist of the United States Department of Agriculture, proposed the name of "typhoid fly" as a substitute for that of "house fly," commonly used to designate *Musca domestica*. His suggestion, while it has not actually changed current nomenclature, has been so widely commented upon that it has accomplished much in the way of impressing the popular mind with the fly's dangerous activities. With true scientific conscientiousness, Dr. Howard explained that, "strictly speaking, the term is open to some objection, as conveying the erroneous idea that the fly is solely responsible for the spread of typhoid; but considering that the creature is dangerous from every point of view, and that it is an important element in the spread of typhoid, it seems advisable to give it a name which is almost wholly justified and which conveys in itself the idea of serious disease."

There is little danger that any other fly may be made by indignant housewives or health officers to suffer for the sins of *Musca domestica*, for this variety constitutes ninety-eight per cent of the fly population of American houses. A condensed account of its habits[2] will suffice to indicate the ways in which it may carry germs from filth to human food.

> Born in manure, generally that of the horse, or in decomposing matter of any kind, vegetable as well as animal, they enter our homes to alight on foods there stored. Their tastes are indelicate and omnivorous; but they subsist on sputum, fecal juices, and the slime and dirt that sticks to exposed surfaces. Their proboscides, through which they feed, are connected with an extremely active salivary gland, capable of pouring out a large quantity of saliva, which the fly projects against a dry surface, swallowing the subsequent solution. Naturally, solid particles, living organisms, parasites, and eggs, small enough, may pass into the digestive tube. Bacilli of different types and eggs of the nematodes have been observed in the

[2] As given by Dr. Gordon K. Dickinson, in the New York "Medical Record," January 26, 1907.

proboscides, stomach, intestinal tract and dejections. The time that particles remain in the digestive tract of the fly is from twelve to twenty-three days. Evidently the digestive secretions are not active for harm, as organisms will not only pass through alive, but increase in number while in transit. There must be some absorption of the toxins of bacilli, for flies die in large numbers which have had the fortune to imbibe such bacilli as those of the plague and anthrax. Flies are large breeders, lay their eggs by preference in horse manure, but also in decaying meat, meat broth, cut melons, dead animals, and even in cuspidors. On these substances their larvæ subsist until they hatch. From ten days to two weeks after the time the eggs have been laid the fly is fully hatched. It is estimated that one fly, laying 120 eggs at a time, will have a progeny amounting up to the sextillions at the end of the season.

The earliest convincing evidence of the part played by house flies in the dissemination of the typhoid bacillus was furnished by Drs. Vaughan, Veeder, Reed, Sternburg and Shakespeare, who investigated camp conditions during the Spanish-American War. Dr. Vaughan, a member of the U. S. Army Typhoid Commission of 1898, summarized his reasons for believing that flies were active in the dissemination of typhoid fever in these paragraphs:[3]

(*a*) Flies swarmed over infected fecal matter in the pits and then visited and fed upon the food prepared for the soldiers in the mess-tents. In some instances where lime had recently been sprinkled over the contents of the pits, flies with their feet whitened with lime were seen walking over the food.

(*b*) Officers whose mess-tents were protected by screens suffered proproportionately less from typhoid fever than did those whose tents were not protected.

(*c*) Typhoid fever gradually disappeared in the fall of 1898 with the approach of cold weather and the consequent disabling of the fly.

It is possible for the fly to carry typhoid bacillus in two ways. In the first place fecal matter containing the typhoid germs may adhere to the fly and be mechanically transported. In the second place, it is possible that the typhoid bacillus may be carried in the digestive organs of the fly and may be deposited with its excrement.

The observations and deductions of American surgeons were corroborated by the British medical officers in the Boer War. "Nothing," says Dr. Dunne, writing in 1902, "was more noticeable than the fall in the admissions from enteric (typhoid) fever coincident with the killing off of the flies on the advent of the cold

[3] "Conclusions Reached After a Study of Typhoid Fever Among American Soldiers." A paper read before the American Medical Association, 1900.

nights of May and June. In July, when I had occasion to visit Bloemfontein, the hospitals there were half empty and had practically become convalescent camps."

That the conditions which prevailed in military camps before the deadly work of the fly was recognized are to be found in many communities in time of peace, and that their agency in spreading disease is equally effective, may be seen—to select only one from numerous instances—from the report of Dr. Alice Hamilton on the typhoid fever epidemic in Chicago in July-September, 1902. Two places in the neighborhood of Hull House were selected as especially favorable for an investigation of the relations between flies and the epidemic.

> The first was an unconnected privy on Polk street, into which the discharges from two cases of typhoid fever were being thrown without any attempt at disinfection. The vault was either very shallow or very full, for the dejecta lay within three feet of the opening and had caught on the projecting scantling within a foot of the opening. The flies caught within the vault, on the fence of the yard, and inside the sickroom of one of the patients, which was also used as a kitchen, were dropped into test tubes containing culture medium and allowed to remain there for periods varying from fifteen minutes to twelve hours, and were taken to the laboratory of the Memorial Institute for Infectious Diseases for examination. The full details of this part of the investigation have been published in the "Journal of the American Medical Association." In two of the tubes, the one from the sickroom and the one from the yard, the typhoid bacillus was discovered. In one of the tubes inoculated by flies from the vault a bacillus was discovered closely related to but not identical with the typhoid bacillus, belonging apparently to the group intermediate between the typhoid and colon groups. This is a group of bacilli which have been isolated from patients suffering from typhoid-like affections.
>
> The second place chosen was a yard on Aberdeen street, containing one large, full and filthy vault, not connected with the sewer. This is used by sixteen families. Flies from three privies built over this cesspoool were used to inoculate four tubes. Other flies from the fence of the yard and from the walls of the two houses bounding the yard at varying distances from the vault were dropped into six tubes. In three of these tubes the typhoid bacillus was discovered.

Further bacteriological evidence of the transmission by flies of the typhoid bacillus is adduced by Dr. C. Gordon Hewitt,[4]

[4] In "The Structure, Development and Bionomics of the House-Fly, *Musca domestica*, Linn. Part III. The Bionomics, Allies, Parasites, and the Relations of *M. domestica* to Human Disease."

Dominion Entomologist, of Ottawa. He records the recovery by Celli (1888), of the Bacillus typhi abdominalis, from the dejections of flies which had been fed upon cultures of the same, and his proof that the bacilli passed through the alimentary tract in a virulent state. Ficken, in 1903, found that "when flies were fed upon typhoid cultures they could contaminate objects upon which they rested. The typhoid bacilli were present in the head and on the wings and legs of the fly five days after feeding, and in the alimentary tract nine days after."

Flies also certainly transmit, according to Dr. Hewitt, and other scientific investigators, the bacilli of tuberculosis, cholera, anthrax, bubonic plague, and possibly those of ophthalmia and one or two more loathsome diseases. But if we confine our consideration to its connection with typhoid fever alone, we must hold the fly responsible for a large proportion of the vast money loss which this country annually suffers from the ravages of that disease. Dr. G. N. Kober, of Washington, has estimated that the decrease in the vital assets of the United States through typhoid fever in a single year is more than $350,000,000. Physicians are not unanimous as to the proportion of responsibility for typhoid which must be assigned to flies, polluted water and infected milk, but most of them agree in crediting flies with a very important part in its dissemination; and when to this vast sum is added the $10,000,000 which the people of this country pay annually for screens to protect themselves against flies and mosquitoes, we have what should be a tremendously effective argument in favor of the extermination of the fly pest—even without the infinitely more potent appeal, if it could be made personal, to each of us to guard the health and lives of ourselves and our families.

For the fly plague is not one which must be endured as a visitation of Providence. It may be stamped out by the systematic adoption of one method, and only one, by the individual and the public—the method of cleanliness. The fly is bred in, lives and thrives upon, filth. If you allow no filth to accumulate in your house and your neighborhood, you will not be troubled by flies, for they do not, ordinarily, stray far from their breeding places and their sources of food supply. Even if they should enter a thoroughly clean neighborhood, they could not exist in the face of screens preventing their access to food and in the absence of

manure heaps and other receptacles of filth in which to deposit their eggs. Those who conduct local campaigns against the house fly cannot too strongly emphasize the dictum of the Fly-Fighting Committee of the American Civic Asociation, "If there is no filth there will be no flies."

One result of the investigations made by Dr. Jackson into the relations existing between flies and sewage was the prosecution, at first within the Water Pollution Committee of the New York Merchants' Association, and later through a special committee of the American Civic Association, of a campaign of education and extermination directed against the fly. A summary of the activities of this committee will furnish suggestions for those who desire to co-operate in the general reform through local organized effort.

The committee, as now constituted, is somewhat larger than in the period of its connection with the Merchants' Association, and most of the members of the Water Pollution Committee, in which it had its beginnings, are members of the new committee (formed in February, 1910). This close association of the two committees is appropriate, for nearly everywhere—in the small towns perhaps more even than in the great cities—untreated and unprotected sewage makes the banks of watercourses the gathering and breeding-places of flies. The membership of the Fly-Fighting Committee is as follows: Edward Hatch, Jr., of New York, chairman; Dr. Daniel D. Jackson, Dr. Woods Hutchinson and Col. John Y. Culyer, of New York; Harlan P. Kelsey, of Salem, Mass.; Mrs. Caroline Bartlett Crane, of Kalamazoo, Mich.; Dr. S. J. Crumbine, State Commissioner of Health, of Topeka, Kan.; Dr. Joseph Y. Porter, State Commissioner of Health, of Jacksonville, Fla.; Dr. Albert VanderVeer, of Albany, N. Y.; Mrs. R. S. Bradley, of Boston, Mass.; Miss Alice Lakey, of the Food Committee of the National Consumers' League, of Cranford, N. J., and Mrs. Gardner Raymond, of Rochester, N. Y.

Each member of the committee is a center for his or her part of the country—and the members are pretty widely distributed, geographically—for the dissemination of educational literature bearing upon the subject of flies, and so well has the work been done that very few people who read the newspapers can plead ignorance of fly dangers as an excuse for not excluding the pest from their neighborhoods and their houses. The committee sends free to phy-

sicians, health officers, teachers, social workers—in fact to any one who expresses an interest in the subject—such literature, prepared under its direction, as "The House-Fly at the Bar" (a compilation of scientific opinions, popularly expressed, as to the fly's guilt in the matter of disease dissemination); "Rules for Dealing with the Fly Nuisance" (for posting in hotels, schools, factories, stores, etc.), and "Beware of the Dangerous House-Fly" (a simply-worded tract for popular distribution, particularly among school children). One of the most effective and popular means of bringing home to the average person what it means to allow the fly to flourish and have free access to houses and food is the moving picture film, entitled "The Fly Pest,"[5] made in Europe under the auspices of a representative of the committee, which has been shown in hundreds of moving picture halls and is still a "drawing card." The series of pictures shows flies (as big as Plymouth Rock hens, as they appear on the screen) laying eggs in filth; the eggs in white masses; the maggots in writhing heaps as they emerge from the eggs, and in different stages of their growth as maggots, until they burrow in the dirt to enter the pupa state; the pupæ (or grubs) themselves, one day later; flies emerging from the filth, at first wingless; then the perfect adult fly. Then follow pictures stretching across the screen, of a fly taking a sip of honey from the point of a needle, showing the action of the proboscis, very like an elephant's trunk in miniature; of the tongue, and of the foot, also enormously enlarged, and with every microscopic hair distinct.

The second act of this little life history is entitled "How Flies Carry Contagion." In it these scenes follow one another in rapid succession, so that the most thoughtless spectator cannot fail to grasp their full significance: flies swarming over putrid fish; crawling over lumps of sugar; in a cuspidor; on the nipple of a baby's feeding bottle, and, last of all, a pretty baby placidly sucking the mouthpiece from which the flies have just departed.

The usefulness of this method of propaganda is shown by the action of Dr. W. A. Evans, health officer of Chicago, who has been giving free lectures on the fly pest in the moving-picture theatres in that city. All over the country there has been gratifying co-operation in this educational work between enlightened moving-

[5] Controlled by the Kleine Optical Company, Chicago, Ill.

picture showmen and the various agencies working for fly extermination.

Lantern slides illustrating the same subject as the film, to be used in lectures for which moving pictures are not available, are loaned to responsible persons who make application to the committee. A traveling exhibit, consisting of photographs illustrating and placards warning against the fly pest, is also to be had by local organizations which guarantee to pay express charges and to return it intact. The pictures and placards are mounted on a folding screen, about six feet high, and the whole exhibit may be packed snugly in a substantial wooden box which accompanies it.

The committee plans this year (1911) to extend its educational campaign among the school children, and to this end has instituted a system of prize competitions in essay writing on the subject, "The House Fly as a Carrier of Disease." The pupils of the public and parochial schools taking part in these competitions will be supplied with the material for their essays, contained largely in the "literature" to which reference has already been made.

Another line of work has been projected, namely, the preparation of a "white list" of hotels and summer resorts that take proper precautions against the fly pest; information being solicited from all members of the American Civic Association.

Now for a few practical suggestions as to the means of exterminating the pest. Dr. Howard says:

> Even if the typhoid or house fly were a creature difficult to destroy, the general failure on the part of communities to make any efforts whatever to reduce its numbers could properly be termed criminal neglect; but since it is comparatively an easy matter to do away with the plague of flies, this neglect becomes an evidence of ignorance or of a carelessness in regard to disease-producing filth which to the informed mind constitutes a serious blot on civilized methods of life.

The methods of ridding a neighborhood of flies are, as Dr. Howard has intimated, comparatively simple, or would be so, at any rate, to a fly-fighter with despotic power over a community. For to insure the success of this work co-operation is absolutely essential. One carelessly conducted stable may nullify the conscientious efforts of a whole neighborhood of fly-fighters, although they always have the resource of bringing moral suasion to bear upon the proprietor of that stable. But while the creation of a

proper community spirit is necessary—a spirit which shall bring home to each householder his responsibility for maintaining sanitary conditions on his premises—the benevolent despotism of the health officer is the most effective single agency for carrying out the reforms for which this committee is striving. Fortunately, the great majority of health officers are so thoroughly alive to the dangers of the fly pest that they are at least willing to enforce any fly ordinances which public opinion is strong enough to have enacted, even if they are not, as they generally are, pioneers in the anti-fly movement.

Such pioneers are the members of the Indiana State Board of Health, who have framed and sent to the mayors of all the cities in the state the following ordinance:

WHEREAS, It is commonly known that flies are very dangerous carriers of filth, filth poisons, and disease germs, that they are born in filth, and are a constant threat against the health, happiness and prosperity of the people; therefore,

SECTION 1. Be it ordained by the Mayor and Council of the city of ————, that it shall be unlawful for any person, firm or corporation to suffer or permit or have upon their premises, whether owned or leased by them, any one or more of the following unsanitary fly-producing, disease-causing conditions, to wit: (1) Animal manure in any quantity which is not securely protected from flies; (2) privies, vaults, cesspools, pits or like places, which are not securely protected from flies; (3) garbage in any quantity which is not securely protected from flies; (4) trash, litter, rags or anything whatsoever in which flies may breed or multiply.

SECTION 2. It shall be the duty of the chief of police or city marshal and health officers, upon learning in any way whatsoever of the existence of one or more of the unlawful conditions described in Section 1 of this ordinance, to notify the offender in writing, upon order blanks provided by the city clerk, to remove or abate said unlawful conditions, stating the shortest reasonable time for such removal or abatement. In the event of the refusal or neglect on the part of the notified offender to obey such order, the chief of police or health officer shall inform the street commissioner, upon a blank provided by the city clerk, and it shall then be the duty of said street commissioner, and he shall have power and authority, to remove and abate the reported unlawful conditions; and he shall keep an accurate account of the cost and expenses therof, which shall be paid from the city treasury upon the sworn vouchers of the street commissioner, and said cost and expenses shall be a lien upon the property and shall be collected by law as taxes are collected and duly paid into the city treasury.

SECTION 3. Any person, firm, or corporation found guilty of having created or suffered to exist on premises either owned or leased by them

any one or more of the unlawful conditions named in Section 1 of this ordinance shall be punished by a fine of not less than five or more than fifty dollars.

SECTION 4. All ordinances or parts of ordinances in conflict with this ordinance are hereby repealed; and whereas an emergency exists, this ordinance shall be in effect upon and immediately after its passage.

This draft of a proposed ordinance, which I consider admirable as directing attention to filth as the sole cause for the existence of flies, has been copied by the Kansas and California boards of health and extensively circulated in those states. I hope the time may soon come when we shall see every city with such an ordinance rightly enforced.

The "Rules for Dealing with the Fly Nuisance," circulated by this committee, are as follows:

Keep the flies away from the sick, especially those ill with contagious disease. Kill every fly that strays into the sickroom. His body is covered with disease germs.

Do not allow decaying material of any sort to accumulate on or near your premises.

All refuse which tends in any way to fermentation, such as bedding straw, paper waste, and vegetable matter should be disposed of or covered with lime or kerosene oil.

Screen all food whether in the house or exposed for sale.

Keep all receptacles for garbage carefully covered and the cans cleaned or sprinkled with oil or lime.

Keep all stable manure in vault or pit, screened or sprinkled with lime, oil or other cheap preparations, such as are sold by a number of reliable manufacturers.

See that your sewage system is in good order; that it does not leak, is up to date, and not exposed to flies.

Pour kerosene into the drains.

Burn or bury all table refuse.

Screen all windows and doors, especially in the kitchen and dining-room.

If you see flies you may be sure their breeding place is in nearby filth. It may be behind the door, under the table or in the cuspidor.

If there is no filth there will be no flies.

If there is a nuisance in the neighborhood write at once to the health department.

### To Kill Flies

The London "Lancet," the leading medical journal of the world, says that the best and simplest fly-killer is a weak solution of formaldehyde in water (two teaspoonfuls to the pint). Place in plates or saucers throughout

the house. Ten cents' worth of formaldehyde will last an ordinary family all summer. It has no offensive smell, is fatal to disease organisms, and is practically non-poisonous except to insects.

Pyrethrum powder, which may be bought at any drug store, burned in the house, will also kill flies.

These rules go further than the Indiana ordinance in including directions for screening houses and food, and I believe cover all practical points. At any rate, with these and the ordinance enforced in any community I should be willing to take all the chances of disease transmitted by flies that might be afforded me.

No enthusiast in the movement for the extermination of the fly should delude himself with the belief that the end he seeks is to be attained with ease. To be sure, the replacing of the horse by the automobile makes the city streets less inviting to flies; and as they are not given to flying more than eight feet high, our sky-scrapers are in great part free from them; nevertheless, we cannot hope that the mere advance of invention will rid us of the plague. It is easy and simple to say, "If there is no filth there will be no flies;" and it is a comparatively simple thing so to order one's own house that flies shall have no breeding place in and immediately about it; but to insure the same care on the part of one's neighbors and the general public is the difficulty. Hence the necessity for organization to educate the public to a realization of fly dangers and to build up a body of public opinion which will make possible the enactment and enforcement of such measures as I have recommended. In such educational movements the newspapers and the press generally will be found able and willing co-workers; I recommend all fly-fighters to secure their powerful support at the outset of the campaign. And to any readers in whom this paper may have aroused an interest in this very important subject I promise, on behalf of the Fly-Fighting Committee of the American Civic Association, all the additional information and assistance at its command.

# THE MOSQUITO CAMPAIGN AS A SANITARY MEASURE

By John B. Smith, Sc.D.,
State Entomologist of New Jersey.

Insects as factors in sanitary work have been very little regarded until recent years and, practically, only since it was demonstrated that mosquitoes of certain species were necessary intermediate agents in the transmission of certain febrile diseases. The history of that demonstration has been well written by Howard, Blanchard, Theobald and others, and need be only referred to here. Since that time, attention having been directed to the class, certain ticks, lice, fleas and flies have been convicted as carriers or transmitters of a variety of diseases of man and other animals, and this branch of entomological research has become of the highest practical importance.

To emphasize the agency of one of the carriers, Howard has proposed that the common house fly be hereafter known as the typhoid fly and, while there are objections to the name, it is not inadvisable to follow him; remembering the while that it is really only *a* typhoid fly, and not the only species capable of carrying the morbific organism. Nor is its ability as a carrier confined to typhoid or even enteric diseases. Any pathological germ, microbe, bacillus or other creature capable of being taken up and carried from one place to another may be transported by this omnipresent pest, and the comma and colon bacillus are equally liable to be ingested and again discharged in virulent condition.

There are the radical differences between a transmitter and a carrier of a disease "germ," for a transmitter is usually agent for one parasitic organism only, while a carrier may transport a number. *Stegomyia calopus* is a transmitter of yellow fever only and, so far as our knowledge extends at present, the only transmitter of that disease. Certain species of *Anopheles* are transmitters of the various forms of malaria and, so far as we know, the only transmitters of those diseases. Eliminate *Stegomyia* and *Anopheles* and at the same time yellow and malarial fevers have been disposed of; but even if every house fly could be at one blow destroyed,

typhoid, cholera and other enteric fevers would yet continue to exist and would even appear in epidemic form when conditions favored.

It is matter of interest also to note that by far the most important of the transmitters of disease belong to the order *Diptera* or two-winged flies, the most highly specialized of all the insect orders, and probably the most recent in point of development. I am not unmindful of the fact that mites and ticks are sources of danger and agents in the transmission of Texas fever in cattle and spotted fever in man; but as a general statement and applied to the true insects alone, the order *Diptera* contains the most dangerous of all our species from the sanitary standpoint.

Any effort to lessen or altogether eliminate any of the mosquito carriers of disease is therefore worthy of the support of sanitary authorities, whether national, state or municipal, and this fact has been recognized to the fullest extent by the United States Government authorities at work in the Panama Canal Zone.

A brief consideration of the life cycle of mosquitoes is desirable, to understand the extent and variety of work necessary in any comprehensive campaign, for while there are some similarities there are also many differences in habits and development. All mosquitoes are wrigglers in the larval stages, and all require water for development; that is the one feature identical in the life history of all the species so far as known to me. But there is the greatest divergence as to the kind of water preferred and in the conditions under which they occur. Some species breed only in woodland pools, some only on salt marshes, some only in tree holes filled with water, some only in the small collections of liquid found in pitcher plants and other water-storing plants, some only in clean water, while a few are specifically dirty-water mosquitoes. In the tropics the divergencies in breeding habits are still greater, but for my present purpose the consideration of species is confined to the types occurring in the Middle Atlantic states and immediately adjacent regions.

It is particularly to be noted in this connection that the dirty-water breeders are those most closely associated with man—*Stegomyia calopus* and *Culex pipiens* for instance—and are rarely if at all to be found far removed from his settlements. They have specifically adapted themselves to live in association with him and in the

liquid wastes that he produces. The larva of the house mosquito—*Culex pipiens*—lives indoors and out, in any receptacle containing water—a fruit-jar, a flush tank or even an unused bowl of a water closet, in cesspools, manure pits, sewer catch-basins, gutters, etc. There is no liquid so filthy, so it be actually a liquid, as to daunt this species. And here comes a thought for those who consider the house mosquito leniently, as something to be philosophically endured because of the trouble and expense of dealing with him otherwise. The food of these wrigglers consists of the micro-organisms found in this waste and foul water—of the specific and morbific organisms from all the excreting organs of the human and animal body, of those producing ferments and decay and of about everything that the sanitarian deems most vile and objectionable—and this creature, so nourished and built up, has been and is allowed in our houses, allowed to feed upon our blood and upon that of our children, allowed to puncture the skin and inject into our veins the poisonous salivary secretions distilled out of all this refuse! Is it at all wonderful that sometimes a mosquito bite sets up serious disturbances even where pathological organisms are not carried! Strictly speaking, although it carries no specific disease, *Culex pipiens* is a greater nuisance than the malaria transmitting *Anopheles* because of its greater abundance, its wider range, its vicious bite and its more persistent efforts to get indoors and into our dwellings.

Now, while all mosquito larvæ or wrigglers are water dwellers and feeders upon minute or other organisms, their method of feeding is not identical, nor is the level at which they feed or the method of breathing the same. A very few wrigglers are carnivorous, feeding upon others of their kind. All the *Anopheles* are top feeders, skimming spores and other material that falls upon the surface, and these forms may exist in very shallow water, along the grassy edges of streams or pools, or in partially over-grown swamps among or even over partially submerged leaves, the body resting parallel to or upon the surface of the water. These species depend entirely upon atmospheric air for their supply of oxygen, and that is drawn in through a short tube at the anal end of the body. The species of *Culex* as a rule feed upon organisms living beneath the surface or even on the bottom, coming to the surface only to breathe by means of a longer tube than that of *Anopheles*. They never lie on the surface and require deeper water than those of the preceding

type. A few species have, besides the anal tube, tracheal gills developed at the hind part of the body, and these need not necessarily come to the surface to breathe: they are able to and do obtain a large portion of their supply of oxygen directly from the water. A very few species, of which *Culex perturbans* is our only local representative, are bottom feeders and get their supply of air out of large-celled plants. Here the anal tube is modified into an auger-like structure which is forced into a plant stem or root, and there the insect rests, getting its oxygen supply out of the plant

Manifestly, while we can use oil to kill the wrigglers of those types that get their air supply above the surface, we cannot so reach those that are not surface breathers. Fortunately all our pestiferous forms except *perturbans* are dependent upon atmospheric air and can be reached with oil; but where *perturbans* is the species in fault none of the ordinary methods of procedure are available.

There is a still greater divergence in the egg-laying habits of the insects. The house mosquito and a very few others lay them in a raft or boat on the surface of the water, and that is the form in which they are commonly seen, because these include the common, annoying forms. The species of *Anopheles* also lay their eggs on the surface, but singly or in little groups, never bound together in a boat or raft. Eggs so laid usually hatch within a day or two; but *C. perturbans is* an exception in this respect as well as in larval habit.

By far the larger proportion of species do not lay their eggs on or in water at all or, if they do, the eggs do not remain on the surface. All of the salt marsh forms except *C. salinarius* and most of the woodland species lay their eggs in mud or in moist depressions where water has been and is likely to be again. Such eggs often retain their vitality for long periods, measured not by days, weeks or months, but by years, and they may be dried out completely for a long time without losing the power of development. When circumstances favor, the larvæ hatch promptly, so that after a year or two of dormancy in the egg stage develop into the adult form within a week or ten days.

So there is great divergence in the length of adult life, in the habits of the adult and in the number of broods. Most of the woods mosquitoes have only a single brood annually, developing in early spring from eggs that have lain dormant during the winter, and

the adults from that brood may and generally do live until after midsummer, biting as often as they get a chance to do so. Some of these woodland forms never leave the shelter of the trees even in pursuit of food; but some of them will fly some distance out at night. In such cases settlements in or along the edge of woodland may be troubled on piazzas or in open rooms; but the insects rarely make any effort to get indoors and do not remain. The species that breed on the salt marshes—except *salinarius*—also winter in the egg-stage and develop early in spring; but of these there may be from four to eight broods during the summer, depending upon weather conditions. These species develop only after a storm that fills the marsh depressions or after an unusually high tide or a combination of the two. Unlike most other mosquitoes these marsh forms have a peculiar migratory instinct developed. Within a day or two after a heavy brood comes to maturity, if there comes a warm quiet night with only a moderate wind, thousands—yea millions of the insects will rise as if by concerted action high in air and will partially fly, partially drift for many miles with the wind, settling down over the country many miles from their point of origin. I have watched *cantator,* one of the salt marsh forms come into a window in Philadelphia before midnight, after a flight that could not have been much less than forty miles, and I have had reports of a rising up of *sollicitans* from the marsh along the Barnegat shore and of the presence of the swarm in the pines early next morning, where none were the day before. The arrival of *tæniorhynchus* has been actually noted at the brow of the Palisades in New Jersey on an east wind when the nearest known breeding place for the species was at the mouth of the Bronx River in New York State. None of the inland species so far as I know them have this migratory habit so well developed, though *perturbans* possesses it to some extent. None of these forms are really house mosquitoes in the sense that they will make special efforts to get indoors. They will fly through an open door or window or follow in a victim; but they are readily kept out by even an imperfect screen and they are usually at least as anxious to get out as they were to get in. They never remain to hide or to hibernate.

The species of *Anopheles* hibernate in the adult stage and [illegible] are house mosquitoes in the sense that they try to get indoors and will remain there by preference until the desire to oviposit develops.

They do not breed by preference in dirty, and not at all in filthy, water. They frequent grassy edges of pools, ponds or sluggish streams, and are sometimes found in water barrels, pails, tubs or the like. They are not so closely associated with humanity as *C. pipiens,* but find its company desirable as food. These species do not begin breeding very early and are rarely seen in the larval stage much before midsummer; but they will continue to breed until actual frost, and there may be four or even five broods during the season. Beginning with the latter part of September some of the impregnated females seek shelter in barns, cellars, outhouses, in sheltered overhangs among roots of trees and begin their winter dormancy. This dormant population increases until late October; but the specimens maturing later do not seem to mate, and die off. Over 5,000 specimens of *Anopheles punctipennis* have been taken during the winter in a single barn, and *Anopheles* was not a troublesome form in that vicinity either. It was simply the best available place for the purpose in the neighborhood. The species of this genus do not ordinarily fly for great distances. They seem to require blood food to mature their eggs and will travel far enough to find that. Half a mile is well within their compass and I feel sure that is not the limit; on the other hand they will under ordinary conditions fly no further than necessary and in malarial outbreaks a distance of 1,000 feet from the breeding area for the species is rather unusual, while 500 feet is common.

The house mosquito, *C. pipiens,* derives this name from its efforts to enter into our dewllings and its determination to stay there as long as possible. From its breeding habits it is also termed the rain-barrel or dirty-water mosquito, and it might with equal justice be called the sewer or sewage mosquito. It also hibernates in the adult stage, and preferably in cellars, where it rests on the side walls or ceilings, in dark and slightly damp places. In very cold weather the specimens are dormant and not easily started into activity; as it becomes warmer they fly ever more readily, and in May are ready to leave and start breeding. They do not bite during the winter for that would start development of the ovaries and, unless the insect found a chance to oviposit, it would result in its death before spring. Breeding is continuous during the summer and the number of broods depends only on the supply of dirty water. From egg to adult requires only eight days, and

a week later the new adults are ready to reproduce their kind. During midsummer when wrigglers become numerous and pools small, an undersized brood is apt to develop and these specimens find little difficulty in getting through the ordinary wire-netting screens.

This species will get into houses if it possibly can, through openings of all kinds and has even been accused of getting down the chimney and out through fire-places. It requires the closest kind of care and most persistent watching to exclude them and even then a few specimens manage to get in during the summer and the cellar becomes filled during the winter. After a summer like that of 1910 a cellar population may number hundreds or thousands, depending upon the ease of entry.

From what has been said it is apparent that the primary factor upon which success depends is a knowledge of the species in fault. Knowing this we are in position to deal with the species with a fair prospect of success.

In suburban communities where any amount of woodland remains and the houses are more or less surrounded by trees, woodland species are apt to be troublesome early in the season, and if that proves to be the case, the breeding pools can be very easily located and abolished. Where they can be drained that is the safest and most permanent disposition to be made of them. Where that is not possible the depressions may be filled with leaves, branches or other broken woodland rubbish sufficient to absorb the water or completely cover it. That will serve to prevent access by the female mosquitoes and will prevent them from laying eggs. Where neither draining nor filling is feasible or possible, the breeding area may be covered with oil as soon as larvæ are found which will usually be in April. As there is only one annual brood of these pests, one treatment only, sufficient to destroy all the larvæ then present, is necessary to secure exemption for the summer.

As water is necessary to enable the insects to develop, so it is only necessary for us to locate the water in which these wrigglers breed, to enable us to deal with them. And that leads to the statement that by no means all water areas are mosquito breeders. As a rule the larger and deeper the pool, the less the danger. Wrigglers will not develop in areas swept by the winds or in "ripple" areas. Nor can they maintain themselves in pools or

ponds containing fish, provided the edges or banks are sufficiently clean to permit the fish to reach all portions of it. In grassy or overgrown edges or areas larvæ will breed. Ponds or pools covered with duck-weed are safe and so are pools filled with the stringy *Spirogyra*. Deep cold swamps breed no mosquito larvæ nor do dense overgrown cat-tail areas. Many campaigns have failed because all the efforts were made against and work done on areas where no breeding occurred while the places where the species really developed were unnoticed. Flowing streams are not often sources of danger, especially where they contain fish; but they may become so in a droughty period or when the water is low and the flow is interrupted.

Where *Anopheles* is in fault the larger water bodies must be examined and if an overgrown pond or a sluggish stream is found in fault, it will mean cleaning up to enable fish to operate, or cleaning out, to improve the flow of the stream.

Where *perturbans* is in fault each case must be dealt with according to local conditions and no general rule can be laid down.

If the salt-marsh species is at fault an inland community may find itself absolutely helpless. There are hundreds of square miles of mosquito ridden territory in New Jersey where not a single mosquito breeds and where the residents can only suffer or join in aid of the state fight.

Where the ordinary house-mosquito is in fault it means close, sanitary, house-to-house inspection and in this campaign every householder should join. Water barrels and cisterns should have every opening closely screened with close-meshed wire or a double netting. Cess-pools should be sealed or, if ventilated, the ventilating pipe should have a double wire netting. Every depression capable of holding water should be filled, or periodically oiled, and every sewer catch-basin or settling basin should be oiled periodically during the summer. Once every ten days is sufficient in periods of drought, and within a week after every rain a coating of oil should be put on. To enumerate all the places that should be looked after is impossible, and should be unnecessary when we have learned that every pool, puddle, or receptacle containing water may be dangerous.

In a very wet season there is danger because then many places where water ordinarily evaporates promptly, may be kept filled

long enough to develop the insects. But in such a season the sewers and sewer catch-basins rarely become sources of serious trouble. In a very dry season the sewer basins become the source of most intensive breeding, and small streams carrying off surface water become reduced to breeding puddles. Of the two the droughty season breeds more city and town mosquitoes than the rainy one.

The campaign should begin in winter, against the hibernating species in houses. I have tried many sorts of fumigants and more have been tried by others; but the only reliable destructive material that I have found is Mim's Culicide. That is a mixture of carbolic acid crystals and gum camphor, using equal parts, by weight. Liquefy the carbolic acid crystals by a gentle heat, break up the gum camphor into small pieces and pour the liquid acid slowly over the camphor. The acid will dissolve the camphor completely and the resulting liquid is permanent and only slightly volatile at ordinary temperatures. It volatilizes rapidly, however, in a shallow dish over the flame of an alcohol or other lamp and the vapor is death to flies and mosquitoes. Three ounces will suffice for 1,000 cubic feet in a tightly closed room, and it will require about half an hour to evaporate that amount. The vapor is not poisonous to man, is not destructive to metals or fabrics and is disinfectant in quality. In a large cellar there should be fumigants at several points to secure equal distribution of the vapor and equal effect throughout the cellar. The material is not explosive, but is inflammable and should be used with that fact in mind.

In New Jersey the sanitary position of the mosquito question is determined in the general health law of the state which defines among the nuisances "waters in which mosquito larvæ breed," and over these local boards of health have the same jurisdiction as over any other nuisances, with absolute power to abate.

The dual nature of the problem is strikingly illustrated in this state with its long coast line bordered by salt marshes of relatively enormous extent. More than half the area of the state was periodically overwhelmed by flights from these marshes and perhaps ninety per cent of all the mosquitoes in South Jersey were bred on the salt marshes. It was manifestly useless to preach local campaigns here where, even across the two ranges of the Wasatch Mountains, no local campaign could promise exemption from trouble. Nor could the thinly settled townships in which these salt marshes

occurred, be reasonably asked to abate the nuisances for the benefit of the more densely settled localities inland. There was only one authority fit to cope with the problem and that was the state itself. The value of the New Jersey seashore for summer resorts offered an additional inducement for state interference, and $350,000 was appropriated for draining the salt marshes, of which $83,500 has been made actually available. It seems like a terrific task to undertake the extermination of mosquitoes from an area of over four hundred square miles of desolation; nevertheless the work is in progress and up to the present time the cost has been within the estimates upon which the original appropriation was based, notwithstanding the fact that the cost of labor has been materially increased. Over four million lineal feet of ditches have been dug and over 25,000 acres of salt marsh have been made approximately mosquito proof. The character of the problem has been changed in the more northern localities, and it has become a local one in which the local municipalities are now concerning themselves and may count on success.

On the salt marshes the areas are first carefully surveyed to determine where breeding places exist. The aid of the local board of health is then invoked and notice is given to marsh owners making them acquainted with the facts and the law. They are given an opportunity to abate in their own way if they will, but if they do not—as generally happens—the entire area is drained in one block, under a general plan, and the work is paid for by the state. The matter is not really so serious as it looks at first blush, because the marshes are peaty in character and the water runs out easily. The ditches are thirty inches deep, usually ten inches in width, and placed about 200 feet apart in ordinarily bad areas. Some very rotten marsh is more thoroughly ditched and sound level marsh is not interfered with at all. These ditches through the turf stand indefinitely and, owing to their narrowness and depth, never grow up from the bottom. If not interfered with they will drain the marsh of surface water within forty-eight hours after being flooded by storm or tide, and will thus prevent the maturing of such larvæ as may hatch. There is no pretense of reclaiming the marsh for agricultural purposes, and all the ditches connect with tidewater so that the character of the land is not changed. But the character of the grass is affected by the drainage and

it becomes different in type and better, giving also much larger crops.

The work has been in progress for only four years and has just begun to show effects, but as the area treated is enlarged and the benefits become evident over a greater region it is hoped that more co-operation will be secured and more rapid progress made. The additional comfort secured where mosquitoes are absent has, in some localities, already brought crowded houses and induced building so that as a mere investment the work will eventually pay heavily. In the additional benefits secured by the person seeking rest and health at the seashore, the return cannot be measured by money values.

In the local campaign, the state organization acts in an advisory capacity only. It will make surveys, inspections and reports for any municipality desiring the same, and it will advise as to what should be done. Experiments are made with oils and other materials suggested or recommended for the control of the insects in any stage, and annual reports are made and published, showing the progress of the work and the information obtained.

Recently an organization has been formed by representatives of boards of health from a group of counties centering about Newark, Jersey City and Elizabeth, and for the benefit of these an inspector will be maintained merely to give notice to the local authorities of developments requiring action to control or destroy breeding places. Efforts will be made to secure permanent drainage or filling of the larger swampy areas, the diversion of small brooks carrying surface waters into trunk sewers, and the elimination of all the small breeding areas by orders of the local boards of health.

No one who has not had actual experience can realize in how many different kinds of places mosquito wrigglers can be found, especially in an active manufacturing city. Wherever water is stored in tanks for any purpose they have been found: in a pickle factory a lot of seventy-five hogsheads stored in a yard were partly filled with water to prevent shrinkage, and thousands of wrigglers were in each, supplying the neighborhood for squares round about with mosquitoes. In fire-buckets, even in halls of hotels they are not uncommon, and in the thousand and one different sorts of containers of the hundreds of factories, there is almost unlimited opportunity for mosquito propagation. Even in dwellings a neglected

aquarium has been found infested, the flush tank of a rarely used closet and the exposed trap of a shower bath serving as further examples of wriggler adaptation.

The sanitary officer in charge of a municipal mosquito campaign has no light task and his first effort, after educating himself, must be to educate his constituency to co-operate with him.

# CLEAN MILK AND PUBLIC HEALTH

By Jesse D. Burks, Ph.D.,
Director of the Bureau of Municipal Research of Philadelphia.

Behind its veil of opaque whiteness, every quart of milk hides a potential peril to the public health. To the unaided senses, unwholesome or dangerous milk may present exactly the same appearance as the purest and safest supply obtainable. Until the horizon of intelligence and imagination has been extended by science, therefore, it is exceedingly difficult to appreciate the serious need for being constantly on guard against a menace so intangible and so insidious.

Even before bacteriological and chemical research had disclosed the hidden causes of disease, milk was known to constitute a very important danger to health, and crude methods of improving the "keeping" qualities of milk by heating and refrigerating had been developed. The rapid growth of cities, however, and the consequent ever-increasing separation of the dairy farms where milk is produced from a vast number of the homes where it is consumed, has introduced a new and very serious difficulty into the problem of providing city consumers with a safe milk supply. Whereas, formerly, it was possible to distribute milk to consumers within a few hours after it was drawn, it is now frequently necessary to transport a supply from very great distances and thus separate by twenty-four, thirty-six, or even forty-eight hours the time when milk is drawn, from the time when it is delivered to consumers. When we reflect that milk is probably the most generally used article of food; that it furnishes an almost ideal culture medium for very many forms of disease germs; that it may very easily become infected at any one of the many stages of its progress from cow to consumer; and that, at favorable temperatures, the number of disease germs it contains will increase with almost incredible rapidity, the significance of the time element, as well as of care in handling milk, will at once be apparent.

With the growth of scientific knowledge regarding specific

dangers from infected milk, and with the increasing difficulty of obtaining a safe supply, there has come a more intelligent appreciation, on the part of laymen and of health officials, of the need for a comprehensive and effective plan for controlling a community's milk supply, especially in the case of large cities. There is probably no factor in a public health program that is being more actively and more persistently studied or that gives promise of more immediate and more positive results. Clean water, clean air, clean food, clean streets, clean houses, clean clothing, and clean bodies are the indispensable elements in modern preventive hygiene; and among these, if we measure importance by the potential effect upon disease and death rate, clean milk must be assigned high, if not first, rank.

Careful estimates place the average annual consumption of milk in the cities of the United States at twenty-three gallons per capita, some authorities estimating the quantity as high as one-eighth of the entire food consumption of the urban and suburban population. On this basis alone, the importance to the public health of protecting the milk supply from contamination and deterioration needs no argument. In view of the further fact that milk forms the chief and, in many cases, the sole element in the diet of the sick, the aged, and the infant members of society, the necessity for precautionary measures receives further emphasis. The technical difficulty of testing milk as to adulteration and infection, the great distances and varied sources from which city supplies are obtained, and the large cost involved, make it wholly impracticable for individual consumers to discover by direct investigation the quality of milk served by dealers. It is clear, therefore, that for reasons of economy and efficiency of service, the inspection and regulation of a community's milk supply is properly a community function, to be performed by a governmental agency having adequate legal powers, and the organization and administrative methods necessary to make its powers effective.

Stated in the simplest terms, the control of a milk supply has two main aspects, the first having to do with chemical constituents which is related chiefly to the food or nutritive value of milk; the second with bacteriological content, which is related chiefly to the pathological or hygienic effects.

On the side of chemical content, a few simple and well-defined standards concerning adulteration and the use of preservatives have been clearly established, though not even these have been everywhere accepted as a basis for practical control. It is known that the use of preservatives is both unnecessary and harmful. It is unnecessary, because milk produced under proper conditions and handled with care will "keep" long enough to permit of transportation and distribution within necessary and reasonable limits of time. It is harmful, because the addition of salicylic acid, formaldehyde, benzoic acid and other chemicals used as preservatives either impair the digestibility of milk or injure the digestive organs of the consumer, especially in the case of young infants, whose membranes are extremely sensitive to such irritants. Although the use of such preservatives is prohibited by the national pure food law of 1906, and by the laws of many States, there is still a wide sale for these chemicals under such trade names as "Iceline" and "Freezine." It is not uncommon, especially in the summer, for a dairyman to add one of these preservatives; the wholesale dealer, in ignorance of this fact, adding a second treatment; and the retail dealer, again in ignorance of what has been done, adding a third preservative to the same milk. Such practice is, of course, little short of criminal. It can be detected only by chemical tests and can be prevented only by constant inspection and vigorous prosecution of offenders.

Adulteration is still practiced to a very considerable extent, the most common methods being the addition of water or skimmed milk and the removal of cream. The addition of chalk and other materials for thickening and coloring milk is probably practiced to a very limited extent. Adulteration of any kind, without the knowledge of the consumer, is unwarranted and fraudulent. The addition of water not only alters the nutritive value of the milk, but is often a source of pollution; the introduction, even in minute quantities, of water infected with typhoid or other water-borne germs being sufficient to start a widespread epidemic. The removal of cream materially affects the food value of milk and in this way may result in serious consequences to infants and others dependent upon a milk diet.

Gross adulteration is readily tested either by chemical or by physical (lactometer) tests. Inasmuch as milk varies considerably in the relative amount of water and of solid contents which it normally contains, however, it is impossible, within certain limits, to determine by inspection whether or not water has been added. The usual method of controlling water adulteration is to fix a minimum standard of solid contents and to exclude or destroy milk not conforming to this standard. It is readily seen, however, that milk containing milk solids in excess of the standard may be manipulated by adulteration or by removal of cream so long as the legal standard is maintained.

It is a common error to assume that milk found to meet a legal standard as to solid contents may thereby be known as milk of high quality. As a matter of fact, when milk just reaches the usual legal standards, it is *prima facie* inferior in quality, being of the lowest grade permitted. There has been a tendency, recently, to lower legal standards so that milk from certain breeds of cow, notably the Holstein, which is normally deficient in milk solids, might come within the prescribed limits. Such legislation might be characterized as itself a species of adulteration, placing, as it does, a premium upon low-grade milk and making it possible for an unscrupulous dealer to impair the food value of milk normally good, by the addition of water or the removal of cream, without making himself liable under the law.

It is true that the minimum limit must not be placed so high as to exclude the milk from too many herds. Aside from the danger of infection, however, there seems to be little difference between adding water after milking, by means of a dipper, or before milking, through the natural processes of secretion. The rational remedy for this difficulty appears to be the grading of milk on the basis of its food value and the fixing of prices for the several grades, so that both dealers and consumers may reap the advantage of maintaining high standards. Such a plan requires that consumers be so educated as to appreciate the difference between high-grade and low-grade milk, and to demand satisfactory evidence as to the quality of milk received.

The second main aspect of the problem of controlling a milk supply has to do with the bacteriological content of milk, which

is the side of the problem most intimately related to the public health.

Next to polluted water, there is probably no more prolific source of infectious disease than contaminated milk. The danger from infected water has been widely recognized and methods of protection by filtration and by other means have been so thoroughly studied and so well developed that many communities have practically eliminated water-borne epidemics. In such communities, as well as in those where typhoid is still distributed through the water pipes, polluted milk continues, without effective check, to play its part in causing periodic epidemics of typhoid, scarlet fever, diphtheria, diarrhea and other infectious diseases.

In a recent bulletin (No. 56), the Public Health and Marine-Hospital Service of the United States gives a tabular summary of 500 epidemics in which there is conclusive evidence that milk was the carrier of typhoid, scarlet fever, diphtheria and septic sore throat. In each case the circumstances of the outbreak are described, together with the evidence that milk was the source of the disease, the manner in which the milk was infected, the number of persons affected, the number of deaths, and the number of persons supplied with milk from the dairy to which the disease was traced.

The facts presented in this summary show that a typical milk epidemic is explosive in its outbreak, the infection being carried to all users of a given supply at practically the same time, thus causing a relatively large number of them to develop the disease simultaneously. The disease in such cases follows a milk route so closely that a map of the route may frequently be outlined by merely charting the cases of the disease as they are reported. It is found that the homes of the well-to-do are often attacked in greater proportion than others, owing to the fact that families with larger incomes commonly drink more milk than those with smaller resources; the latter using milk mainly in tea or coffee and in food preparations that are cooked. Similarly, it is thought that women and children, being larger consumers of milk than men, are more frequently affected by milk-borne epidemics. The 500 milk epidemics described in these tables are only a few of those concerning which definite records

are available. The immense number for which such records are not available can only be surmised.

The precise relation of milk to the spread of tuberculosis has been a matter of uncertainty. The announcement made by Koch, about ten years ago, that bovine tuberculosis is very slightly, if at all, transmissible to human beings, seemed at the time to dispose of a very serious problem. Subsequent investigation by a large number of observers, however, has removed all doubt as to the fact of transmission of the disease from cows to human beings. One of the most active of these observers, von Behring, goes so far as to state that the use of cow's milk as food for infants is the principal cause of human tuberculosis. More conservative authorities estimate the percentage of the disease in man due to bovine origin as low as three per cent. Taken with the fact that not less than 160,000 deaths from tuberculosis occur annually in the United States, even this low estimate shows that cow's milk infected with tuberculosis presents a very grave menace to the public health.

There is no doubt that, among children under five years of age, bovine tuberculosis is relatively a much larger cause of the disease than among adults. Recent observations in two institutions for the care of children in New York strongly support the conclusion that about one-half of those children who develop tuberculosis and who are fed upon raw cow's milk contract the disease from infected milk. Since about one in fourteen deaths from tuberculosis in the United States, for the year 1905, were among children under five years old, it is probable that 6000 deaths among these children were chargeable directly to infected milk. The number contracting the disease within this age period and dying later cannot, of course, be given, but must be very large.

Reliable facts concerning the prevalence of tuberculosis among herds are difficult to obtain. Apparently the number varies greatly with climate, location, and the care given to the cows. In certain districts, autopsies show as high as 60 per cent. of the cattle to be tuberculous; in others the number is so low as to be almost negligible. Taking the country at large, it seems likely that not less than one in three of the dairy herds and not less than one in five of all dairy cows are tuberculous. Considering the fact that milk from a single tuberculous cow

may be mixed with and thus contaminate the milk from a large number of cows not affected, and that tubercle bacilli contained in the feces of infected cattle may contaminate milk from non-tuberculous cows, the spread of tuberculosis through a milk supply is seen to be a matter calling for vigorous and constant action.

Important as it undoubtedly is to safeguard the milk supply of a community as a means of controlling the ravages of typhoid, scarlet fever, diphtheria and tuberculosis, it is even more important as a means of reducing the enormous mortality among infants which is chargeable in very large measure to gastro-enteritis (diarrhea), the dominant cause of which is unclean milk and ignorant feeding.

The number of deaths among infants under one year old in the United States, for the year 1909, was approximately 250,000, which is about one-fifth of the total number of deaths of all ages. Of this startling number of infant deaths, it is estimated that almost two-thirds were preventable; at least one-quarter being caused by enteritis alone—a shocking sacrifice to ignorance and carelessness.

The stupendous proportions of this annual waste of infant life will be more clearly appreciated when it is compared with the 160,000 annual deaths from tuberculosis and the 20,000 from typhoid, which are the occasion of such general agitation. The infant deaths from enteritis alone—attributable almost wholly to milk infection—were about three times as numerous as the deaths of all ages from typhoid, which is itself very largely a milk-borne disease.

In an article appearing in the *American Journal of Medical Science* (Vol. CXXXII, pp. 811-835), Harrington gives the following statement regarding the infantile death rate per thousand infants in the States constituting the registration area of this country. The figures are based upon the report of the Bureau of the Census for 1900.

| | | | |
|---|---|---|---|
| District of Columbia | 274.5 | New York | 159.8 |
| Rhode Island | 197.9 | Connecticut | 156.8 |
| Massachusetts | 177.5 | Maine | 144.1 |
| New Hampshire | 172.0 | Vermont | 122.1 |
| New Jersey | 167.4 | Michigan | 121.1 |

The cities show an even higher infant mortality rate. One hundred and six towns and cities had a rate of 175 or more per thousand, nine of these having a rate exceeding 300 per thousand; the highest rate, that of Charleston, S. C., being 419 per thousand. Eight of the largest cities had infant mortality rates as follows:

| | | | |
|---|---|---|---|
| Washington, D. C. | 274.5 | Brooklyn, N. Y. | 197.2 |
| Baltimore, Md. | 235.1 | Boston, Mass. | 194.1 |
| New Orleans, La. | 229.2 | Borough of Manhattan | 190.9 |
| Philadelphia, Pa. | 197.2 | New York, N. Y. | 189.4 |

In a chapter on "Infant Feeding," in the bulletin before cited, Dr. Schereschewsky quotes records showing that in France, during the five-year period 1892-1897, 385 infant deaths in every 1000 were due to gastro-intestinal diseases; the death rate from this cause in certain cities running as high as 700 per thousand infant deaths. Records are given for 42 German cities, also, showing infantile death rates ranging from 127 to 271 per thousand births, the average for the forty-two cities being 198. The per cent. of these deaths due to diarrhea varied from seventeen to fifty-four per cent, the average being forty-four per cent. These figures are interesting as showing the relative mortality in American cities and as confirming the conclusion that a great proportion of infant deaths are due to the single preventable cause of diarrhea.

The fact that the number of deaths from diarrhea invariably increases enormously during the summer months, when it is most difficult to prevent the multiplication of bacilli in milk, is further evidence of the need for more effective control over milk infection. Schereschewsky states that in the city of Leipzig, whose percentage (54.9) of deaths from diarrhea is the highest among the German cities, the infant mortality in February was 131 per thousand, of which thirty-seven were from diarrheal diseases. In August the infant death rate had increased to 570, of which 430 (75.6 per cent.) were from enteritis. It is a general observation that the great wave of infant mortality during the summer months is accounted for almost wholly by the increase in intestinal diseases.

The part played by infected milk in this summer mortality

is strikingly shown by the contrast between the death rate among breast-fed and that among artificially fed babies. Planchon (quoted by Schereschewsky) shows that while the diarrheal death rate of breast-fed infants in Paris varies from a minimum of two per thousand in winter to a maximum of twenty per thousand during the summer, the rate for artificially fed infants varies from twelve per thousand in winter to 158 in summer. Harrington's figures, for a five-year period in Berlin, show similarly that, in cases where the mode of feeding was known, about ninety per cent. of infant deaths were among artificially fed babies, and ten per cent among the breast-fed.

Such figures as are available for American cities fully confirm the great disadvantage of artificial feeding. In a recent paper presented at a conference called by the New York Milk Committee, for example, Dr. William H. Park gave the following observations as to the effect of different types of feeding upon infant mortality and morbidity:

| Kind of Feeding | Number of Infants Observed | Died | Sick |
|---|---|---|---|
| Cheap store milk—heated | 79 | 15 | 20 |
| Condensed milk | 70 | 14 | 14 |
| Good bottled milk | 98 | 9 | 29 |
| Good milk—modified and bottled | 145 | 4 | 24 |
| Certified milk | 12 | 0 | 0 |
| Breast milk | 31 | 0 | 7 |

Figures might easily be multiplied to emphasize the advantage of breast feeding. The fact remains, however, that the increasing number of women entering industrial pursuits, and other influences incident to modern urban life, are causing a distinct decline in the practice of breast feeding. Deplorable as this tendency may be conceded to be, it is not likely to be checked so long as economic forces continue to operate as at present. The problem of preventing the great annual needless mortality among infants is, therefore, a problem of providing cow's milk free from infection and from injurious preservatives, and of educating mothers and caretakers to prepare and administer such milk in a manner suited to the nutritive requirements of infants.

The chief sources of contamination to be considered in formulating and carrying into effect a program for safeguarding a community's milk supply are: First, human beings having infectious

diseases and those carrying infection on their persons; second, diseased cattle; third, polluted water; and fourth, bacteria-laden dust and dirt.

It is obvious that no person affected with typhoid, tuberculosis, scarlet fever or other infectious diseases, or who has contact with persons so affected, can handle milk or vessels to be used as milk containers without subjecting the milk to serious danger of contamination. It is not so commonly understood, however, that convalescents and persons who have apparently recovered entirely from certain diseases may continue to discharge bacilli for weeks, for years, and even for the whole of their lives. Notably in the case of typhoid, persons who have been in contact with the sick or with bacillus carriers may become centers of typhoid infection without themselves developing the disease. It has been estimated that there are about as many typhoid carriers at any given time as there are actual cases of typhoid. When to these are added the individuals in the early stages of the disease, who may continue to handle milk so long as they are physically able to do so, and others who may handle milk throughout the entire course of a mild form of the disease, it will be seen that there is reason for the utmost vigilance in this direction.

Of the diseases of cattle which render milk unfit for human consumption, tuberculosis is undoubtedly the most important, as well as the most prevalent. Where the cow's udder is tuberculous, the danger of infection through the milk is generally recognized by students of the subject. It appears to have been clearly proven, also, that the tubercle bacillus is sometimes found in the milk of cows whose udders are not specifically involved, especially where the disease has reached an advanced stage, but also in cases where the disease can be diagnosed only by means of the tuberculin test. As the milk from an entire herd is commonly mixed for transportation, it is clear that the presence of a few tuberculous cows in a herd may infect the entire product and render it unsafe for consumption.

Cows affected with gastro-enteritis, garget, cowpox, ulcers, and other septic or febrile conditions frequently produce milk infected with pus-producing bacilli, certain of which are known to cause enteritis. Moreover, even when no active pathogenic

organisms are found in milk, poisonous properties resulting from disease and from unwholesome food and water may be present in sufficient quantity to constitute real danger to persons taking such milk.

Polluted water, even where it is not used as an adulterant, is a frequent source of milk contamination. Wells and streams are often so located that the drainage from barn yard or privy vault readily finds its way into them. Decaying animal matter and excreta from patients having typhoid and other infectious diseases are often disposed of in such a way as to subject the water to contamination. Milk pails, cans, bottles and dairy equipment of other kinds, when washed with water so polluted, unless afterwards sterilized with boiling water or steam, may become the means of infecting the entire product of a dairy farm.

At every step in the handling of milk, from the cow to the consumer, there is constant danger of infection from dust and dirt. Hair and dirt from the cow's flanks and udder; manure and dust from the floor, walls and ceiling of the stable or milk-house; minute particles from the hands and clothing of the milker or handler of milk; disease-ladened dirt and filth on every hand, in dairy, milk shop, milk wagon, kitchen and refrigerator—all these contain the virulent seeds that need only be scattered by air or water or flies or the hand of man to produce a certain harvest of misery, disease and death. Modern aseptic surgery has taught the world the vital meaning of absolute cleanliness. The lesson is directly applicable to the problem of obtaining an adequate supply of clean milk. When we come to apply scientific method to the study and control of milk infection with the same intelligence and thoroughness that have been shown in surgical practice, we shall eliminate quite as much needless suffering and waste of human life as was done away with forty years ago, when the old skull-and-cross-bones surgery came to a sudden end.

Meantime, our septic method of producing and handling milk may be expected to continue until producers, distributors and consumers are ready to face the facts and, at whatever cost, to support the practical measures necessary to produce clean milk at the dairy farm and to keep it clean all the way to the consumer. A comprehensive program of this kind will involve

the isolation and often the sacrifice of diseased cattle. It will mean effective inspection of cattle, milk handlers, barn yard, water supply, stable, cattle, feed, dairy equipment, methods of milking and handling milk, transportation equipment and methods, sanitary conditions of city milk plants, of bottling works, of milk shops, and of milk wagons, and methods of caring for and handling milk in the homes. It will require the acceptance and enforcement of sanitary standards at every point where milk and dairy products are produced or handled; of a temperature standard so low that the few bacteria that will inevitably reach all milk shall have no opportunity to multiply; of a standard of bacterial content sufficiently low to exclude milk dangerous to health; and of a chemical standard so rigid as to prevent the sale of milk that is in any way adulterated or that is unduly low in nutritive value. The plan will doubtless require also that milk, ice-cream, butter and other dairy products be scientifically graded, according to quality; that they be so labeled as to indicate accurately their food value and degree of purity; and that prices be graded to agree with quality.

The program, furthermore, will call for an inspection service having adequate legal powers, effective supervision, and a staff of appropriate size and technical qualifications. The function of the inspection service will be not merely to ascertain facts for the purpose of locating defects and conducting prosecutions, but for the more important constructive purpose of educating producers, dealers and consumers as to the best methods for overcoming difficulties, for avoiding dangers, and for obtaining, with minimum cost and maximum satisfaction, a supply of milk that shall be safe and wholesome. The final and most effective factor in the program will be an informed, alert and exacting public, which will demand facts and discount unsupported opinions; which will insist that, day by day and hour by hour, such a record of work performed and results accomplished shall be kept by every producer, distributor and inspector of milk as will fix responsibility for results; and which will mete out, with even-handed justice, the appropriate reward of fidelity or dishonesty, efficiency or incompetence.

Hardly more than a beginning has been made in this country toward the development of such a program. A few States have

made some provision for dairy inspection, but this is generally limited to the examination of herds for diseased cattle, with occasional attempts at sanitary inspection of dairy farms. The State service is so inadequate that most large cities find it necessary to maintain their own inspection service. The reasonable division of functions would appear to be for the States to assume responsibility for conditions on the dairy farms, and the cities to control conditions incident to the distribution of milk within their own borders. This would avoid the duplication of inspection by cities drawing their supplies from the same territory and would make it impossible for a dairyman, when his milk is excluded from one city, to proceed at once to market his product in another city whose standards are less stringent or less rigorously enforced. Local and state regulation is to some extent supplemented by federal inspection of milk and other dairy products entering into interstate commerce. An extension and strengthening of the federal service would do much to improve the milk of a number of large cities which draw upon neighboring States for their supply.

In view of the numerous difficulties involved and the delays likely to attend a completely satisfactory solution of the milk problem, many persons are concerning themselves chiefly with expedients for solving at once certain of the difficulties and for reducing so far as possible the ill effects of milk produced under existing conditions. Temperature standards of 60 degrees Fahrenheit, or lower, have been established in some cities, with a view to preventing the rapid growth of bacteria and thus reducing the danger of serious infection. With similar purpose, standards have been adopted which exclude milk showing a bacterial count exceeding 100,000, 500,000 or 1,000,000 per cubic centimeter. Standards of 11.5, 12 or 13 per cent. of milk solids and 3 to 3.5 per cent. of butter fat have somewhat generally been established as a means of preventing adulteration. Infant milk stations, under both public and private management, have been established for the purpose of supplying clean milk either in its natural state or sterilized and specially modified to meet the requirements of infants of various ages. A model municipal dairy farm has been operated by at least one city for the purpose of setting a high standard for private dairymen. Complete

municipal ownership and operation of the dairy industry have been advocated, but not yet realized; while the commissioner of health of Chicago advocates the novel plan of bringing into the cities a sufficient number of cows to supply all artificially fed infants with milk less than twelve hours old at the time it is consumed, and of making it legally obligatory to use only such milk for the feeding of babies.

Most important of the proposed expedients is pasteurization, which, in its most approved form, consists in the heating of milk to a temperature of 140 degrees Fahrenheit, maintaining this temperature for twenty minutes, and then reducing the temperature rapidly to 50 degrees Fahrenheit. This process, it has been determined, will kill most pathogenic bacteria found in milk, including the bacilli causing typhoid, diphtheria and enteritis. The conclusion seems warranted also that careful pasteurization does not greatly, if at all, impair the general nutritive value of milk. The effect of pasteurization upon the various soluble ferments contained in milk is still doubtful, though it has been found that a temperature only slightly above 140 degrees Fahrenheit will weaken or destroy the activity of some of them. The functions of the ferments themselves are not fully understood, though they are probably related in a subtle way to the digestive requirements of the new-born. If, as seems likely, the specific character of the ferments accounts in great measure for the advantage of maternal over artificial feeding, the importance of more exact knowledge concerning the way in which they are affected by various temperatures and periods of heating is evident.

Even the advocates of pasteurization generally regard the process only as a valuable protective measure that may lessen the injurious effects of stale, warm, dirty and infected milk, but should not be permitted to interfere with efforts to promote care and cleanliness in every possible way in the production and handling of milk. Pasteurization certainly does not in any way improve the food value of milk and, by impairing the activity of certain ferments, may seriously affect its adaptation to very young infants. It destroys the acid-forming bacteria of milk and interferes with one of the surest evidences by which stale milk may be recognized, allowing certain putrefactive processes of dangerous character to continue without the restraining in-

fluences exerted by the lactic acid organisms in raw milk, and without the knowledge of the consumer. Certain poisonous bacterial products, furthermore, are not destroyed by pasteurization. It will be seen, therefore, that the practice of pasteurization is not to be considered too favorably, nor accepted as a final solution of the problem of safe milk, and that, in the interest of public health, it must be closely supervised by the proper authorities.

The problem of clean milk is to be solved, not by uninformed discussion, nor by the emotional clamor of indignant consumers, nor by the good intentions of producers, dealers, or public officials, nor by unenforced legal provisions. It is to be solved, as all other important problems of social welfare are to be solved, by scientific inquiry as to the facts involved; by the intelligent formulation of a comprehensive program for constructive work; by efficient co-operation on the part of producers, transportation companies, dealers, housewives, health officials, private social agencies; and by an informed, active and exacting citizenship.

# VENTILATION AND PUBLIC HEALTH

By D. D. Kimball,
Of Richard D. Kimball Company, Mechanical and Electrical Engineers, New York.

## *Importance of Ventilation*

Air is more essential to life than food, good air is as essential as good food, and plenty of air has the same merit as plenty of food. Unlike food air cannot be had in too great quantities, and an inexhaustible supply of pure air is always available. Being invisible and unfelt we give it no thought, and thus we have come to give little or no heed to its condition. That air quality has a definite relation to comfort and health is never denied, but that means must always be provided to assure proper quality of air in our habitations still fails to find general assent; in other words, ventilation, artificial or natural, as a means of providing fresh air, is still denied proper recognition. This may in part be due to the mistaken idea largely prevailing that artificial ventilation can do for health and comfort all that nature's boundless resources can do, whereas ventilation at its best is but an attempt to approach within doors, as near as may be, nature's outdoor conditions.

Ventilation would make far greater headway if the public did but realize how closely allied ventilation is to individual health. In but few of the relations of life are we free from contact with the public. Whether it be in our homes with our guests, with our children in the schools, traveling in street cars, railway cars or boats, at the opera, concert or church, with the sick in the hospitals, or with the workers in the factories and stores, we are brought so intimately into contact with the public that the health of any part thereof has a definite bearing on the health of the whole.

Ventilation is closely connected with cleanliness. Few of us would care to put on underclothing immediately taken from another person, bathe in water used by another, or put into our mouths articles of food or drink taken from another's mouth, yet we take into our lungs with but little or no hesitation air containing that

which has but just come from other people's mouths and lungs or from close contact with their bodies and soiled clothing.

Experiments of Buchner, Flugge and others have shown that tubercle bacilli and other organisms are sprayed through a room from the mouth, for a distance of many feet and over wide areas, when men talk or cough. In case of influenza, conditions in railway and other cars, churches and living rooms, all may be infected who are not immune.

The public is just beginning to learn of the wonderful results obtained in hospital work with the introduction of outdoor work and wards, but does not yet recognize that the nearer indoor conditions in hospitals are made to approach outdoor conditions by means of the most ample ventilation the better will be the results. When one considers that there are 3,000,000 persons sick in the United States, and that the percentage of cures is increased, and the average length of illness is decreased by ventilation, the public importance of pure air becomes evident.

The benefit of plenty of fresh air is strikingly seen in open-air treament of tuberculosis. Patients well advanced in the disease, who for months or even years have spent their time bundled up indoors, sitting over stoves or registers, afraid of a breath of cool air, and who under this regime cough continually, sleep poorly and have no appetite, after being required to stay in the open air for twenty-four hours each day, and to sleep in tents or open shacks, in a week's time cease the constant cough, sleep and eat well, put on flesh and look like different creatures. Outdoor treatment of pneumonia, anaemia, nervous and other diseases is equally beneficial.

Probably no place in which people gather is the need of ventilation as a protection to the public greater than in the factory, store and mercantile establishment, nevertheless the vast majority of these are utterly devoid of ventilation of any kind; indeed, as examples of badly ventilated habitations, they are supreme. Persons in charge of factories know they would be blamed were employees to complain that they had taken cold from open windows, while they are not held responsible for sickness due to vitiated air and overheating. The ample protection of health and life in the industries is a matter of humanitarian obligation on the part of the employer and the public, as well as a question of self-interest on the part of the employee. Ventilation cannot properly be regarded

as a high-priced luxury to be enjoyed by the privileged few, but should rather be regarded as a priceless benefit to be enjoyed by all. No investment yields larger returns than that required for ventilation.

### *The Problem of Ventilation*

Ventilation is the process of supplying fresh air and removing so far as possible the vitiated air. The air supply must be clean and free from dust, must be of the proper temperature and humidity, sufficient quantity of air must be secured by proper air movement without injurious drafts; and poisonous gases like carbonic oxide from heating or lighting apparatus must be prevented. Air must be supplied without loss of its freshness.

Air is the medium for carrying oxygen into the lungs, its office being to oxidize the excretions from the blood vessels therein. Oxygen is thus the element of the air that is of the greatest importance to human beings. It is essential in both heating and ventilating work, being the active element in combustion and in the similar processes which go on within the human lungs where it acts upon the carbon and impurities in the blood, forming the chemical compounds which are thrown off during respiration.

Fresh air is taken into the lungs containing approximately 21 per cent oxygen, 78 per cent nitrogen, .04 per cent carbonic acid, and .01 per cent water vapor. The process of respiration changes the composition of the air breathed to approximately 16 per cent oxygen, 75 per cent nitrogen, 4 per cent carbonic acid and 5 per cent water vapor. Oxygen is reduced in amount while the carbonic acid and water vapor are largely increased. Oxygen is utilized for body building, and carbonic acid and water vapor are the products given off during respiration.

Neither water vapor nor the carbonic acid due to respiration is injurious; but as an increase of carbonic acid in the air of an occupied apartment is usually accompanied by a decrease in the amount of oxygen and an increase of water vapor, the percentage of carbonic acid is an index of the quality of the air.

Apparently it is not altogether the chemistry of the air, but its temperature, humidity, motion and possibly other physical properties unknown, which are the attractive features of outdoor air. It is becoming to be generally believed that when air contains a

normal proportion of oxygen, its temperature and humidity are of greater importance than the absence of carbonic acid.

The over-heating of dwellings and public buildings should be avoided. The proper control of the temperature is not alone conducive to health and comfort but means a substantial saving in fuel. Headaches, dizziness, sickness, etc., are often symptoms of heat retention due chiefly to highroom temperature and humidity. It is not uncommon to find houses, offices, etc., in which the temperature sometimes reaches 80°, and yet the occupants can hardly be convinced that the temperature is high, because of the fact that the percentage of moisture in the air is very low. Few of us realize the intimate relation of temperature and humidity, and many people do not appreciate that water vapor is as much a part of the air as oxygen.

The relative humidity of outdoor air at other times than during storms varies from 50 per cent to 80 per cent, and in the most arid desert is rarely as low as 30 per cent, while a relative humidity of 48 per cent, that of Denver, is considered very dry.

Air at zero and 50 per cent relative humidity contains less than a quarter of a grain of moisture per cubic foot. The same air warmed to 70° without the addition of moisture would have a relative humidity of but 3 per cent. Its absorptive capacity is, therefore, immensely increased.

If air on a day on which the outside temperature is zero and the relative humidity 50 per cent be passed through a furnace, and raised to 70°, the relative humidity of the air in a house will be 10 per cent to 20 per cent or dryer than the air of the driest desert known. If a room at 68° is not warm enough for a healthy person we may be sure it is because the relative humidity is too low, except in rare cases when the humidity is so high, *i. e.* 80 per cent or above, that the moisture in the air rapidly absorbs heat from the body, under which conditions one may complain of chilliness even with high temperature. It is unscientific and unsatisfactory to determine upon a temperature for comfort without regard to humidity.

With outdoor weather conditions of zero, and 50 per cent relative humidity, the proper ventilation of a schoolroom containing forty pupils will require the addition to the air of approximately thirty-eight pounds, about five gallons, of water each hour, requiring

for its evaporation, the consumption of approximately five pounds of coal per hour. The fact that there are very few schools with means of humidification is less an argument to be used against such provision than an impeachment of the prevailing methods of schoolroom ventilation.

The remarkable avidity of dry warm air for moisture causes it to extract moisture from everything with which it comes into contact, and when the tissues and delicate membranes of the respiratory tract are subjected to this drying process a large increase of work is placed upon the mucous glands. This unnatural stimulation may result in an enlargement of the gland tissues, just as constant exercise increases the size of any part of the animal organism. The membrane itself may become thickened and harsh, and the surface prepared for the reception of disease germs, which tend to develop under exposure to the constantly changing percentages of humidity. Not alone are the throat and lungs affected; the tongue, lips and skin become feverish and parched, the eyes redden and smart, the ears are unnaturally dried; catarrh is induced, or is aggravated if already existing. In the case of children predisposed to lung diseases a serious hacking cough is apt to result. Overdry air causes headaches, robs all of vitality, and in every way lowers the vital powers. Generally speaking dry air is an excitant, sometimes causing sleeplessness and irritability, while moist air seems balmy and has a soothing effect which tends to produce restfulness and sleep.

A proper relative humidity lessens the evaporation from the surface of the body and thus the body remains warmer, consequently with air of a relative humidity of 50 per cent to 60 per cent. it is both possible and comfortable to lower the temperature of the house to 65°, schools to 62°, and the temperature of public buildings may be lowered similarly.

The idea that a lessening of the room temperature when raising the relative humidity will result in economy in heating is in error. It takes much more heat (which means fuel) to evaporate the water required to increase the relative humidity than to heat the air 5° or 10°.

The children in the schools with a proper relative humidity are much healthier and consequently are able to think and remember better. Capable officials have determined that the working capacity

of factory operatives is definitely increased in air of proper relative humidity.

It is a sad commentary on our modern civilization that we wilfully allow the health of the school children and the public generally to suffer for the lack of proper moisture while the manufacturer whose commercialism tells him that relative humidity is important to the success or profits of his manufacturing process will provide necessary humidifying apparatus.

Dust is another serious problem in ventilation. Many ventilating systems are worse than useless because the air is taken in at or below the street level or from other dust-contaminated sources, and is passed into the building without filtration, the result being that the last state of the building is worse than the first.

There are two phases to the dust question: the mechanical effect of dust, and its germicidal properties. Careful investigations have demonstrated that dust, especially street dust, is heavily laden with germs, the majority of which are harmless but others are of a most serious nature. Carried into the respiratory tract they lodge in soil splendidly adapted to the propagation of germ life. Dust is a serious irritant, and when drawn into the nasal passages, throat and lungs, may cause irritation and even abrasions. The mortality from consumption is known to be very much greater among persons employed in the so-called dusty trades than among those who work in the open air, or under otherwise more sanitary and favorable conditions affecting health and life. Some trades involve processes in which dust, fumes, vapors, odors, excessive heat and poisons are produced which are really injurious and which are properly removed in but rare cases.

Windows and doors may be depended upon for ventilation of buildings only when it is evident that a sufficient current of air passes through to give thorough ventilation and without causing drafts which strike and chill a portion of the body of those who are insufficiently clad. If sufficient air is not naturally passing through the windows and doors, air movement should be assured by mechanical means.

Drafts and cold are too commonly associated with "colds." Breezes which bathe the whole body not only bring unlimited supplies of the purest air but have a tonic effect. Cold air does not cause "colds." Arctic explorers rarely, if ever, have colds. It

is during the winter months that outdoor treatments are the most successful. The places most to be feared are not out of doors, in hallways and in fresh air currents, but in vitiated atmospheres such as are common to ill-ventilated schools, theatres, churches, railway cars and wherever overcrowding occurs. Drafts of this vitiated air are a menace. Dust, leading to disease infection, is more frequently the cause of colds than fresh air drafts. Unquestionably there exists a misunderstanding of the nature and effect of fresh air drafts and a fear often akin to fright. A weakened vitality, harboring disease germs, may be wonderfully toned up by frequent and generous drafts of fresh air, or to an equal extent may be injured by a lesser movement of vitiated air. A hot, shut-up house is little more than a hot house for the propagation of bacilli and disease germs. Out-of-door life in plenty, ample exercise, and thorough ventilation of indoors may be depended upon to give practical immunity from drafts as commonly known.

While the use of natural ventilation is to be encouraged in every way possible, it may not be depended upon in our climate to the exclusion of artificial ventilation in school buildings, except in special cases where outdoor or similar treatment is desirable, hospitals, churches, factories and other crowded apartments. However, a system of artificial ventilation which is deranged by the opening of windows or doors is hardly worthy the name. On the other hand the reckless opening of windows does not constitute ventilation.

A popular impression seems to exist that warm air is not fresh air. If a distinction be made between warm air and hot or superheated air there is no ground for such an impression. Properly admitted, filtered and warmed, the air supplied by a ventilating system lacks in nothing but quantity. The air must not be so highly heated as to rob it of its freshness, nor must it be laden with traces of ammonia, carbon monoxide or other objectionable gases which may be produced by decomposition of organic dust in contact with surfaces at unnecessarily high temperatures.

In large buildings it is often advisable to distinguish between "heating" and "ventilating," accomplishing the first by means of direct radiators and the second by a suitable indirect system. The designing engineer is, however, confronted with the fact that too often the ventilating system will not be used if the direct radiators

will heat the building,—more shame to the owner whose pocketbook causes him to forget the health and vigor of which the ventilating plant is the conveyor.

Ventilation, like all things good, costs money, indeed it costs more than the heating of the building without ventilation, but in schools, hospitals, offices, and in all such places it is the best possible investment and the one which will bring the greatest returns in increased work done and in improved efficiency generally.

### *Results Accomplished by Ventilation*

Professor Irving Fisher, of Yale University, in addressing the Association of Life Insurance Presidents, stated that, "It has been conservatively calculated that eight years could be added to the normal period of human life by merely securing reasonably pure air, water and milk." The statement is also made that one insurance company pays $800,000 annually for death claims on account of tuberculosis alone, which is known to be preventable, principally by the use of plenty of fresh air.

The reports of the Boston City Hospital show that improved general sanitary conditions in that institution changed the death rate from forty-four per cent to thirteen per cent. In the general wards of the same hospital the sanitary improvements effected changed the death rate from twenty-three to six per cent, or nearly in the same ratio as in the surgical wards.

At the S. R. Smith Infirmary, at Staten Island, a comparison was made in two wards of the same nature, containing the same class of patients, in which case it was found that in the ward without ventilation an average of sixteen days was required to effect a cure while in the ventilated wards the average was ten days. This also means a greater work with the same equipment.

Examples are available showing the improvements in results and health due to ventilation, but the time element is so important in such investigations that tests are rare and difficult to make.

Dr. J. N. Hurty, Secretary of the State Board of Health, Indiana, is authority for the statement that, "In properly heated, ventilated and lighted schoolrooms in Richmond, Evansville, and other cities in Indiana, we have secured an efficiency in the pupils of twenty-five per cent over what it was under old conditions. How much of this increased efficiency is due to better ventilation we

cannot say, but the entire increase must be credited to ventilation, proper lighting and even distribution of heat, and regular temperature. We have found through a system of marking and grading pupils that those who work under the best sanitary conditions will accomplish in three years what they ordinarily accomplish in four."

The Germania Insurance Company of New York, in 1910, had eighty clerks in one office. Previous to the proper ventilation thereof, ten per cent were absent on account of illness all the while. Since then, absenteeism has been reduced practically to nothing.

The vice-president of the Manhattan Trust Company of New York states that by proper ventilation he has so increased the efficiency of his clerical force that he has been able to reduce the number of employees four per cent.

The records of the United States Pension Bureau show that when the offices of the department were located in scattered and poorly ventilated buildings, 18,736 days were lost by employees through illness in one year and about the same number for several successive years. When the department became established in new well-ventilated quarters, the loss was reduced to 10,114 days' absence on account of illness, although the working force was much larger.

In the printing establishment of Mr. C. J. O'Brien, in New York, a ventilation system was installed because of the insistence of the State Department of Labor that the law be complied with, the order having been resisted for two years. After the system had been in use a year the proprietor stated that had he known in advance of the results to be obtained no order would have been necessary to have brought about the installation. Whereas formerly the men had left work on busy days in an exhausted condition and sickness was common, now the men left work on all days in an entirely different condition, and sickness had been very much reduced. The errors in typesetting and time required for making corrections were greatly reduced.

Townsend, Grace & Co., of Baltimore, built a straw hat factory without ventilating apparatus. The first two winters after occupation the sick rate was twenty-seven and one-half per cent. A ventilating system was then installed, after which the winter sick rate fell to seven per cent. It was claimed that the ventilating system paid for itself in one year.

In Strouse Brothers' clothing factory, of Baltimore, the sick rate was reduced about one-half by the installation of an inferior ventilating system.

The army medical officers gave some of the earliest definite data on air quantities required in ventilation work and have furnished many illustrations of the value of ventilation, as has also the naval service. Munson records: "The medical officer at Fort Douglass, in 1898, reported an immediate decrease in the number of cases of tonsilitis among the troops at that post on installing suitable arrangements in the previously improperly ventilated barracks."

### *Legislation as to Ventilation*

Much has been written on the value of ventilation, but little has been accomplished toward bringing adequate relief from present oppressive conditions to those who are least able to demand it, the children in the schools, the workers in the factories, and the dwellers in the congested districts.

But seven states (Massachusetts, New York, New Jersey, Pennsylvania, Virginia, Utah and Minnesota) have school ventilation laws, and but three (Connecticut, Vermont and Indiana) have state board of health rulings requiring ventilation of school buildings, but not one of them refers to the subjects of dust, humidity, or source of air supply. These laws, however, are a big step in advance, and every state should have a law at least as good. Compulsory ventilation laws are under consideration in Illinois, Indiana and Wisconsin. Twenty-one states have laws governing factory ventilation, the most of the laws referring to removal of special dust, fumes, etc., rather than to air supply, its quality or quantity, and but one law covers conditions in mercantile establishments. But very few of these laws are of real merit. A few cities have local ordinances of doubtful value. Such laws should be made to include all classes of buildings that are densely occupied, such as court houses, hospitals, asylums, reformatories, houses of refuge, prisons, schools, colleges, theatres, auditoriums, factories, stores and all places where people congregate. They should state the minimum air supply (quality and quantity) and removal, prescribe the official who has authority to administer the law, and they should

include provisions for the removal of all dusts in a sanitary manner. Humidity and temperature should be prescribed where possible.

But a very feeble beginning of a most important movement has thus far been made. It may properly be considered a form of the ever-growing police power of the people, to be exercised for the welfare of the defenseless. It should be encouraged and participated in by all those interested in the welfare of humanity, and especially those bodies having to do with the public health, the welfare of the workers and the interests of the children. Every parent has the right to demand that the school, in which the child spends approximately one-fifth of its time for a large portion of the year, be thoroughly ventilated and in sanitary condition. No hospital should be considered worthy of use or patronage in which an effort at thorough and systematic ventilation, both natural and artificial, is not fundamentally a part of the equipment and service. Constant agitation is essential in this as in other worthy reforms. The prevailing ignorance of the worth of ventilation and the indifference of the public are the greatest handicaps in the onward progress of ventilation. The physician, to the success of whose work ventilation will so largely contribute, should realize the value of ventilation. Some doctors, and among them some hospital experts, fail to recognize the limitations of natural ventilation and the need of supplementing it with an efficient artificial ventilation system.

*The Architect Should be Aided by the Sanitary Engineer*

It is unfortunate for the progress of ventilation that much skepticism has been aroused as to the efficacy of artificial ventilating systems because of faulty installations made in the past. The too prevalent impression that ventilation is not an exact science is largely due to the fact that owners will too often accept as an expert any plumber or steamfitter who can put out his shingle and who claims to be a heating and ventilating engineer. Ventilating work should be designed by experienced engineers who are independent of any interest in contracting work or materials, and should be installed by contractors of equal merit in their line, under the supervision of the designer.

Improper operation of systems when installed has injured the cause of ventilation. The responsibilities of operating a venti-

lating plant costing thousands of dollars, the economical or efficient use of hundreds of tons of coal, and above all the keeping of the health of hundreds of school children, or of an equal number of sick or well adults, and the custody of their working efficiency, demand higher qualifications than those necessary for the shoveling of coal and ashes or the wielding of the deadly feather duster.

The architect for a new building should be provided by the owner with the assistance of expert engineering services covering the heating, ventilating and similar equipment. For this is it just and proper that the architect be paid extra by the owner and that he should not be left dependent upon the help of contractors or manufacturers of materials whose interests are naturally not those of the owner? Too many people expect the architect to be artist, designer, constructionist, landscape gardener, civil, mechanical, electrical and sanitary engineer, chemist, lawyer, jury and judge. The erection of a modern public building involves an architectural problem dealing with design and construction, and it also involves engineering problems requiring familiarity with the entirely different problems presented by air, water and steam in their different conditions and relations to each other. In brief, one problem is architectural and another engineering in its nature, the two involving different training and experience.

What this paper has attempted to show may be summarized as follows:

1. That all the fresh air possible should be given free access to the lungs by out-of-door living, and by natural ventilation of our habitations, breezes being less to be feared than vitiated air.

2. That artificial ventilation is absolutely essential as an aid to natural ventilation, that indoors may be kept in the best condition possible, *i. e.*, as near as possible like out-of-doors.

3. That warm air (as distinguished herein from hot or superheated air) is equally as beneficial as cold air, lacking only in quantity, the matter of expense prescribing this limitation.

4. That the ventilating system which fails to take cognizance of the subjects of dust, humidity and temperature are foredoomed to failure, quality of air being quite as essential as quantity.

5. That efficient ventilating systems, fulfilling all of the above requirements, are available for all classes of buildings. The installation of such systems assumes the employment of experienced, independent engineers as distinguished from those connected with contracting or manufacturing firms.

Efficient ventilation also involves the employment of capable operating engineers, resulting in efficiency and economy.

6. That dullness, restfulness, forgetfulness and general deficiency, being incident to a weakened vitality, are the results of the ill-ventilated school-room, while a quicker perception, improved memory, increased accomplishment, vigor, health and happiness go arm in arm with ample school-room ventilation.

7. That a lengthened illness and a lessened proportion of cures are chargeable to the insufficiently ventilated hospital, while the fresh air supplied by an efficient ventilating system is the angel of health bringing relief and healing to the weakened vitality.

8. That a poorer and a smaller output and more sick employees are the result of a foul-aired factory or mercantile establishment, while ventilation means less mistakes to be corrected, less idle machinery, and the maximum efficiency of plant and employees.

9. That the general ventilation of homes would mean less colds, catarrh and other preventable ills; and of auditoriums and places of entertainment would mean greater enjoyment on the part of the audience and an appreciable reduction in headaches and enervation.

10. That the health of the individual largely determines the health of the public. The greater necessity for special ventilation where many people are assembled is due to heat and moisture given off and to the increased oxygen required.

PART THREE

# *Elimination of Disease—Physical Care of Individuals*

# SOCIAL SERVICE WORK IN HOSPITALS

By Richard C. Cabot, M.D.,
Boston, Mass.

The promotion of public health is only part, though perhaps the largest part, of the usefulness aimed at by those who have been active in establishing social workers side by side with physicians in hospital work. The social worker is needed in the hospital to make the place less grim, to keep the standard of good manners and decency higher than it otherwise tends to be, to bring to bear upon hospital routine and hospital management the criticism of a friendly, yet keen-sighted, observer, and to focus upon each individual patient all the forces of helplessness existing in the charities, the churches, the labor unions, lodges and other voluntary associations, as well as the opportunities for recreation and education of which the patient may be especially in need.

All these types of usefulness are distinguishable from that which makes the social worker in hospitals part of the public health movement. For I take it that all activities on behalf of public health are characterized by their special interest in *prevention,* and in the *care and preservation of health in large masses of people* rather than in the individual sufferer, after sickness has invaded him. I shall leave out of account, therefore, a large part of what seem to me the most beneficent and important activities of the hospital social worker. His efforts to civilize and colonize those dreary and uncultivated wastes ordinarily known as hospitals cannot be dealt with in this article.

Some hint of the *preventive* work done by hospital social workers may be obtained from the following story: A young infant entered the wards of the Massachusetts General Hospital early one summer, a few years ago, for a stomach and bowel trouble, of the ordinary fermentative or "food" type. The baby was treated in the wards for about three weeks and perhaps thirty dollars' worth of care was expended upon it. At the end of that time it seemed entirely well and was delivered over to the mother, according to

the hospital custom, without any special instruction as to the future. The mother, therefore, continued, in the same generous and wholehearted manner which had characterized her previous actions, to give the baby a little of everything that was going. Not many weeks passed before the baby's digestive tract was as thoroughly upset as it had been the first time and as anyone could have predicted would be the case again, if the hospital neglected its duties toward preventive medicine.

In this case the social worker undertook the instruction of the mother regarding the elementary principles of infant feeding, found her very amenable to the teaching and succeeded in this way in preventing another relapse.

The waste of money as well as of human energy and suffering entailed by the failure on the part of most hospitals to take note of the public and preventive aspects of their work, is well illustrated by the case just described. Warning and instruction as to the future is most effective when a person has just experienced in the form of disease the consequences which make the need of such instruction come home to him. Every case of disease is thus an opportunity for the prevention of further disease through the opportunities which it affords for instruction to the sufferer and to his family and friends. We have recognized this fact in relation to the object lessons presented by the out-door treatment of tuberculosis, and of the diseases of infancy. All over the country we have visiting nurses doing preventive work against tuberculosis and infant mortality in connection with hospital clinics. But we have not sufficiently realized as yet that in the functional and nervous diseases, in many affections of the joints, the gastro-intestinal tract and the circulation, almost every case which presents itself at a clinic, should be a finger-post pointing to the need of preventive work in the home. Such cases issue, in most instances, out of a hot-bed of home conditions which are bound to sprout more of the same.

At the present juncture when these opportunities for preventive work are recognized and met through district nurses only in the field of tuberculosis and infant mortality, the social worker has to pick up what is left and do the work of hygienic instruction for all the rest of the preventable diseases. Such teaching may be given at the clinic, but is usually more effective in the home where the

worker can see and attempt to overcome the special obstacles presented by housing conditions, industrial derangements and domestic friction.

Another type of preventive work which the hospital social worker finds ready to her hand, concerns the problems of industrial hygiene. Every case of lead poisoning, for example, should be the occasion and the incentive for investigation of the conditions of work which are responsible, wholly or in part, for the disease. The social worker is not content with following up the radiating suggestions of possible disease in other members of the *family* of each patient. The other members of the *trade,* perhaps similarly exposed to disease, loom up before her vision. Are the conditions of ventilation, of posture, of temperature, such as they should be in the shop where this patient works, or are they such as to be preparing, beyond reasonable doubt, a fresh supply of cases similar to that which presents itself at the clinic? Are the hours of work such as must inevitably maim a certain percentage of all who undertake it? If so, it is the business of the social worker to advertise these facts and to do what she can to change them.

Besides the preventive work accomplished by the education of the patient, so that he shall not fall into similar misfortune in future, besides the warnings given to his family and, through them, to his neighborhood, I have sketched in the previous paragraph the preventive work of the hospital social worker in the field of industrial hygiene. A third opportunity for preventive work is the education of the hospital physicians. We ordinarily say very little about this part of the work which, nevertheless, is one of the most important branches. Physicians are, just now, undergoing a process of conversion or regeneration whereby the interest of the general public is becoming paramount in their work. There is no more fruitful field for such conversion than the well-equipped hospital clinic with the social worker as part of the equipment. Physicians learn all the more swiftly for not being conscious of the process. They come in time to look on each patient, not only as an opportunity for diagnosis and treatment, not only as a subject for medical instruction, but still more as a symptom of some disease in the community which, from the social point of view, is far more important than the individual sufferer. Each physician, so educated, finds his world transformed, and can never be content

again with the unmitigated medical régime. He becomes a live wire for preventive medicine.

Hospital administrators, trustees and managers are also subject to inoculation, though usually more resistant, because their contact with the social worker is less direct and less frequent. Nevertheless their influence for preventive medicine, when once they become aroused to the fact that the hospital is primarily a public servant, like the public school, is wider and deeper than that of the staff physician.

Still another group of persons, who are rapidly becoming transformed into missionaries for public health, owing to their contact with hospital social workers, is the great body of the social workers at large. Indeed they are becoming almost too medical—too exclusively hygienic in their outlook. The programs of modern charity conferences are apt to be overshadowed by topics like tuberculosis, infant mortality, venereal disease, alcoholism, industrial accidents and insanity. Preventive philanthropy has come to be practically identical with preventive medicine, and while one may regret this from the point of view of philanthropy itself, it is an enormous gain to preventive medicine. Indeed it may be said that the social workers have initiated most, if not all, of the great campaigns against disease that have been taken up in this country during the past decade.

It must be evident from what has been said that the work of the district nurse is scarcely to be distinguished from that portion of the hospital social worker's activities concerned with preventive medicine. All the so-called tuberculosis nurses, all the school-nurses, all of those engaged in the work for young infants, are busy upon the same tasks which occupy the hospital social worker, since they are supposed to instruct as well as to nurse their families, and to extend their teaching as widely as they can into the family and the neighborhood.

Considerable confusion and some bitterness arises not infrequently out of the fact just mentioned—that the social worker is often asked to do nurses' work. For the technical duties of the nurse the social worker is, of course, unfitted, and no one is more vividly aware of this fact than the nurse, who is apt, therefore, to regard the social worker as an unqualified intruder. On the other hand, the social worker herself is apt to become narrow and

distracted from her proper path, owing to the multitude of purely medical tasks which she is called upon to perform. Nevertheless there arises out of this very confusion a broadening of the ideas and methods of the nurse who absorbs, more or less unconsciously, a good deal of the social knowledge which comes to her directly from the social worker and indirectly through the socially converted doctor. Doubtless there will issue out of this confusion a new synthesis of duties, a new recognition of the fact that medical needs form the best of all points of entrance for anyone who would be a missionary or a servant of the whole life of humanity.

# MOUTH HYGIENE AND ITS RELATION TO HEALTH

By Arthur H. Merritt, D.D.S.,
New York City.

There is not any one single thing more important to the public in the whole range of hygiene than the hygiene of the mouth. If I were asked to say whether more physical deterioration was produced by alcohol or by defective teeth, I should unhesitatingly say defective teeth.—*William Osler, M. D.*

There is probably no people who, as a whole, give as much attention to mouth hygiene as do Americans, and though their susceptibility to dental diseases is high, it is not higher than that of other nations who exercise little or no care. One explanation of this high susceptibility will be found in the enormous amount of sugar which we consume as a nation, reported in 1906 as being 6,450,653,967 pounds, or about 92½ pounds per capita, fifteen pounds higher than that of Great Britain, our closest competitor. And yet, with all our boasted pre-eminence, we are as a nation lamentably ignorant of the first principles of what constitutes mouth hygiene.

Nor are we one whit less ignorant regarding the pernicious effect of mouth infection upon our national health. It has been said that nowhere in the human body will so much filth be tolerated as in the mouth, the avenue through which must pass all food, upon which depends the nourishment of the body and the maintenance of health.

The number of people in the United States, who patronize the dentist, except for the occasional extraction of a tooth, has been variously estimated at from four to ten per cent. If these figures be true, it means that there are not less than seventy-five million people in this country who give little or no attention to mouth hygiene.

Under the most favorable conditions the mouth may be regarded as being an almost ideal culture medium for germ life. In fact, it presents in point of temperature, moisture, nutritive material, etc., an almost perfect breeding-place. Upward of twenty varieties, many of them pathogenic (disease-producing) in their nature, have been found to be normal residents of the mouth under certain conditions. Among these may be mentioned the streptococcus and

staphylococcus, both pus producers, and always present in the mouth in greater or less numbers, the pneumococcus, the causative agent in pneumonia, and also a frequent resident of the mouth, the dreaded tubercle bacillus and Vincent's fusiform bacillus, only to mention a few of the more virulent types. One investigator who has given years to the study of mouth bacteria has estimated the number of germs in one unclean mouth at 1,140,000,000.

Many of the diseases of the mouth are directly or indirectly caused through the agency of these germs. Fortunately, for humanity, nature has provided the mouth with soft tissues that are unusually resistant to infection. Every one knows that a wound in the mouth, such for example as that caused by the extraction of a tooth, rarely becomes infected, notwithstanding the fact that it may be consantly bathed with organisms that under other circumstances might cause serious infection. It is true that fatalities from such causes are not unknown when for some reason the resistance to infection is low, but they are comparatively rare.

While the local penalties attached to an unsanitary mouth are sufficiently grave to warrant serious consideration, they are as nothing to those which they inflict upon the general health. We have too long considered the mouth as an independent entity, forgetting that here it is that the first steps in digestion are taken—the only steps, in fact, over which we have the slightest control. Not only is it important that food be thoroughly masticated, which is impossible without sound and healthy teeth, but it is equally important that the mouth in which mastication takes place be a clean mouth.

*Factors in an Unclean Mouth.* Among the factors which make for an unclean mouth may be mentioned caries of the teeth, pyorrhea alveolaris or so-called "Riggs Disease," chronic abscesses, commonly called ulcerated teeth, or gum boils, irregular or mal-posed teeth, partially erupted "wisdom teeth," deposits of salivary tartar, inflamed and bleeding gums, the habitual use of tobacco, ill-fitting artificial teeth, such as crowns, bridges, plates, etc.

*Decay of the Teeth.* Of all these, the most common, and probably the most pernicious in its effect upon the hygiene of the mouth, is caries of the teeth. So nearly universal an affection is this that it has been characterized "The Peoples' Disease." Few individuals or nations escape its ravages. So far as is at present known, the Esquimaux, certain tribes of American Indians, the Icelanders, the

Lapps, the Igorots (all more or less completely outside the influence of civilization) are the only people who are more or less exempt from dental caries.

Like many another disease, it is brought about through the agency of micro-organisms, and in this instance micro-organisms resident within the mouth. These germs possess the property under favorable circumstances of converting carbohydrates (starchy foods, sugars, etc.) into acids, which in turn dissolve out the lime salts of the enamel, and this notwithstanding the fact that the enamel is the hardest tissue within the body, not less than 97 per cent. of it being inorganic.

The rapidity with which this phenomenon is accomplished will depend upon the number of organisms present, the cleanliness or uncleanliness of the mouth, and the resistance which the teeth, or the body as a whole, offers to their activity. Once the solution of the enamel has taken place, and the dentine, containing 28 per cent. of organic material, is exposed to the combined influence of germs and acid, the progress of the disease becomes more rapid, it being then only a question of time, unless interfered with, when the pulp of the tooth becomes involved, followed by pain, death of the pulp and eventual loss of the tooth. Thus it will be seen that the progress of the disease is comparatively slow, that decay which has progressed to the point of pain is not a matter of days or weeks, but rather of months or years. An aching tooth does not spring into being in a day, and means nothing less than negligence long continued. While caries of the teeth is not limited to any age, and may afflict any one between infancy and old age, it is, nevertheless, essentially a disease of childhood, its most active period being between the ages of six and twenty. If its ravages could be prevented during this active period, the dental ills of adult life would, with proper care, be very materially reduced. The menace in bad teeth cannot but be apparent to any one who has given the subject any consideration whatever, and especially is it pernicious in its influence upon the health and efficiency of the growing child. Decaying teeth render thorough mastication impossible, and establishes early in life the habit of bolting the food—a habit which may continue throughout life. Moreover, the filth which is inseparable from decaying teeth and neglected mouth hygiene is mixed with the food, and carried into the stomach as a further tax upon the digestive apparatus. In

a word, decaying teeth, especially in the mouth of a child, spells poor nutrition, and poor nutrition means poor health and a low order of efficiency.

*Pyorrhea Aveolaris (Riggs Disease).* If decaying teeth is essentially a disease of childhood, pyorrhea aveolaris may be said to be essentially a disease of adult life. Among adults, in some form, it is very common, and is responsible for the loss of many otherwise healthy teeth, and the indirect cause of not a few ills more or less seriously affecting general health. The disease attacks the tissues supporting the teeth, involving the pericemental membrane, bony socket and gums, and is characterized by loosening of the teeth, inflammation and recession of the gums, necrosis of the bony walls surrounding the teeth, and, in most instances, a discharge of pus at the free margin of the gums. This discharge is more or less persistent, the amount depending upon the number of teeth involved, the advanced stage of the disease and the nature of the infecting organisms. In its early stages there is little to attract the attention of the patient. It is only when the disease becomes well advanced on one or more of the teeth that the patient's attention is attracted to it. Then it is that there will be noticed a slight loosening of the affected teeth, with possible elongation, sensitiveness to heat and cold, sweets and acids; pain on mastication; periodic and painful swelling of the gums, due to infection, etc. One or all of these symptoms may be present, their severity depending largely upon the stage of the disease. Pyorrhea aveolaris, is, first, last and all the time, a filth disease, encouraging the growth of pyogenic (pus-producing) organisms, permitting the lodgment of particles of food between the loosened teeth, and discharging its purulent matter into the mouth with every act of mastication. A condition such as this means not only an unclean and unhealthy mouth, with ultimate loss of the teeth, but means also eventual impairment of the health. As a causative factor in gastro-intestinal diseases, pernicious anemia and arterio-sclerosis (hardening of the arteries)—only to mention some of the more obvious results of mouth infection—pyorrhea aveolaris has never received the attention which its importance demands. If its presence in the mouth were a matter of weeks or months only, its effect upon general health might be ignored, but when it is remembered that not infrequently it may, because of its chronic nature, persist almost throughout adult life,

and that without more than occasional painful symptoms, one is made to realize that it is a disease which merits serious consideration.[1]

*Chronic Aveolar Abscesses.* Perhaps the third most potent factor in an unclean mouth is aveolar abscesses, commonly referred to as ulcerated teeth, or gum boils. These are common to all ages, from the time the temporary teeth are erupted and as long as any teeth remain. They are always, with rare exceptions, caused through a neglect to properly care for a decaying tooth in its early stages. Decay having been allowed to progress from its early manifestations through various stages until the pulp, situated in the center of the tooth and root, and containing arteries, veins, nerves and connective tissue, becomes involved by the germs of decay; death of the tooth follows. Unless recognized, and proper treatment instituted, gangrene of the pulp takes place, followed by a discharge of the products of decomposition through the end of the root into the surrounding tissues.

Infection takes place, followed in most instances by acute pain, elongation of the affected tooth, swelling of the face, and eventual discharge of pus, usually within the mouth. These symptoms last two or three days, and are accompanied by an elevation of temperature, loss of appetite, digestive disturbance, etc. With the discharge of pus, the acute symptoms subside, and all that remains as evidence of the abscess is the opening through which the pus discharged itself. Occasionally this occurs without pain, but in both instances the results are the same, viz., a chronic sinus or gumboil, which, as long as the cause remains, will continue to discharge. As the point of discharge is usually within the mouth, this discharge, accompanied as it is with virulent pus-producing organisms, usually the streptococcus, finds it way into the stomach, to be resorbed into the circulation. Treatment consists in the removal of the gangrenous tooth pulp, disinfection of the roots, and filling of the tooth. Such abscesses are very common among children as a result of the decay of their temporary teeth, eight of which are not succeeded by their permanent successors until the twelfth year. Right here let it be said with all possible emphasis that these temporary teeth should be preserved against decay until such time as they are succeeded by the permanent teeth, not only to insure against abscesses, but for the purpose of providing the developing child with an efficient masticating

[1] See International Clinics, Vol. 3, page 77.

apparatus. How often is one told that because these are temporary teeth they are entitled to no consideration, with the result that their loss is looked upon with indifference. No greater mistake could be made, for it means not only an unclean and diseased mouth at a critical period in the life of the child, but it means inevitable irregularity of the permanent teeth. Abscesses such as these are very common, even among people who give more or less care to the hygiene of their mouth. In their chronic form they cause little or no pain; the discharge at any one time is small, and their presence is viewed with unconcern. As a result, they are allowed to remain year after year, discharging their poisonous products into the mouth—only one of the several agencies which contribute to its uncleanliness.

*Other Factors Which Make for an Unclean Mouth.* Among the other causes which interfere with mouth hygiene may be mentioned irregular teeth, ill-fitting artificial teeth, salivary tartar, the habitual use of tobacco, etc. If for no other reason than that it contributes to mouth hygiene, teeth that are markedly irregular should be placed in their normal positions. With modern facilities, this can be done without in the least interfering with the health or vocation of the child. Such treatment not only adds greatly to the appearance, but renders the teeth less susceptible to decay.

Because people are prone to regard artificial substitutes for teeth quite as satisfactory in the mastication of food as natural ones, and less liable to cause pain, they have neglected the care of their own teeth, and filled their mouth with all manner of crowns, bridges and plates, forgetting that with each addition of this kind, especially non-removable appliances, they have only increased the difficulties in the way of a clean mouth. By actual comparison artificial teeth have been found to be ten times less efficient in the mastication of food than are sound natural teeth. They sustain about the same relation to natural teeth that a wooden leg does to one of flesh and bones. Moreover, their esthetic value is always low. Great care should, therefore, be exercised to preserve one's own teeth, not only because it is easier to keep natural teeth clean, but because of their greater efficiency as organs of mastication.

If no other charge could be brought against the habitual use of tobacco other than that it contributes to the uncleanliness of the mouth, it would be enough to condemn its use. The belief, shared

by so many, that it preserves the teeth against decay is without foundation. Its effect is to discolor the teeth, to add to the general uncleanliness of the mouth, and to injure the gums and mucous membrane of the mouth and throat. Smoking, especially pipe-smoking is the most common cause of leucoplakia of the mouth, a disease which is always dangerous because of its tendency to break down and become malignant.

*Some of the Systemic Effects of Mouth Infection.* In a word, then, decaying teeth, pyorrhea alveolaris, chronic abscesses, irregular teeth, tobacco, artificial substitutes for teeth, etc., are, one and all, prejudicial to mouth hygiene. Moreover, only when it is realized that not only may one, two or three of these agencies of filth be present in any given mouth, but that they may all be present at one and the same time, is one able to appreciate the possible ill effects of such conditions upon the health of the individual. Some of the ways in which the pathogenic organisms of the mouth gain entrance to the body, with possible serious results, may be enumerated as follows:

1st. Infections caused by a breach in the continuity of the mucous membrane of the mouth, brought about by mechanical injuries, wounds, extractions, etc. These lead either to local or general disturbances.

2d. Infections through the medium of gangrenous tooth pulps. These usually lead to the formation of abscesses at the point of infection, but also occasionally to secondary septicemias and pyemia, with fatal termination.

3d. Disturbances caused by the resorption of poisonous waste products formed by bacteria.

4th. Pulmonary diseases caused by the inspiration of particles of slime, small pieces of tartar, etc., containing bacteria.

5th. Excessive fermentative processes and other complaints of the digestive tract caused by the continual swallowing of microbes and their poisonous products.

6th. Infections of the intact soft tissues of the oral and pharyngeal cavities, whose powers of resistance have been impaired by debilitating diseases, mechanical irritations, etc.[2]

Nor should there be overlooked, in this connection, the possibility of an infection by the accumulation of the excitants of diphtheria, typhus, syphilis, etc., within the mouth tself. That the rela-

[2] "The Micro-Organisms of the Human Mouth," P. 274.

tion existing between an unclean mouth and other complaints has not long ago been emphasized, is explained by the fact that the mouth, as a source of disease, has never received the attention which its importance deserves, and though there are some who at present recognize this relation, there are many more who give it no consideration whatever.

In the introduction to his book on "Oral Sepsis as a Cause of Disease," William Hunter, M. D., F. R. C. P., has this to say relative to the influence of an unclean mouth upon the health of the body as a whole: "I desire here to point out how common a cause of disease it is, how grave are its effects, how constantly it is overlooked, and what remarkably beneficial results can be got from its removal. What I wish to emphasize is that it is not the stomatitis, or the dental caries, or the absence of teeth, or any disturbance of nutrition in connection with defective teeth that causes all these effects. The condition in one and all is that of profound sepsis; that is to say, we are dealing with pus-forming organisms which are constantly present in the mouth in connection with necrosed teeth."

He sums up his observations regarding the influence of such conditions upon the health of the individual in the following words:

(1) The condition of mouth, associated with the presence of decayed teeth and rotten fangs, is not simply a want of teeth, but is a condition of profound sepsis; and that, too, irrespective of any pain or discomfort they may have from time to time caused, or even of the entire absence of such pain.

(2) The sepsis, moreover, is one differing from ordinary surgical sepsis, inasmuch as all the pus organisms are continuously being swallowed, probably over a period of many years.

(3) Further, it is a sepsis connected with diseased bone (*i. e.*, tooth) than which there is no more virulent form.

(4) While the gastric juice has fortunately a great capacity for killing organisms this capacity is not complete even in health, in the intervals between food when the acidity of the juice is at a minimum.

(5) The continuous influx of pus organisms from diseased teeth and gums must be a source of disturbance to the mucosa, causing catarrh and diminished gastric secretion.

(6) When we have diminished acidity of gastric juice, with increased influx of organisms, we have the two conditions—diminished resisting power and increase of dose—which all pathological knowledge shows to be the two chief conditions underlying infection.

(7) Consequently, the gastric catarrh becomes really a septic catarrh, due to invasion of the mucosa with septic organisms.

(8) Further, apart altogether from its gastric effects, a continued production of pus in the mouth must be a source of danger in other ways.

(9) The mere septic absorption from such teeth and gums must be very considerable, lasting as it does over many years.

(10) The sallow look and languid feelings of which the patient complains, and which he and his physicians agree in referring to his chronic indigestion, are really the expression of this septic absorption.

(11) If pus organisms are constantly being swallowed there is a risk of their infecting the tonsil over which they must pass, and hence tonsillitic, pharyngeal and Eustachian tube infection may from time to time occur.

(12) Even apart from such local effects there must always be a certain risk connected with the absorption into the blood of such organisms from fungating gums around diseased teeth; and, if other conditions are favorable, there may be infection from the blood—*e. g.*, ulcerative endocarditis, empyemata, meningitis, osteomyelitis, etc.

(13) In short, while every care has been and is being taken in increasing degree to protect the public from notorious disease-producing organisms, such as typhoid or tubercle bacilli, whether in the air it breathes, the food it takes, the water it drinks; and the utmost care is even taken by habits of cleanliness or stringent surgical precautions to protect any introduction of ordinary septic organisms by the skin—the mouth alone is disregarded and the patient is left with a permanent condition of sepsis, which, did it exist in any other part of the body, would at once receive immediate attention.

Regarding the influence of mouth sepsis upon the respiratory apparatus, Wadsworth says:[3] "From the hygienic standpoint, the secretions of the mouth constitute the chief, if not the only, source of respiratory infections, and this infectious material is transferred from one person to another, in some cases through the air, as from sneezing or coughing, and to an even more serious extent by personal contact, or by the use in common of the various accessories of life."

*The Prevention of Mouth Diseases.* To cure disease has been characterized as the voice of the past; to prevent it as the divine whisper of the present.

People are everywhere coming to understand that most of the diseases affecting mankind are, to a considerable extent, preventable diseases, and are turning deaf ears toward the voice of the past, while intently listening to the whispered voice of the present.

*Prevention of Caries.* Perhaps in nothing is the ounce of prevention of more value than in the treatment of dental diseases.

[3] Infectious Diseases. Oct., 1906.

Just how far caries of the teeth can be prevented, it is impossible to say.

There are individuals who are immune in spite of neglect, just as there are individuals whose teeth decay, because of a high susceptibility, in spite of every care, clearly proving that there are other factors than cleanliness to be considered in the prevention of the Peoples' Disease."

There is one thing, however, which may be regarded as axiomatic—the cleaner is the mouth, the less subject will the teeth be to decay, other things being equal. Dr. Ch. L. Quincerot [4] says on this point: "Etiologically, an unclean condition of the oral cavity is the principal factor in the production of dental caries. While admitting that a certain number of predisposing factors, such as sex, age, constitution, heredity and defects of structure, aggravate the production of caries, in the majority of cases uncleanliness is the initial cause."

In the prevention of caries, obviously, the first requisite is a clean mouth. To accomplish this, the teeth should be brushed with a carefully selected brush, at least twice daily, with a dentifrice the ingredients of which are known. Too many people are willing to use a dentifrice solely on the recommendation of the manufacturer, who probably knows nothing of what is required in such a preparation, and whose only interest is in the profits.

Most of the toothbrushes upon the market are poorly adapted to the proper cleansing of the mouth and teeth, being too large and of improper shape. A small brush of good quality and medium stiffness should be employed. The teeth should be brushed in an up-and-down direction, never across, allowing the brush to pass well up over the gums on the external surface of all the teeth. The mouth should then be opened, and the grinding surfaces of the teeth thoroughly brushed, especial care being given to those in the back part of the mouth. Then, by tilting the brush, cleanse the inner surfaces of the teeth, again allowing the brush to come against the gums in the form of a massage. The tongue should then be extended from the mouth and carefully brushed. After meals, whenever possible, the mouth should be flushed with warm water and the teeth brushed, for the purpose of removing particles of food. The waxed silk, or, better, the waxed silk tape more recently placed on the market,

[4] Le Monde Dentaire, Paris, Jan., 1909.

should be passed back and forth between the teeth, not only for the purpose of removing particles of food which may have wedged between them, but for the purpose of breaking up the small gelatinous plaques which form in these spaces, and under cover of which the micro-organisms carry on their tooth-destroying activities.

The busy man will raise the objection that all this takes time. So it does, and so does anything that is worth while. But it will also save time. To prevent teeth from decaying will always consume less time than does the repairing of them. Moreover, it will pay 100 per cent. in comfort, health and masticating efficiency, not to mention the saving in dental bills. It is not half so much reparative dentistry that the public is in need of to-day as it is preventive dentistry.

Another potent factor in tooth decay is the lack of exercise given the teeth in mastication. One has only to observe the people in a public dining-room to be impressed with how little *real* use is made of the teeth. The way in which food is now prepared has much to do with this, but decaying teeth, lack of teeth, and habit have more. Good, vigorous use of the teeth in the mastication of food not only goes a long way toward keeping them clean, but it also adds appreciably to their immunity from decay.

Viewed solely in its relation to mouth hygiene, the gospel of physiological mastication, so ably preached by Horace Fletcher, is one which could be practiced by every one with increasing benefit. A high standard of health will also operate in reducing the susceptibility to caries of the teeth.

It must not be inferred from the foregoing that caries of the teeth can be entirely prevented. Unfortunately, we can only hope in cases of great susceptibility to limit the disease. The family dentist will still remain a family necessity, but his services should be sought not alone for the purpose of repairing the devastating effects of this disease, but as a supplemental aid in its prevention. Caries, like most of the other diseases of the mouth, can, in its incipiency, be easily and effectually arrested, and this without in the least impairing the usefulness of the teeth as organs of mastication, hence the importance of discovering its presence early. Until the laws governing susceptibility and immunity to disease are better understood than they are at present, frequent visits to the dentist in the interest of prevention should, therefore, be encouraged.

*Pyorrhea Alveolaris—Its Prevention.* Like caries of the teeth, pyorrhea alveolaris can, to a considerable extent, be prevented, providing proper attention is given to mouth hygiene. In fact, its prevention is more certain than is that of caries. Its causes are many; among them being irritation at the free margin of the gums, wedging of food between the teeth, tartar, poorly fitting artificial crowns, general uncleanliness of the mouth, overuse or disuse of the teeth, irregular teeth and certain systemic conditions which predispose to the disease.

Its progress is slow, and in its beginning it is easily cured. In fact, it may be said to be always curable so long as there remains sufficient tissue to support the teeth after the disease has been eradicated. This is emphasized here because it is so often said to be incurable, and so often believed to be true. Its influence upon the health is always bad, though not always obvious.

*The Chronic Abscess—Its Prevention.* The chronic alveolar abscess, above described, could be entirely prevented if decay of the teeth was checked in its incipiency—a further argument in favor of early treatment where prevention fails. A living tooth will never become the seat of an abscess. Only "dead teeth ulcerate." Under no circumstances should their presence be tolerated, as their cure is usually not difficult.

*The Dental Needs of School Children.* As decay of the teeth is peculiarly a disease of childhood, manifesting itself as early as the third year, so it is the most common. Practically no child escapes its ravages. It may, therefore, be said without fear of contradiction that the average person who has given no attention to mouth hygiene is, at twenty years of age, from a dental standpoint, a lost cause. Certain it is that he will already have lost several teeth, while others will have become so weakened by long-neglected decay as to render the hope of permanently saving them extremely doubtful. The following case will serve to illustrate this point: While engaged in writing the foregoing paragraph, there was sent to the author by the Charity Organization Society of this city a girl of nineteen, for examination and advice as to what should be done for her in the way of mouth hygiene. An examination of her mouth revealed the fact that she had already lost seven teeth through extraction (two of them being the upper central incisors), while the decaying roots of five others were all that was visible above the gum line, meaning

that in any course of treatment these must also be extracted. In the remaining sixteen teeth (for the "wisdom teeth" had not yet erupted), there were twenty-two carious cavities requiring immediate attention if these teeth were to be saved. The whole mouth was foul in the extreme, the patient admitting that she did not use a toothbrush, as in their present condition the teeth were so sensitive as to make its use extremely painful, which was probably true. Some of the evil consequences of this long-continued neglect were already apparent, in the highly inflamed gums, enlarged tonsils and cervical lymph nodes, and in the ashy pallor so characteristic of mouth infection. Assuming that this girl could now avail herself of all that modern dentistry could give, her loss would still be an irreparable one. And when one considers the necessary time, expense and pain involved in such treatment, and compare it with the small expense and practically no pain attendant upon preventive treatment persisted in from childhood, a treatment which would have insured against the loss of a single tooth, the value of early treatment cannot but be apparent to all. This is no exceptional case. Perhaps no better proof of this could be given than that furnished by a report of an examination[5] made of five hundred public school children applying to the Board of Health in New York City for their mercantile certificates in the spring of 1909. These children represented a large number of the public schools of the city, and it is probable that the condition of their mouths was fairly indicative of that which prevails throughout the schools of the city. It was found that not one had what might be regarded as a decently clean mouth. Four hundred and eighty-six of their number had decaying teeth, 642 of which had already been extracted, or were so badly decayed as to make extraction necessary. There were 2808 decaying teeth in their mouths, many of which could only be saved by prompt attention. But twenty-five of their number had ever been to a dentist except for tooth extraction. The use of the toothbrush was practically unknown among them. And this, it must be remembered, among children the oldest of whom was but sixteen years of age. Investigations made in other cities would seem to indicate that these figures are fairly representative of the dental needs of the children in our public schools throughout the country.

*Effects of Mouth Infection Upon Child Life.* As it is the child

[5] By Wallace T. Van Winkle, D.D.S., N. Y.

who is most susceptible to caries of the teeth, so it is the child who is the greatest sufferer, and not only is this true regarding the local effect of caries, but especially is it true of its influence upon the health and efficiency of the developing child. Of the effects of mouth infection upon the health of the child, Henry G. Langworthy, M. D.,[6] says: "Contamination of food is important in causing decay of food within the body, the poisons of which frequently cause secondary gastric catarrh, various forms of auto-intoxication, anemia, nervous debility and appendicitis. A foul mouth and decaying teeth, *particularly in children,* decidedly increase the chances of catching such contagious and infectious diseases as scarlet fever, diphtheria, measles and tuberculosis. A clean mouth will do much to prevent tubercle bacilli from gaining a foothold in the body." Not less than 40 per cent of the absentees from school are caused by toothache or other equally preventable dental ills and their sequelæ.[7]

In a public address made before the Dental Hygiene Conference held in New York City in May, 1910, Luther H. Gulick, M. D., formerly physical director of the public schools, and at present head of the Division of Child Hygiene in the Russell Sage Foundation, said that investigation had shown that it takes children with defective teeth at least six months longer to complete the eight common-school grades than it does those without defective teeth. Such observations have been made by other investigators.

*Need of Public Dental Dispensaries.* One thing is certain: If the teeth of the present generation are to be saved, it must be done during their school life. To defer it until they have taken upon themselves the responsibilities of adult life will be too late. Caries will already have done its work. What per cent. of the parents of the children in our public schools are able to provide adequate dental treatment for their children when taught its value, no one can tell. But whatever it may be, there will inevitably remain a vast multitude of children who must depend upon the dispensary for all needed dental treatment. And, curiously enough, there are at present no such dispensaries. Scarcely a hospital in the United States has an adequately equipped dental department. It is true there are a few dental clinics in some of our larger cities, which

[6] Dental Cosmos. Vol. 51, page 705.

[7] John J. Cronin, M.D., Asst. Chief Med. Insp. Div. Child Hygiene. Board of Health N. Y. City.

have sprung into being within the past few years, but not one of them is equipped to meet the needs of the community in which it is located, unless we except the one being built in Boston, and made possible by the Forsythe gift of $1,200,000. There is not a city in the United States which does not need such a dispensary to meet the needs of the children in its own public schools. Germany has already recognized this need, and made provisions to meet it by the establishment of free dispensaries in upward of thirty of its cities, where free dental treatment is furnished to the children of the public schools. In most instances these are supported by the municipalities in which they are located.

*The Need of Co-operation.* Obviously, the first step toward the achievement of this much-needed reform in the United States is the education of the public in matters affecting the health of the mouth, with a view to limiting the spread of dental diseases, as far as that is possible through preventive measures, and the arrest of such as are not prevented by early treatment. The responsibility for the inauguration of such a campaign rests squarely upon the shoulders of the dental profession. It is they who know better than any other group of men the value of a clean mouth in its relation to health. As a result, there is scarcely a dental organization throughout the country—national, state or local—in which an organized effort is not being made to spread the gospel of clean mouths. But this is not enough. As a public health measure, the problem is unlike any other ever before offered for consideration. The universality of the disease, the vast numbers involved, the rapidity with which caries causes the destruction of the teeth, especially in childhood; the amount of time involved in dental operations all conspire to make its solution a difficult one. They must have, in this campaign, the co-operation of every one who has to do with child life—parent, teacher, physician, nurse, social worker—wherever he or she may be, throughout the length and breadth of the land. Nor is this enough. It is absolutely essential, if any adequate step is ever taken to meet this need, that they have the co-operation of the municipality, state and nation, for it is only through such co-operation that they can ever hope successfully to cope with the appalling conditions existing among the children of our public schools.

# THE PHYSICAL CARE OF CHILDREN

By Walter S. Cornell, M.D.,
Neurologist to the Division of School Inspection, Department of Public Health and Charities, Philadelphia.

The physical care of children has developed from the academic subject of school hygiene taught by pedagogues, with inaccurate knowledge and weak force, into several well-developed specialized lines of work, each an active force. Chief among these are the medical inspection of school children, the provision of playgrounds and free medical treatment, and the enactment of laws calculated to prevent, or at least decrease, child labor.

Taking up these subjects seriatim, and considering first the medical inspection of children in the schools, we find its reason for existence in the fact that the eight years of school life offer the only opportunity to the community to examine all its members. Such inspection has a double interest, that of the physical health of the community and that of the intelligence of the community, since doctors have come to realize that physical health is a strong factor for or against mental development.

The medical inspection of school children was first instituted in America, on a large scale, by the health department of the city of New York, which, in 1905, appointed medical inspectors to examine all of the school children of the city. I am glad to say that the first honor of medical inspection apparently belongs to my own city of Philadelphia, whose board of education many years ago, at the instance of Dr. Samuel D. Risley, commissioned him and three other physicians to test the vision of the children in the schools. Unfortunately, however, a certain opposition developed on the part of the parents, and for want of vigorous championship the work was allowed to drop. Since that time, in various cities, directors of school inspection have succeeded in having the work done upon a small scale; but the comprehensive system instituted in New York, which has already been mentioned, marks the first noteworthy and permanent step along this line.

That there is reason for medical inspection is easily shown by the numerous statistics compiled by the examiners of children; the figures here given may be accepted without hesitancy by the reader. Eye strain exists in about twenty-five to thirty per cent. of all school children, meaning by eye strain, all cases of defective vision from refractive error, and those cases of normal vision in which such vision is accomplished only by labored effort and headaches and tiring over the eyes. The simple test of medical inspection procured detailed statements of hyperopia, myopia, astigmatism and muscular insufficiency.

Diseases of the nose and throat exist numerously in young children, particularly those of the poorer classes, whose unhygienic home surroundings act as predisposing causes. Of these defects, nasal obstruction (mostly by adenoids) exist in from six to twenty-five per cent. of the school children, according to the age and social condition, younger children and poorer children being those most affected. The large tonsils, which are frequently associated with adenoids, and which really signify chronic inflammation, as well as enlargement, are found in from three to ten per cent. of school children, the number depending upon the factors just noted in connection with nasal obstruction. Defective hearing exists, in one ear at least, in about five per cent. of all children; such prevalence, however, being quite variable at different times, owing to the fact that the catarrh, which usually causes deafness, is more prevalent at some seasons than others.

Decayed teeth are very numerous in young children, particularly those of the poor, who do not know a tooth brush and whose nutrition is low; and over two-thirds of the children between the ages of seven and nine years possess such defects. Defects of the tenth year, or temporary teeth, are less, and children for a brief period present but little dental decay until the thirteenth or fourteenth year is reached, when permanent teeth begin to break down, also. Among the older grammar children, twenty-five or thirty per cent. show carious teeth.

Among the orthopædic defects, stoop shoulders and lateral curvature of the spine command attention, because of their great frequency. Stoop shoulders, with its associated flat chest, are usually due to defective vision or defective hearing, which causes

the child to lean forward to see and hear; to nasal obstruction and poor nutrition, which rob the child of vitality and cause it to slouch as it sits; and to ill-fitting school desks and seats. Lateral curvature is an extremely common defect, but usually exists in but small degree.

Nervous disorders include, principally, chorea, which is the most manifest evidence of increased sensitiveness, quick fatigue and poor emotional control, which are the fundamental conditions underlying an exhausted nervous system. Poor nutrition exists largely, but not according to the statements of the investigator. Many statements, which have appeared in magazines and newspapers to the effect that thousands of children are in a condition of semi-starvation, are doubtless exaggerations, but no one who has been in actual contact with the children of the poor foreign districts of a great city fails to recognize that, regardless of the actual weight and height of such children, they show a decided lack of vigor and flabbiness of tissue, due to the use of improper food.

Correction of these defects just enumerated has proceeded so far by reason of the efforts of medical inspectors, appointed either by the health or educational authorities, with the assistance, in many cases, of social visitors (usually nurses), and the valuable assistance of free medical and dental treatment. The physical education of children, and the institution of playgrounds and recreation centers, may also be considered as important aids in this work, but so far they have had but little direct relation with the work of medical inspection.

Arguments bearing upon the proper appointive power, salary, hours of service, tenure of office, and special training of medical inspectors are exceedingly interesting and important to those directly concerned in the carrying on of this work, but are too administrative in character to receive attention here.

The object of medical inspection is two-fold. First, the prevention of contagious diseases; and, second, the correction of existing physical defects. The latter, it will be noted, partakes at the same time of the character of corrective and preventive medicine, since the early correction of a physical defect signifies, in many cases, the prevention of a secondary one.

It is interesting to note that the medical inspection of the

New York school children was originally planned by Doctor Darlington, as a measure for the saving of school time for those children who are excluded from school by reason of minor contagious diseases; the reasoning being that the exclusion of a child for uncleanliness, pediculosis, ring worm, etc., is necessary; but, if carelessly done by the authorities, is a source of long absence from school. The realization that the correction of physical defects is much more important than the cure of minor parasitic diseases came to the authorities subsequent to the actual introduction of medical inspection.

The actual work of medical inspection is conducted by assigning to each inspector, in the case of the schools of a large city at least, a certain number of schools. Over these schools he exercises jurisdiction as health officer, occasionally excluding children suffering from contagious diseases; daily examining, at the request of teachers, children suspected by the latter of various physical defects; and, finally, examining each child in his group of schools in a systematic manner, so that defects of the eye, ear, nose, throat, teeth, skeleton, skin and nervous system are found. The number of children assigned to one inspector may roughly be set down as from four to five thousand. The children in the slum districts need more medical inspectors than those in the better residence districts. It is the custom, in Philadelphia at least, for the inspector to visit all of his schools every morning, stay a short time at each to examine any incidental cases brought to his attention, and, at the last school visited, to systematically examine twenty children. By this means, in a school year of two hundred days, four thousand children are systematically examined. It may be noted that this is a maximum figure, since the month of September is largely consumed in examining vaccination marks of new children, and the month of June naturally marks the cessation of health activities, because of approaching examinations.

The method of examination pursued by a medical inspector in a systematic examination of children is worth noting. The child is first asked to read the letters on the test card for vision, and his acuity of vision, as well as the frequent existence of headache and eye-tire is noted. If the child shows a squint, or if he wears eyeglasses, these facts are noted also. The examination

of the nose and throat and of the freedom in nose respiration is next made, together with an inspection of the teeth. Following this, the heart is tested, usually by means of a watch in the hands of the examiner, the child's eyes being in the meanwhile closed. Poor nutrition is detected by general inspection, and the child's manner of answering and general demeanor suffices, by necessity, for the detection of a run-down nervous system.

The clerical and administrative work following the examination of children consists in the recording of the defects found, and the institution of measures looking to their correction.

The matter of record keeping is extremely important, since the systematic and business-like conduct of any work undertaken on a large scale is vital. Medical inspection records are essentially of three kinds: The child's individual record, showing his physical condition; a list of the defective children in the school, together with the defects found; and a summary, or report, of the defects found and work done.

As to the child's individual record, it is essential that this record should accompany him throughout his school life, so that teacher, parent and inspector may be kept aware of his physical condition, and, in the event of sickness and poor scholarship, be apprised of the physical defect which so often has caused these troubles. It is unfortunate at the present time that our school authorities do not recognize the value of these records along the lines just mentioned. For it is certain that not one teacher in twenty has any idea, after medical inspection of her class, as to which children have been found defective and which have not. Possibly the day will come when teachers are compelled to be familiar with the physical condition of every child, and supervising principals will understand that "supervision" means the knowledge of the health and home environment of every backward or delinquent child, with a responsibility, for the endeavor at least, to correct such conditions.

The record cards should contain the record of physical examinations made yearly or biennially or triennially, as the case may be, and the record of each examination should carry with it, not only the defects found, but the date on which the parents were notified of the existence of the defect, and whether or not such defect was corrected by them. In this way, quick reference

can be had to the whole matter, and at the time of the second examination of the child the inspector knows at once, by reason of the record, whether the child has been found defective, and whether or not the parents are careful or neglectful.

The correction of physical defects found by the medical inspector has been, up to the present time, optional on the part of the parents, and it is worthy of note, therefore, that the official methods of correction are only those of persuasion. Possibly the day will come when cases of flagrant parental neglect, such as the failure to properly feed poorly nourished children, to provide eyeglasses for a squinting child, or procure medical treatment for a bad case of adenoids, with its train of secondary effects, will be the basis of prosecution by the legal officers of the community. Certain it is that a puddle in the back alley, which may be proceeded against as a nuisance, or the keeping of chickens in a cellar, which may be the basis of complaint by the Society for Prevention of Cruelty to Animals, do not compare in their injurious effects with the presence of a serious defect in a child, which daily lowers its vitality, dulls its vision, or permanently blemishes its personal appearance.

The method of correction has principally been by means of parents' notices, which are most efficient when specific in character. These special notices for eye-strain, nasal obstruction, decayed teeth and stoop shoulders produce results because of the warning information attached, when a simple blank form, merely specifying the defect, fails of its purpose. However, just as personal salesmanship produces business where impersonal advertisements fail, so the home visitor, usually a school nurse, secures the correction of many defects which are otherwise ignored by the parent. In this connection it is worth while noting that, without a nurse, the proportion of defects corrected usually is from five to thirty per cent, according to the zeal and intelligence of the inspector; while, with the aid of a home visitor, medical inspection succeeds in the correction of about sixty per cent. of the defects found. It must be acknowledged that nurses have been employed up to the present time only in the poorer districts of our cities, where docile foreign mothers and the nearby existence of free medical dispensaries have made the work productive of large results. Exactly what the success of the home

visitor would be among American school children of the better class cannot be determined in the absence of trial, but naturally the results obtained would be greater than those obtained simply by notifications.

Briefly in this connection may be mentioned several aids to the work of medical inspection, which have developed as their usefulness has become apparent in the light of experience: Free dental dispensaries, conducted by a municipality; free, or almost free, lunches in the schools of the poorer sections; the services of specialists in eye, skin and mental diseases; and the institution of a specific corrective exercise by the instructors in physical education for those children found needing them by the medical inspectors. Realization by the authorities in the school system that all children differ in personality and capability has resulted in the institution of sub-classes for the mentally deficient, the poorly nourished, the tuberculosis, the blind, the crippled and the deaf; while the municipal government does and has shown its appreciation of the necessity of fresh air and free outdoor play for school children, by providing playgrounds and recreation centers, the latter often in the school yards.

By the combined effect of these agents, it is hoped that the physical standard of the race may be appreciably raised, and the corresponding increase in average intelligence will result in a better standard of citizenship.

# WHAT AMERICAN CITIES ARE DOING FOR THE HEALTH OF SCHOOL CHILDREN

By Leonard P. Ayres,
Russell Sage Foundation, New York.

## *I. Medical Inspection.*

A little more than sixteen years ago, in 1894, and as a result of some serious epidemics among school children, the city of Boston divided its public schools into fifty districts and appointed fifty school doctors to begin medical inspection in them. The Department of Child Hygiene of the Russell Sage Foundation is now making an investigation to find out what progress has been made in this field in the sixteen years that have elapsed since this beginning.

There are in this country some 1,285 cities having organized systems of graded public schools under superintendents. The investigation covers these cities, and up to the present time full returns have been received from 758 of them. For purposes of tabulating results, the several states of the Union have been divided into five groups, following the order adopted by the United States census. These groups, with the states comprising them, are as follows:

*North Atlantic Division.*—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania.

*South Atlantic Division.*—Delaware, Maryland, District of Columbia, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida.

*South Central Division.*—Kentucky, Tennessee, Alabama, Mississippi, Louisiana, Texas, Arkansas, Oklahoma.

*North Central Division.*—Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska, Kansas.

*Western Division.*—Montana, Wyoming, Colorado, New Mexico, Arizona, Utah, Nevada, Idaho, Washington, Oregon, California.

Forty-five per cent of the cities reporting have regularly organized systems of medical inspection in their public schools. The

number of cities reporting, the number having systems of medical inspection, and the per cent having such systems in each group are shown in the following table:

CITIES HAVING MEDICAL INSPECTION

| Division. | Cities reporting | Cities having medical inspection | Per cent having medical inspection |
|---|---|---|---|
| North Atlantic ..... | 308 | 182 | 59 |
| South Atlantic ..... | 45 | 15 | 38 |
| South Central ..... | 67 | 25 | 37 |
| North Central ..... | 286 | 84 | 29 |
| Western ..... | 52 | 31 | 60 |
| United States ..... | 758 | 337 | 45 |

The percentage figures in the final column show that medical inspection has made the best progress in the North Atlantic and Western Divisions, where about sixty per cent of the cities have taken up the new work. It has made substantially equal progress in the two Southern Divisions, where the percentages are thirty-seven and thirty-eight, and the poorest showing is made by the North Central Division, where only twenty-nine per cent of the cities have medical inspection systems.

There are two standard types of administration, that under the board of health and that under the board of education. In the early days of medical inspection, practically all the systems were administered by local boards of health, but in recent years the tide has turned the other way, until at the present time about one-quarter of the cities have systems under their boards of health, and in the remaining three-quarters the board of education is the controlling body. The facts for the different divisions are shown in the following table:

THE ADMINISTRATION OF MEDICAL INSPECTION AMONG 337 CITIES REPORTING

| Division | By boards of health | By boards of education |
|---|---|---|
| North Atlantic ..... | 49 | 133 |
| South Atlantic ..... | 5 | 10 |
| South Central ..... | 8 | 17 |
| North Central ..... | 16 | 68 |
| Western ..... | 8 | 23 |
| United States ..... | 86 | 251 |

The professional employees who are administering these efforts

in behalf of the health of school children include 1,194 school doctors, 371 nurses, and 48 dentists.

In general, medical inspection of schools has two main functions or divisions. The first is inspection for the detection of communicable disease. This relates primarily to the immediate protection of the community, and is in general the first work undertaken. In many states the authorities are content with this purely preventive work, and attempt nothing more elaborate. The second division of the work consists of physical examinations of children, which aim to discover their physical defects and look to securing and maintaining the health and vitality of the individual child. Among the 337 cities reporting, 301 include systems for the detection of contagious diseases, but only a little more than half of them undertake physical examinations. Moreover, the cities attempting physical examinations are mostly in the North Atlantic division, where the work is oldest and is most highly developed. In the table which follows, figures are presented showing the number of cities in each division including inspection for the detection of contagious diseases and physical examinations in their medical inspection systems.

INSPECTION FOR THE DETECTION OF CONTAGIOUS DISEASES AND EXAMINATIONS FOR THE DETECTION OF PHYSICAL DEFECTS

| Division | Inspection for contagious diseases | Inspection for physical defects |
|---|---|---|
| North Atlantic | 173 | 111 |
| South Atlantic | 14 | 6 |
| South Central | 23 | 9 |
| North Central | 67 | 26 |
| Western | 24 | 15 |
| United States | 301 | 167 |

There is one branch of medical inspection work which is even more universal than the inspection for the detection of contagious diseases and this is the testing of pupils to discover defects of vision and hearing. This testing has not been included under the general heading of examinations for the detection of contagious diseases for the reason that it is often carried on where there is no organized system of medical inspection and the tests are frequently given by teachers rather than by doctors or oculists. How common these tests are is shown by the fact that although only 337 cities report regular systems of medical inspection, 449 report that vision and

hearing tests are conducted in their schools by teachers, and in addition there are 189 cities where the tests are conducted by doctors. The detailed facts as to tests by doctors and teachers are as follows:

VISION AND HEARING TESTS CONDUCTED BY DOCTORS AND BY TEACHERS

| Division | Tests by doctors | Tests by teachers |
|---|---|---|
| North Atlantic | 95 | 199 |
| South Atlantic | 9 | 15 |
| South Central | 14 | 25 |
| North Central | 54 | 184 |
| Western | 17 | 26 |
| United States | 189 | 449 |

The fact has already been mentioned that 1,194 school doctors are employed in the work of medical inspection in the cities reporting. More than half of these are in the North Atlantic states, and more than half of the remainder in the North Central states. Their distribution in the several divisions is as follows:

NUMBER OF SCHOOL DOCTORS EMPLOYED IN MEDICAL INSPECTION

| Division | Number of doctors |
|---|---|
| North Atlantic | 729 |
| South Atlantic | 45 |
| South Central | 31 |
| North Central | 342 |
| Western | 47 |
| United States | 1,194 |

The employment of school nurses in the work of medical inspection is a comparatively modern development. Less than a quarter of the cities reporting medical inspection employ school nurses, and of these more than half are in the North Atlantic Division. The total number of cities employing nurses is seventy-six, and the total number of nurses employed 371. Of these, thirty-nine cities, employing 242 nurses are in the North Atlantic Division. In the South Atlantic states, only four cities employ school nurses, and the total number employed is only ten. The lowest record is made by the South Central states, where two cities employ one nurse each. In the North Central states twenty-one cities employ ninety-six nurses, and in the Western Division there are ten cities with twenty-one nurses.

The school dentist is a still more recent development of medical inspection than the school nurse. In the entire country only forty-eight cities employ school dentists, of which eighteen are in the North Atlantic Division, three in the South Atlantic, two in the South Central, twenty-one in the North Central, and four in the Western Division.

The salaries paid to school doctors and school nurses vary from nothing to nearly $4,000. In many localities the local medical association conducts medical inspection for a year or two without cost to the city in order to demonstrate its value. This results in the record showing that in a considerable number of the cities the doctors receive no pay at all for their services. It may also be a factor in bringing about the extremely low salaries that are received by the school doctors in many cities after they are given regular payment.

ANNUAL SALARIES OF DOCTORS AND NURSES IN ALL CITIES REPORTING

| | Number of cities where doctors receive salary indicated | Number of cities where nurses receive salary indicated |
|---|---|---|
| No salary | 30 | 2 |
| $1 -100 | 42 | 4 |
| $101-200 | 34 | .. |
| $201-300 | 32 | 2 |
| $301-400 | 21 | .. |
| $401-500 | 19 | .. |
| $501-600 | 14 | 15 |
| $601-700 | 1 | 13 |
| $701-800 | 9 | 19 |
| $801-900 | 4 | 11 |
| $901-1,000 | 11 | .. |
| $1,001-1,500 | 14 | 2 |
| $1,501-2,500 | 3 | .. |
| $3,500-4,000 | 2 | .. |
| Fees according to service | 16 | 1 |

The same factors result in similar conditions among school nurses. The preceding table shows the number of cities in which the salaries of doctors and nurses fall within the salary limits named in each group. That is to say the first line shows that there are thirty cities in which the doctors donate their services and two in which the school nurses do the same thing. The second line indicates that there are forty-two cities in which the salaries paid to the

doctors are between $1 and $100 per annum and four cities where the nurses are in receipt of similar salaries.

The table shows that there are more cities paying their school physicians at a rate of between $1 and $100 per year than there are paying salaries of any other size. The average salary on the other hand is somewhat higher than this. If computed on the basis of the table and without taking into account the number of doctors employed in each individual city the average salary would fall within the group receiving from $201 to $300 per annum. In a similar way the second column of the table shows that there are more cities paying their school nurses from $701 to $800 per annum than there are paying any other salary. But the average salary would fall within the group from $601 to $700 per year.

It has been stated that the first system of medical inspection was inaugurated by Boston in the year 1894, and historically this statement seems to be correct. Nevertheless one city claims to have been doing enough work for the health of school children to warrant it in reporting that it had a system of medical inspection in the year 1890. Ten years later, in 1900, eight cities had such systems, and in the five following years the increase had brought the total number up to forty-four. The real development of medical inspection has come in the past five years, during which the number has increased from less than fifty to more than 300. Out of the 337 cities reporting systems of medical inspection, only 312 state the year in which work was first begun. From the records of these cities a table has been compiled showing the total number of cities having medical inspection systems in each year since the first city began. These facts follow:

NUMBER OF CITIES HAVING SYSTEMS OF MEDICAL INSPECTION IN EACH YEAR FROM 1890 TO 1910

| Year | Number of cities | Year | Number of cities |
|---|---|---|---|
| 1890 | 1 | 1904 | 28 |
| 1894 | 3 | 1905 | 44 |
| 1897 | 4 | 1906 | 63 |
| 1898 | 7 | 1907 | 90 |
| 1900 | 8 | 1908 | 135 |
| 1901 | 14 | 1909 | 211 |
| 1902 | 20 | 1910 | 312 |
| 1903 | 23 | | |

The detailed reports for the separate cities and the tabulations bringing the facts together for the individual states contain a vast amount of material of value and interest, but of such bulk that it would be impossible to present it here. The total number of items is about 25,000. It is our intention to compile it in full and present it in a final report of this investigation. As showing the extremes among the reports of the different states, it is interesting to note that the best record of all is made by the State of New Jersey, where thirty-four cities reported, and every one of them has an organized system of medical inspection. Massachusetts is a close second; among eighty-six cities all but two have medical inspection systems and in Colorado among six cities reporting, there is only one not having medical inspection. The states at the other extreme of the scale which report no cities with medical inspection are Vermont, Florida, Idaho and Montana.

### *II. Hygiene of the School Room*

The gathering of the salient facts regarding the present status of medical inspection was not the sole object of the investigation now under way. A second and related purpose was to discover what the different cities are doing in the administration of the health interests of their school children in such matters as recesses, the cleanliness of floors and windows, precautions as to drinking cups and instruction in such matters as the prevention of tuberculosis and the giving of first aid in emergencies.

It is generally taken as a matter of course that the outdoor recess is part of the regular program in all elementary grades, and in both sessions of the day school. Moreover such is the case in large sections of the country, but the data gathered show that it is far from being true in the North Atlantic States, and that in the other divisions there are cities where the children are not given outdoor recesses. The figures showing the number of cities having outdoor recesses in their elementary classes, and the per cent of such cities, are given in the table on page 257.

Another subject for investigation was the extent to which individual drinking cups and sanitary fountains are in use in the different cities. As the information was gathered, the city recorded as having sanitary drinking fountains or individual cups has at least made a beginning in these directions. The figures given here

do not indicate what proportion of the schools of each city have these appliances. They merely indicate that at least a beginning has been made. The figures show that in twenty-five per cent of the cities individual drinking cups are in use, and in seventy-five per cent the schools have sanitary drinking fountains. These figures do not mean that all cities are supplied with either individual drinking cups or sanitary fountains, for the data include many duplicates. A considerable number of cities have schools equipped with both individual cups and sanitary fountains, and, on the other hand, some cities have not introduced either the one or the other.

NUMBER AND PER CENT OF CITIES HAVING OUTDOOR RECESSES IN ALL ELEMENTARY GRADES

| Division | Cities reporting | Having outdoor recess | Per cent having recess |
|---|---|---|---|
| North Atlantic ..... | 308 | 259 | 84 |
| South Atlantic ..... | 45 | 44 | 98 |
| South Central ..... | 67 | 67 | 100 |
| North Central ..... | 286 | 264 | 92 |
| Western ..... | 52 | 49 | 94 |
| United States ..... | 758 | 683 | 90 |

The group of facts pertaining to the hygiene of the school room was gathered from the entire 758 cities from which returns have been received to date. They show that in considerably over half of the cities moist cloths are used for dusting; in nearly all of them dust-absorbing compounds are used in sweeping; and that in nearly a tenth of them the schools are equipped with vacuum cleaners.

But a slight knowledge of housekeeping is necessary to make one realize that the appliances used for cleaning are not of such importance as the frequency with which they are employed. Having this in mind we have gathered the facts as to the frequency with which the school room floors are washed and swept, and the windows washed in the public schools of these 758 cities. The facts, as reported, are shown in the table on page 258.

The figures are illuminating as they are unique. Probably these details of municipal housekeeping have not before been gathered. They seem to indicate that the most common practice sanctions the washing of class room floors either once a month, or once in

three months, although it is by no means rare to find cities in which they are washed once in five months or never washed at all.

In the great majority of the cities school room floors are swept once a day, but nevertheless there remains a balance of nearly two hundred cities in which they are swept less frequently. Six cities report that they are swept only once a week; two cities once a month; two cities that they are swept only once in five months.

More cities seem to wash their class room windows once in three months than on any other regular schedule. On the other hand one city reports washing them once a day, and five cities that they never wash them at all.

NUMBER OF CITIES IN WHICH THE SCHOOL ROOM FLOORS ARE WASHED AND SWEPT AND THE SCHOOL ROOM WINDOWS WASHED WITH FREQUENCIES INDICATED

| Frequency | Cities where floors are washed with frequency indicated | Cities where floors are swept with frequency indicated | Cities where windows are washed with frequency indicated |
|---|---|---|---|
| Daily | 1 | 574 | 1 |
| Once in 2 days | 1 | 49 | 1 |
| Once in 3 days | 3 | 86 | .. |
| Weekly | 36 | 6 | 22 |
| Once in 2 weeks | 27 | 2 | 8 |
| Once in 3 weeks | 8 | .. | 5 |
| Monthly | 135 | 2 | 117 |
| Once in 2 months | 50 | 1 | 84 |
| Once in 3 months | 140 | .. | 139 |
| Once in 5 months | 115 | 2 | 111 |
| Once a year | 57 | .. | 31 |
| As needed | 68 | 10 | 139 |
| Never | 44 | .. | 5 |
| Not reporting | 73 | 26 | 95 |
| Total | 758 | 758 | 758 |

Adjustable desks, which can be fitted to the size of the pupils, are more common proportionately in the North Atlantic states than elsewhere. In the country, as a whole, they are in use in practically half of the cities. They are more common in the North than in the South. The figures showing the number of cities where they are in use, and the per cent which these are of the entire number reporting, are as follows:

NUMBER OF CITIES USING ADJUSTABLE DESKS IN THEIR SCHOOLS

| Division | Number having adjustable desks | Per cent having adjustable desks |
|---|---|---|
| North Atlantic | 213 | 69 |
| South Atlantic | 12 | 27 |
| South Central | 18 | 27 |
| North Central | 92 | 32 |
| Western | 23 | 44 |
| United States | 358 | 47 |

Just as highly perfected methods for cleaning are not efficacious unless they are frequently used, so adjustable desks are not beneficial unless they are frequently adjusted to the size of the children using them. These 358 cities having adjustable desks report that they are adjusted as follows:

CITIES ADJUSTING DESKS AT EACH INTERVAL NAMED

| Interval | Number of cities |
|---|---|
| Daily | 1 |
| Once a month | 3 |
| Once in 3 months | 14 |
| Once in 5 months | 12 |
| Once a year | 7 |
| As needed | 283 |
| Never | 1 |
| Not reporting | 37 |
| Total | 358 |

Besides the indirect benefit and training which the children receive from having their class rooms hygienically administered there remains the question of the direct instruction they receive in theoretical and applied hygiene. To discover something of what is being done in this field facts have been gathered showing the number of cities having regular courses for teaching the children about the effects of the use of alcohol and tobacco, for training them in the avoidance and cure of tuberculosis, and in giving them instruction about first aid to the injured.

The figures show that ninety-five per cent of the cities teach their children the effects of alcohol and tobacco; sixty-one per cent have special courses on the prevention and cure of tubercu-

losis; and fifty-seven per cent give lessons in first aid. The figures showing the number of cities doing each kind of work in each of the five divisions, follow:

CITIES GIVING INSTRUCTION IN ALCOHOL AND TOBACCO, TUBERCULOSIS, AND FIRST AID

| Division | Alcohol and tobacco | Tuberculosis | First aid |
|---|---|---|---|
| North Atlantic ..... | 293 | 203 | 165 |
| South Atlantic ..... | 39 | 25 | 18 |
| South Central ..... | 60 | 40 | 37 |
| North Central ..... | 276 | 169 | 178 |
| Western ..... | 49 | 25 | 32 |
| United States ..... | 717 | 462 | 430 |

The facts that have been so rapidly reviewed show that communities over the entire country are seeing the whole matter of the health of school children in a new light. Gradually they are beginning to ask, not whether they can afford to take steps to safeguard in the schools the welfare of their children but, whether they can afford not to take such steps. The movement, as a whole, constitutes both a sign and a result of the gradual awakening which has developed into a wave of interest in matters pertaining to the health of school children that is now sweeping over the civilized world.

We are beginning to realize that the public schools are a public trust. When the parents deliver a child to their care they have a right to expect that the child, under the supervision of the school authorities, will be safe from harm and will at least be handed back to them in as good condition as he was at first. Individual efficiency rests not alone on education or intelligence, but is equally dependent on physical health and vigor. Hence, if the state may make mandatory training in intelligence, it may also demand training to secure physical soundness and capacity. Much time will elapse before there will be brought to bear in all schools measures now so successfully pursued in some for preserving and developing the physical soundness of rising generations. Nevertheless, the movement is so intimately related to the future welfare of our country and is being pushed forward with such great energy and earnestness that it is destined to be successful and permanent.

# THE ELIMINATION OF FEEBLE-MINDEDNESS

By Henry Herbert Goddard, Ph.D.,
The Training School, Vineland, N. J.

Feeble-mindedness may be defined as a state of mental defect from birth or from an early age due to incomplete or abnormal development, in consequence of which the person afflicted is incapable of performing his duties as a member of society in the position of life to which he is born. There are according to the most careful and reasonable estimates in the United States about three hundred thousand persons who would come under this definition. These are conveniently divided into three groups: (*a*) lowest, or idiots, (*b*) middle group, or imbeciles, and (*c*) highest group, formerly called the feeble-minded in a specific sense, but to whom we are now giving the name of moron.

The following definitions of these groups were given by the Royal College of Physicians of London, and were adopted by the Royal Commission on the Feeble-Minded as a basis of classification. The idiot is defined as "a person so deeply defective in mind from birth or from an early age that he is unable to guard himself against common physical dangers." The imbecile is defined as "one who by reason of mental defect existing from birth or from an early age is incapable of earning his own living, but is capable of guarding himself against common physical dangers." While the moron is defined as "one who is capable of earning his living under favorable circumstances, but is incapable from mental defect existing from birth or from an early age, (*a*) of competing on equal terms with his normal fellows, or (*b*) of managing himself and his affairs with ordinary prudence."

## *Why We Should Eliminate Feeble-Mindedness*

The part of feeble-mindedness that comes under the term "idiocy" comprises a group of helpless children who are no comfort to themselves and no comfort to their parents or caretakers. Of all pitiable humanity probably the idiot comes in for the largest share of sympathy from those who see him. He is a source of expense

and trouble. No matter how freely the trouble may be met by those nearest of kin, it is nevertheless true, that a child so afflicted is a constant source of unpleasantness and unhappiness to all those who have to do with him. Surely every one would say, if it is possible to eliminate this kind of feeble-mindedness it must be done. Nevertheless, as we shall see later, this is of all the groups the least objectionable and the least dangerous.

The group called "imbeciles" comprises those persons who are usually recognized as silly, foolish, or stupid. They can, if wisely trained be made to do some work and be a little helpful. But they are always a menace to society because it can never be determined beforehand when any one of them may yield to any of his natural impulses and destroy life or property. Society must set a large army of teachers, trainers, or attendants to watch over and care for these, or be in continual danger of injury or even destruction at the hand of this irresponsible group. The elimination of this grade of feeble-mindedness would result in an enormous improvement in happiness and possibilities of achievement in every community.

The highest group, the "moron," comprises those persons who to the superficial view are often considered normal but somewhat backward or dull. As the definition tells us, there are two characteristics of these people. The first is that they are unable to compete on equal terms with their fellows; and, second, they are unable to manage their affairs with ordinary prudence. The result of the second characteristic is that again it requires a large army of people to take care of these morons, and to see that their affairs are managed with prudence. In the past it has been difficult to provide for this class in this way because the ordinary person, not recognizing this as a form of feeble-mindedness is unwilling to interfere in the affairs of such an individual and manage them for him, as ought to be done. In consequence of these two characteristics of the moron, he becomes an enormous drag upon society, and the elimination of this grade of feeble-mindedness would be the greatest boon of all. Being unable to compete on equal terms with his normal fellows, he is always either an object of charity or a dishonest person. Not being able to earn a living from his own honest efforts, he either becomes a beggar and pauper, living more or less at public expense, unless indeed, he has relatives who are willing to supplement what little he may earn and so help out his existence, or else he turns to dis-

honest practices in order to get that which he needs for a living. And this is the most innocent form in which his defect shows itself. In other cases his natural instincts, however vile they may be, express themselves to the full because he has no power of control over them, and they easily turn him to crime. He becomes a criminal of the lowest sort, and in all these ways he becomes a serious menace to society, as he logically must.

But this is not only a matter of logic; facts may be produced to show that this is what actually happens. It has been found by some studies not yet published by the Galton Laboratory in England that paupers are found in the almshouses who are the children of paupers that were there before them, and they in turn were preceded by their pauper parents. In all probability we have here only another case of mental deficiency. Every one who has had to do with criminals in our jails and prisons recognizes that a large per cent of them are mentally defective, while those who have made any observations at all upon the prostitutes recognize that here also a considerable percentage are feeble-minded, and have simply fallen into this form of life because they could not make a living in any honest way, and because they easily became the victims of others who have had designs upon them.

These are the people who cannot be taught decent living, and through their ignorance of things, which they have not the capacity to learn, they spread disease, through their person and their untidy surroundings. They are thus a menace to public health as well as to morals.

Thus it is positively proved that the elimination of this type of feeble-mindedness would save us a large percentage of our pauperism, of our crime, and of prostitution, to say nothing of the large army of the ne'er-do-wells that are known all about us; and, again, of those persons who are known to be defective, but are cared for in their own families and make no demands upon the public.

The relative number of the different types is very uncertain because we have had until recently no accurate means of determining the grade or degree of defect, but it is perhaps not far wrong if we assume that we have twenty-five per cent. in the idiot grade, fifty per cent. in the imbecile grade, and twenty-five per cent. in the moron. If any correction is to be made to this estimate, it is probable that there are rather less idiots and rather more morons.

A study recently made by the Vineland Laboratory of the mental development of the children in an entire school system of 2,000 children shows three per cent. of the first five grades to be feeble-minded; fifteen per cent. were two and three years backward; seventy-eight per cent. were normal, and four per cent. were super-normal.

### *Can We Eliminate Feeble-Mindedness?*

We may consider this question from two standpoints: first, can we eliminate feeble-mindedness without eliminating the feeble-minded; or in other words, can a feeble-minded person be cured? Since Seguin, very few persons who have studied the problem have been willing to give anything but a negative answer to this question. Indeed, it is usually stated very emphatically that a person once feeble-minded is feeble-minded always. But if we look at the question in the broadest way we have to confess that our sole reason for saying that these children are incurable is that they never have been cured. It is quite a different thing from being able to say with authority that they never can be cured.

In the case of the lowest grade, it is true, we have no reason to hope for anything else. While very little anatomical study has been made, what has been made has given rise to the conviction that there are deficiencies in brain tissue, such that normal mentality could not be produced under any circumstances. But the same thing cannot be said of the higher grades. Indeed, our ignorance of anatomical conditions is so great that no one can say positively that the feeble-mindedness in some proportion of the moron type is not due to conditions which might be easily changed if we understood them.

Recent findings in the Vineland Laboratory seem to indicate that in some cases these children may be perfectly normal to quite a late age of childhood, possibly eight or ten years. If this proves to be the case, then comes the very insistent question, Why may we not learn how to so treat these children in early years as to prevent the onset of this condition later?

By the thyroid treatment it has been possible to restore the cretin from the imbecile type to perfect normal conditions, both physically and mentally. If such a result is possible in this particular type may not something else be discovered which will work similar results in other types? The very thought of the possibility of this

suggests the enormous need of greater research along these lines. Society might spend millions in the study of this problem, and the efforts to eliminate feeble-mindedness in this manner. Even if the results were negative and it were discovered that it is impossible they would be well worth having. But until we have studied the question and found out the actual condition, we are groping blindly in the dark.

Should it eventually be proved that our guesses are true and that feeble-mindedness is the result of an inherited defect, that can not be changed, then our problem shifts to the other side, and we must ask ourselves, can we eliminate feeble-mindedness by eliminating the feeble-minded. This, of course, must mean the prevention of the production of feeble-minded persons and not the destruction of such persons after they are born. For while the thought does rise in the mind of most any visitor who looks at a room full of idiots, "Oh, that these persons might be quietly put to sleep and put out of this wretched condition," yet when we attempt to face such a thing practically we find that not only our hearts, but our heads, revolt from such a thought. Humanity, because it is humanity, can never resort to such a procedure, and a child once born into the world must live its life until it passes out by natural means and against all the reasonable efforts that we can devise to keep it alive.

Turning our attention then to the prevention of the birth of feeble-minded persons, we have several lines to consider. In the first place, we have to review the various known causes of mental defect. We have, first, two great groups, the feeble-mindedness that is hereditary, and the feeble-mindedness that is the result of environment. Under the latter head we have possibly the following causes: malnutrition, epileptic and infantile convulsions, toxic, primogeniture, traumatic, premature birth, abnormalities of labor, injuries to the fetus, abnormal conditions of the mother during pregnancy—mental and physical, the age of the parents, consanguinity, syphilis, tuberculosis, alcoholism, and disease of the nervous system. It will be seen that we have taken environment in the broadest sense to include everything that may cause mental defect which is not true heredity. In the other group we have those cases where the child is feeble-minded for no other reason than that the parent or grandparent was feeble-minded; in other words, the case of true inheritance.

I have also mentioned in the environment list several things that studies show are not causes. They are included here because they are popularly thought to be causes. Consanguinity is perhaps the most striking illustration of this. Age of parents may be another; also primogeniture, and premature birth, while other things mentioned in this list are still either in doubt or are known to have a very slight influence. But whether the influence be slight or much it is evident that we can if we know enough change the environment; and the conditions which often produce feeble-mindedness may be eliminated, thereby eliminating the mental defect. But all these causes combined are small compared to the one cause—heredity. The vast majority of feeble-minded persons are so because parent or grandparent was feeble-minded and there is true inheritance.

The following two charts, illustrative of a large number, show what we mean: Chart I shows the feeble-minded grandchildren of a feeble-minded grandmother. Chart II shows the feeble-minded children of a feeble-minded father.

Often we have charts upon which half the persons represented are feeble-minded. Can we eradicate feeble-mindedness in this hereditary form?

If a farmer has a breed of cattle that he no longer desires he has simply to cease breeding from this stock and the race dies out. We know that many species in nature have died out. And so here, if we have in the feeble-minded race an undesirable variant from the normal, we can, if we will, interfere and see to it that this race does not perpetuate itself. So the answer to the question, can we eliminate the feeble-minded, is answerable in the affirmative. It is true that a certain amount of feeble-mindedness is accidental, and accidents will always occur, so that we may not look forward to a time when there will not be a certain number of feeble-minded persons, but they will be in such a small proportion as to be practically a negligible quantity.

### *How Shall We Eliminate the Feeble-Minded?*

As already implied, the only way to eliminate the group of feeble-minded due to environmental conditions is to change the environment. If feeble-mindedness is sometimes due to abnormal conditions of the mother during pregnancy, we must study the problem and

understand the situation at that time, so that abnormal conditions may not exist. If epileptic convulsions produce feeble-mindedness we must learn to control epilepsy, and so on through the list. All this again implies that we need an enormous amount of study to manage this problem, for as yet we are absolutely ignorant on nearly all of these points, but the possibilities of eliminating this group of

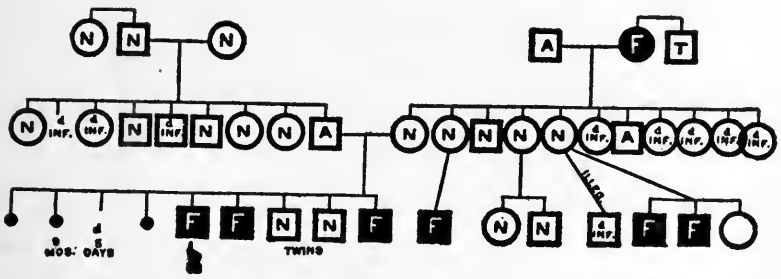


CHART I.

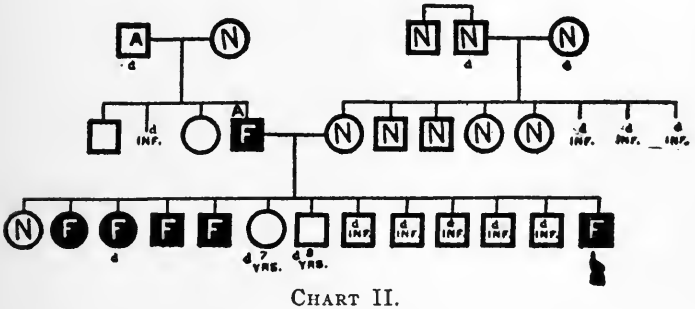


CHART II.

*Key to Charts.*

Square indicates male. Circle indicates female. A, alcoholic (habitual drunkard). F, feeble-minded; N, normal; T, tuberculous; small black circle indicates miscarriage; b=born; d=died; inf.=infancy; illeg.=illegitimate; hand shows which child is in the institution for the feeble-minded.

the feeble-minded is not to be denied, and the method is plain when once we have learned the facts.

All this sort of feeble-mindedness ought to be eliminated, and some day will be, but on the other hand this is actually only a small percentage of feeble-mindedness, as shown above. The feeble-

mindedness of the greatest group is hereditary, and the cause of such feeble-mindedness is the feeble-minded parent or grandparent, and our problem here takes another turn.

As we face the question, "can we prevent children being born of persons who are feeble minded?" there are two possible methods. The first would be to keep the sexes apart; and the second to render them incapable of reproduction.

The first of these is discussed usually under the head of permanent custodial care. This means that society must set to work to discover all of these feeble-minded persons, and as rapidly as possible segregate them in colonies where the sexes are kept absolutely apart so that every feeble-minded male and every feeble-minded female is compelled to live his or her life in conditions of absolute sexual seclusion. If this were done, we would have in a single generation all of the hereditary cases taken care of except those that arise sporadically from the free variation in the stock, and this would be comparatively small.

Every one admits that permanent custodial care is the ideal solution of the problem, both from the standpoint of effectiveness and from the standpoint of the humanity of the case. The great objection or difficulty that arises in connection with this, and is usually considered insurmountable, includes the item of expense involved, and, second, the difficulty to getting all of these people into a colony and under the control of those who have sufficient intelligence.

The first of these arguments is fallacious. The cost of such a procedure would be large, but it would not be as large as the present cost to society for the care of these same persons, to say nothing of their progeny in future generations. Colonies for these feeble-minded would to a large extent take the place of prisons and almshouses, with the advantage that the persons in these colonies could be trained to more or less useful work under the supervision of experts, whereas the inmates of our present institutions for the poor and the criminals are practically of no use to society.

One must also refer to the sentimental reason that is often met with that it is cruel, or at least unpleasant, to think of placing these children in institutions. To this it must be replied there are institutions and institutions. Any one who cares to investigate the matter may discover for himself that it is possible to have institutions

for the feeble-minded that are the happiest places in the world. It is possible to help these people to live a life of complete happiness in proportion to their mental attainments. And one cannot visit our best managed institutions without going away with the firm conviction that it is possible to colonize all of our feeble-minded persons under conditions in which they would be perfectly happy. Thus any objections that seem to occur from the feeling that it is treating them badly are at once eradicated. Such ideal institutions would also very largely eliminate the difficulty of inducing parents to give their consent to the transfer of their defective child to an institution. However, the success of such a plan is not dependent upon the consent of the parents. Even though society finds itself unwilling forcibly to deprive the parents of their feeble-minded child, there is still a possibility. If parents are unwilling for their child to be transferred to such a colony, the child may be trained in the public school by methods that are suited to his mental condition. He may be guarded by his teachers and the probation officers or some person similar who keeps his eye upon such a child while he is at home. After he has left school, if he leaves it, and upon the slightest indication that he is going wrong, is thinking of marrying, or is in danger of becoming a parent out of matrimony, the State may then interfere, and take the child to the colony home. Such a procedure may be managed in such a way as not to offend our most sensitive feelings for justice to the defective.

This is not the place to go further into details, and show how such a plan may be worked out with entire success and at a cost that is well within the means of any Commonwealth, and that it would be cheaper in money, more economical in social life, and of immense value morally. Time does not permit me to even extend the argument, and show that this colony idea is the ideal one not only from this standpoint of the reproduction of the species, but also from that of the welfare of the person and of society.

As was said earlier in this paper, these persons are all and always a menace to society. Aside from the tremendous menace of procreating their kind, it can never be predicted when one of them may commit crime or do some action innocent to him because of his irresponsibility, but which results in loss of property or life. All of these things make it of the utmost desirability that these children be segregated from normal society, and be placed in an

environment that not only makes them happy, but makes them safe from their own defect, and makes other persons safe.

There is left for consideration treatment for rendering all feeble-minded persons incapable of perpetuating the species—what is spoken of as sterilization, asexualization, or unsexing. Some method for this must undoubtedly be considered and practiced to a greater or less extent, but it must be remembered that it is a makeshift. Such a procedure is very far from being an ideal solution of the difficulty. For reasons already mentioned these persons should be segregated from normal people, and if they are to be segregated and colonized in a place where they can be cared for, and trained and made happy, any other method is unnecessary, the problem is solved without it. However, it is possible that conditions have become so bad that we must seize upon everything that offers hope of relief. We have taken such good care of these people for so many years, have allowed our humanity to get so far ahead of our judgment and reason that we have turned loose in the community a large body of strong men and women, well developed physically, but who have this hereditary taint of feeble-mindedness. As a result, feeble-minded children are being born at such a rate that the mere mechanical problem of constructing buildings fast enough to take care of them is serious, so serious that we must resort to some method as a make-shift to help us out of the difficulty, and get us on our feet and place us where we can control the situation. There is no question that there should be a carefully worded sterilization law upon the statute book of every State, and that the practice should be carried on judiciously and carefully, but persistently all over our country, in order, as we have already said, that we may thus help to get control of the situation.

Two States have already passed such laws. Several other States have introduced such bills, but they have usually failed by a small margin to become law.

When we come to practicing some method of sterilization we are again brought face to face with our ignorance of methods and results. We have first, of course, the old and time-honored method of castrating the males and ovariotomy for the females. This is an efficient method, and as far as males are concerned, entirely safe. The only objection to it seems to be a sentimental one. Just what are the consequences, the metabolic changes in the individual as a re-

sult of this operation, is not known with any high degree of scientific accuracy. Nevertheless, there are no indications that there are any serious consequences. The practice would accomplish great good in this line.

It must be admitted, however, that the operation on the female is a somewhat more serious one, and can hardly be practiced on any large scale without some danger of fatalities in a small percentage of the cases. Perhaps this is not greater than occurs in such operations as appendicitis to which normal people submit daily.

Recently a new method has come into the field which has a few very ardent advocates, particularly as far as the male is concerned. The operation is known as vasectomy. It is very simple, and may be performed in a few minutes in the physician's office, and with no other effect on the individual or his activities than the absolute prevention of procreation. It is even claimed that the result of this is a decided tonic effect upon the individual.

The analogous operation upon the female, that of tying the fallopian tubes, is more difficult than the operation on the males, and as yet no method of performing it has been discovered that avoids abdominal section with its concurrent dangers.

Biologists hold out some slight hope that methods of sterilization by X-rays may yet be discovered and become practical. However, that is still so far in the future that it is not worth the space to discuss it here.

It is noteworthy in all these methods that any operation is much more difficult on the female than on the male. This is a crucial point, because even if we are content with a partial result, the sterilization of the feeble-minded males does not begin to halve the difficulty. Experience shows that there are many more normal men who will marrry or live out of wedlock with feeble-minded women than vice versa, and consequently, unless something can be done to sterilize the female, our problem of eliminating feeble-mindedness by this method is not halved.

Here again we are faced by so much ignorance on this matter that it is difficult to speak with any assurance. There is an imperative need for careful study and investigation of all of these problems. Many of them would yield to a small outlay of time and money, and the answers would be clear and assuring; others of them are much more difficult, will require longer and more careful investigation.

But in these days of scientific advancement it is unwise for us to assume that any of these are insolvable. The only wise and rational method is for us to proceed as rapidly as posssible to study these conditions, and get at fundamental facts upon which we can base our practices.

I have tried to show in this paper as briefly and concisely as possible the enormous prevalance of feeble-mindedness; (1) what feeble-mindedness is, (2) why it ought to be eliminated, (3) that it can be eliminated, and (4) how it can be eliminated. I have also not avoided the necessisty of showing that along many of these lines we still need much more data. There is absolute necessity for our studying the problem, and finding out the facts upon which our solution must depend and upon which we must act.

In conclusion, let me say that the work has been begun, and it is eminently fitting and encouraging that the American Academy of Political and Social Science has and should take up this problem, and carry it through. Society is ready for it, we are beginning to recognize the truth of the various things presented in this paper, and I believe that it only needs some person or persons, or organization to take up the matter, act as leader and guide and director in this new social movement in order to carry out a reform here which has untold value for the benefit of our present society and the humanity of the future.

# PREVENTION OF INFANTILE BLINDNESS

By Charles F. F. Campbell,
General Secretary Pennsylvania Association for the Blind; Editor "Outlook for the Blind," Pittsburg, Pa.

One hundred thousand [1] blind distributed over our great country approximately one to one thousand—does not impress the general observer as an appalling condition, but if all these could pass in review, no doubt the gravity of the situation would be more striking. If we could assemble even the percentage counted by reliable investigators as blind from preventable causes (accident, disease, etc.)—some forty thousand in number—they would make a formidable assemblage, and present a never-to-be-forgotten example of the results of ignorance and neglect.

Confining our inquiries to ophthalmia neonatorum, "the purulent sore eyes of new-born babies," we find that to this is attributable from one-tenth to one-eighth of all blindness from all causes. Ten thousand persons are blind from this one preventable disease alone.

Private charity is erecting nurseries for the care of blind infants, 50 per cent. of whom are sightless because of the ravages of this disease. One-fourth to one-third of all the children in our great public and private institutions maintained for the special education of blind youth are there as a result of this same disease. The public is further taxed to maintain the burden of the support of these blind children when they reach adult life, and in some instances pensions are granted.

The blind themselves are making a most courageous struggle for self-support in the face of an inexpressibly heavy handicap. The deprivations of the loss of sight to the blind cannot be estimated. "What blindness means to an intelligent, capable man or woman," to quote the words of a blind man who has, in the face of heavy odds,

[1] It is pretty generally conceded that there are 100,000 blind in the United States. The absence of any authoritative definition of blindness accounts for the lack of agreement between the Federal and State Censuses and for the discrepancy in figures quoted by various writers. Those interested in this phase of the subject should study the definition and classification of blindness under the three captions: (1) Total or absolute blindness; (2) relative blindness; (3) practical blindness as worked out by Dr. Lewis Striker, of Cincinnati.

taken his place in the world with signal success, "is something which only the Lord and the devil and those who endure it know anything about; in their blackest nightmares, those with sight cannot even faintly imagine it, and unemployed blindness is as much worse, as despair is worse than hope." The cost to the State of maintaining a blind person throughout the duration of his life is, owing to incomplete data, difficult to compute, but approximates roughly $10,000. Of the ten thousand blind from ophthalmia neonatorum, all are probably dependent through childhood and youth; some pass directly from the school to a home, and are thus supported by private or public funds through their entire lives; others become self-supporting, and some partially so, through adult life. Again, others, after leaving the school, maintain themselves during the so-called working period, but have not been able to provide for old age, and again fall back upon state or other charitable aid. The expense is so distributed, and the appeal to the sympathies of legislators and philanthropists to "pity the poor blind" so compelling, that the aggregate amount expended is rarely considered.

For the education and maintenance of the victims of ophthalmia neonatorum attending the state schools for the blind in Massachusetts, New York, Ohio and Pennsylvania, the annual expenditure of public funds in excess of the cost of educating the same number of seeing children in the public schools is approximately $110,000. If all the figures were available, the total annual excess cost in these four States for the education and maintenance of children, blind from this one preventable cause, would not fall far short of $150,000. Less than one-tenth of this amount would amply provide for the free distribution of a prophylactic against ophthalmia neonatorum, basing the estimate on present expenditures in States where such distribution is in force.[2] But it must be remembered that if we had the figures showing the expense for the maintenance of the adults who were blinded in babyhood from ophthalmia neonatorum, $150,000 would not begin to cover the annual cost of the needlessly blind in these four States alone. A very large majority of the ten thousand blinded from this cause are now beyond school age.

The ignorant idea of disease as representing the chastening dispensation of Providence, and as such to be meekly borne, is happily being dispelled; although we are brought face to face with

[2] In the states in which such provision exists New York estimates the cost at $5000, Massachusetts at $2500, Rhode Island $300 to $400, Ohio $1200.

such evidence to the contrary, as in the case of three children by the same parents blinded from ophthalmia neonatorum, whose mother accepted the repeated afflictions as "the will of God," still, the inalienable right of every child to a fair start in the race of life is slowly gaining recognition.

It is necessary to face the facts; to make known the true cause of this disease, ophthalmia neonatorum; and arouse parents and those caring for infants to a realization of its perils, if we are to secure prompt and expert treatment for those afflicted—if we would give even a fighting chance to the one to two per cent. of live births afflicted with ophthalmia neonatorum.

It is not the purpose of this paper, however, to attempt a scientific treatise on ophthalmia neonatorum, or on the technique of its treatment or prevention, but, rather, to call attention to the prevalence of the disease, the needlessness of its cruel blight on innocent lives, and the measures that are being taken to check its pitiful havoc in the United States.[3]

A brief paper which admirably summarizes the historical and medical aspects of this subject, and from which we have quoted freely, was read by George F. Keiper, A. M., M. D., before the Indiana State Medical Association, September 28, 1910. As Doctor Keiper remarks, "ophthalmia neonatorum is as old as medicine," although it was a long time before the true cause of the disease was discovered, but, now that certain facts are established beyond dispute, "the problem of prevention," as Helen Keller says, "should be dealt with frankly. The facts are not agreeable reading, often they are revolting."

While other bacteria may be the cause of the disease, infantile ophthalmia results, in most cases, from gonorrhœal [4] infection, usually innocently acquired, the destructive germs in the leucorrheal discharge of the mother getting in the eyes of the child, with few exceptions, during or shortly after birth.

[3] A bibliography of over 300 articles and books upon this subject is in course of preparation by the Pittsburg Carnegie Library, and will be invaluable for students of this subject. For a study of the movement in the United States the reader is especially referred to the writings of Dr. Lucien Howe, the pioneer in securing legislation for the prevention of ophthalmia neonatorum in this country, and to those of Dr. F. Park Lewis, who is the inspiration of the present agitation.

[4] The most conservative authorities state that the gonococcus is responsible for two-thirds of all cases of ophthalmia neonatorum. Other investigators place the percentage much higher.

It is an infectious, contagious disease, accompanied with the secretion of pus from between the eyelids, manifesting itself usually from a few hours to a few days after the birth of the child, and, when left untreated, results in great damage to, if not destruction of, the child's eyesight.

Ten thousand blind because of this disease![5] But the movement to eradicate this evil is a campaign of hope—for the cases that do not respond to proper treatment are so rare as to be left out of the reckoning, and 99½ times out of 100 the infection is preventable.

The two factors in the treatment of this disease—cleanliness and the destruction of the fatal germs and resultant inflammation—require the most skillful, persistent nursing and expert medical attention.

The correct use of the right prophylactic, one of the silver salts, can only be intrusted to an expert. But, better than treatment, with its uncertainties, is prevention. The writings of Benjamin Gibson, of Edinburgh, produced in 1807, sound as if written today, for he says: "(1) Remove the disease, if possible, in the mother during pregnancy; (2) if that cannot be accomplished, remove artificially as much of the discharge as possible from the vagina at the time of delivery; (3) at all events, pay particular attention to the eyes of the child by washing them immediately after delivery with a liquid calculated to remove the offending matter or to prevent its noxious action." This was written long before it was known that the gonococcus or any other germ was the cause of the disease. But, unfortunately, the books on medicine generally made little or no mention of ophthalmia neonatorum nor its dangers. In 1874, or thereabouts, various forms of disinfectants are known to have been used as preventives. In 1879 Neisser discovered gonococcus in the secretions of the eyes of children affected with ophthalmia, but it was left to Prof. Carl Credé, director of the Maternity Hospital, University of Leipsic, during the years 1880-1882, to systematize a means of preventing the dreaded disease, and thus to confer upon succeeding generations an everlasting benefit.

[5] For "histories" of cases pathetic in the extreme, tragic in number, see "Needlessly Blind for Life," Bulletin No. 1, Massachusetts Commission for the Blind, and Reports of Social Service Work at Massachusetts Charitable Eye and Ear Infirmary, Boston, Mass.

The method, as described in his own words, follows: "The eyelids were gently separated by an assistant, and by means of a glass rod a single drop of the solution was placed in each eye. For twenty-four hours after the application the eyes were cooled by means of a linen fold, soaked in salicylic acid (2: 100) laid over them." The percentage of babies contracting the disease rapidly fell when the Credé formula was adopted.[6]

The method now used consists in simply applying a 1-per-cent. solution of the nitrate of silver, one application dropped in each eye, and nothing else afterward. Doctor Howe says: "As this solution of silver removes the superficial layer of epithelial cells, it probably destroys, at the same time, any germs which may be in them. Whatever theory there may be as to how the nitrate of silver acts, there is, fortunately, no question as to the practical results. This has been determined by exactly recorded cases, which can be counted by the thousands; not observed by one practitioner, but by many; and especially we have lists showing the effect of treatment without this method, as well as with it."

In 1887 Dr. Lucien Howe, of Buffalo, N. Y., chairman of the Committee on Ophthalmia Neonatorum, of the American Ophthalmological Society, presented to that body, and to the New York State Medical Society, a masterly array of facts concerning the prevalence of ophthalmia neonatorum and the means adopted for its regulation in European countries together with what statistics were available in the United States. The conclusions drawn from his examination of the pupils in the New York State School at Batavia were especially pertinent. Doctor Howe did not succeed in legislating for compulsory prophylaxis, but, as a consequence of his earnest work, the New York Legislature, in 1890, enacted a measure (amended in 1892), requiring that the birth infection of the eyes of infants be reported to boards of health.[7]

[6] We are told that in 1874 there were in his hospital 323 births, with forty-five cases of ophthalmia neonatorum—i. e., 13.6 per cent.; and in 1882, with 260 cases in which the method was used, but one case developed—i. e., 0.5 per cent. From 1880 to 1883 the percentage ranged from .49 per cent. to zero. In three years 1160 children were born alive and but one, or at most, two cases showed the disease. Lucien Howe ("New York State Journal of Medicine," 1906) collected statistics of 1776 cases having no prophylactic treatment and 9.2 per cent. developed the disease, and of 24,724 treated by the Credé method only .65 per cent. developed the disease.

[7] New York "Howe" Law:

1. New York State Midwife Law (extract from Penal Code), Chapter 325, Laws of 1892.

This bill soon became known as the Howe law and was copied by sixteen other States. Legislation so fundamental in its requirements, and marking the first step in concerted action looking toward the prevention of blindness in the United States, was accorded hearty indorsement by the ophthalmologists, but was overlooked or soon forgotten by the general practitioner. While our ablest ophthalmologists are the first to deplore the fact that "we have no standard by which may be determined the qualifications of a physician who undertakes such expert and delicate work, and work requiring such precise and technical knowledge as ophthalmology," it is to these men that we owe the inception of the campaign for prevention. Professional etiquette has too long held them from arraigning the medical profession. A moment's reflection will show that, as the germs may not manifest their presence for several days, occasionally, even so late as the tenth or twelfth day after birth, the disease may reach a critical condition without attracting the attention of any one competent to realize the danger to the child's eyesight, especially where the doctor's visits are infrequent, or the accoucheur or midwife does not see the child after officiating at its delivery.

Who is responsible for the ignorance and neglect which perpetuates this needless crippling of human life? It is clear who pays the penalty—the helpless babies.

Laws, unless enforced by an enlightened public conscience, do not avail, and not until the dawn of the twentieth century have the people been alive to public health measures. To Dr. F. P. Lewis, for many years president of the Board of Trustees of the New York State School, at Batavia, and chairman of the New York State Commission to investigate the condition of the blind (1903-1906), came the inspiration of a national, and possibly international, campaign for the prevention of blindness. He has subsequently blazed the path for such a far-reaching movement, the first step of which

2. Section 288. Unlawfully omitting to provide for child. A person who . . .

3. Being a midwife, nurse or other person having the care of an infant within the age of two weeks neglects or omits to report immediately to the health officer or to a legally qualified practitioner of medicine of the city, town or place where such child is being cared for, the fact that one or both eyes of such infant are inflamed or reddened whenever such shall be the case, or who applies any remedy therefor without advice, or except by the direction of such officer or physician; or

4. Neglects, refuses or omits to comply with any provision of this section or who violates the provisions of such license, is guilty of a misdemeanor.

was taken in 1906, when the American Medical Association [8] appointed a committee, consisting of an ophthalmologist, an obstetrician and a sanitarian, with Doctor Lewis as chairman, "to carry out, through the associated medical organizations of the nation, measures for the prevention and control of birth infections."

The above-named committee, in their report to the House of Delegates of the American Medical Association, in 1908, which was unanimously approved by that body, and also, later, by the American Academy of Ophthalmology and Oto-Laryngology, made detailed recommendations, which may be summarized as follows:

(1) Require registration of births; licensed midwives, to be under control of board of health; they and physicians being required to report each case of disease.

(2) Let boards of health issue circulars of instruction to midwives and mothers.

(3) Let health boards circulate tubes containing prophylactic, with directions for use.

(4) Insist on complete records in all hospitals and maternity institutions.

(5) Periodic reports by all physicians on all cases treated.

(6) Educate the public.

(7) Organize the medical profession throughout the country.

(The suggestions have reference to ophthalmia neonatorum only.)

The state committees of physicians suggested in the last recommendation (No. 7) were appointed, and the next step was to secure the co-operation of a national lay organization to promote this preventive work. Accordingly, in December, 1909, the chairman of the Committee on Ophthalmia Neonatorum of the American Medical Association [9] applied to the Russell Sage Foundation, which had, in 1908, in consequence of the interest aroused by the New York commission's report which appeared in 1907, created a committee on prevention of blindness, with Miss Louisa Lee Schuyler as chairman. This committee, except for its part in the formation of the special committee now working under the auspices of the New

[8] The American Medical Association, probably the strongest professional society in the country has a membership of between 20,000 and 30,000 physicians, and through its organ, the "Journal," it reaches 53,000 physicians.

[9] This committee is now known as a Committee on Prevention of Blindness.

York Association for the Blind, and organized for preventive work in the State of New York, had thus far remained inactive, but responded at once to Doctor Lewis' request, appropriated funds and, later, chose an able secretary, Samuel Ely Eliot, with headquarters at 105 East Twenty-second Street, New York City. Mr. Eliot is now traveling through the West, organizing, with the indorsement of the medical profession, co-operative committees for the prevention of blindness in those States where no work of the kind exists.

Previous to this time, and acting upon a suggestion made by Miss Lucy Wright, the general superintendent of the Massachusetts Commission for the Blind, the Russell Sage Foundation Committee, in February, 1910, called a conference for the purpose of pooling the information and experience acquired in the several States already carrying on preventive work. A second conference was held, December, 1910, and resulted in the formation of a national association for the prevention of blindness and conservation of vision. This body invites the co-operation of societies now in existence, or hereafter formed, for advancing the welfare of the blind; for the promotion of social purity and sex education; for preventing infant mortality, and for safeguarding industrial occupations. In addition, this association asks the aid and indorsement of state and national medical societies, of the National Educational Association and other educational bodies, of the public and private schools for the blind, of commercial bodies, of labor organizations, of women's clubs, and of all the other organizations dealing with social and economic problems in:

(1) The prevention of infantile blindness.

(2) The prevention of blindness from industrial and other accidents and from disease.

(3) The conservation of vision through improved hygiene during school life, and in industrial occupations.

Ophthalmia neonatorum as a cause of blindness is the first to be attacked, because of its susceptibility to legislative regulations. New York State, as has been mentioned, has a special committee and executive secretary to carry on this work, and has a collection of lantern slides and photographs, the latter of which have been loaned to numerous States as a traveling exhibit.[10] Massachusetts,

[10] Loan Exhibit and lantern-slide circular of Committee on Prevention of Blindness, New York Association for the Blind.

under the direction of the State Commission, employs a field agent for prevention of blindness and conservation of eyesight.[11] The unique social service work at the Massachusetts Eye and Ear Infirmary is referred to later. The Ohio Commission has conducted intensive lecture campaigns, supplemented with extensive newspaper stories circulated through the State Press Association. Maryland has an association devoting its entire attention to the prevention of blindness, and the Pennsylvania Association for the Blind makes work for prevention one of its important activities.

It has been the general belief that the midwives were the most culpable offenders in the eye disasters of infants. In most of our large cities and elsewhere, among the foreign-born population, a large proportion of the births are attended by these women, who, nine times out of ten, are incompetent and unclean. The 1904 records in Chicago show that 86 per cent. of all births were reported by midwives, and in New York City, in 1907, 43.5 per cent. were so reported. The investigations of Miss Elizabeth Crowell, of the New York Association of Neighborhood Workers, who personally visited five hundred midwives in their homes, brought to light indescribable conditions of filth. She found but fifty (one-tenth of the whole number interviewed) who could be qualified as capable and reliable.

The study of midwifery presented by Miss Carolyn C. Van Blarcom, the executive secretary of the Committee on Prevention of Blindness of the New York Association for the Blind, at the second Russell Sage conference, followed by the adoption of a resolution presented by Dr. William N. Studdiford, of the New York City Board of Health, to the effect that "this conference of workers for the prevention of blindness recommend that measures be taken in this country to secure state legislation which shall provide for the training, registration, licensure,[12] supervision, regulation and control of women engaged in the practice of midwifery," led to an offer by Dr. John Winters Brannan, president of the Board of Trustees of Bellevue and Allied Hospitals, of New York City, to co-operate in furnishing the first training for midwives in this country.

While the midwives have probably received no more condemnation than they deserve, the general practitioner, too, comes in for a generous indictment.

[11] See articles by Henry Copley Greene, in "New Boston."

[12] The license should not be regarded as a diploma, but as a sanitary police measure maintained by the board of public health.

A unique social-service work, introduced at private expense by Miss Annette P. Rogers, of the Massachusetts Commission for the Blind, and now a part of the régime of the Massachusetts Charitable Eye and Ear Infirmary,[13] is under the able direction of Miss Katharine Brannick, who, after a study covering three consecutive years, brought to light the startling fact that of a total of 275 carefully investigated cases[14] of ophthalmia neonatorum, eight births only were attended by midwives, sixty-two by hospital, dispensary, and city physicians, and 205 by private practitioners! Two cases in one year, in the practice of one man, in which both babies were blinded!

Another investigation recently made in Massachusetts, under the direction of the Boston School for Social Workers, disclosed the fact that out of ninety-seven doctors visited, with large obstetrical practice, "twenty-seven always used a prophylactic; forty, seldom; twenty-eight never used a recognized preventive, although the last admitted that they sometimes employed warm water, lemon juice, citric acid, lard, camomile tea, etc." ! "Of twenty-seven cases of ophthalmia neonatorum visited by nurses in the summer of 1909, under the direction of the New York City Department of Health, twenty-two were traced to physicians and five to midwives. In thirty-three cases of ophthalmia neonatorum investigated by a field worker in the New York School of Philanthropy (1909-1910), it was found that twenty-two cases had occurred in the practice of physicians and eleven in the practice of midwives. Only one of the twenty-two physicians in question had used a prophylactic at birth, while three of the eleven midwives employed prophylaxis as a routine." Of 5,949[15] births in five Massachusetts cities in 1909, only 17 per cent. were given at birth any preventive treatment; 41 per cent. were attended by physicians who use a prophylactic only as their judgment dictates, and the remaining 42 per cent. were attended by physicians who never use a prophylactic for ophthalmia neonatorum.

Such facts would seem to argue strongly for the universal use of a prophylactic, for, as Doctor Richardson points out, "the possibility of any baby becoming infected at the time of confinement should be

[13] The Massachusetts Charitable Eye and Ear Infirmary has had since 1898 a ward devoted to the care of ophthalmia neonatorum.

[14] This figure does not represent the total number treated at the Massachusetts Eye and Ear Infirmary, but simply those investigated.

[15] Sight Saving Bulletin No. 7, Massachusetts Commission for the Blind.

constantly borne in mind, and it is desirable to carry out a routine preventive treatment in every case."

The agitation for the prevention of blindness carried on by commissions and other bodies organized to promote the interests of the blind has brought to light the Howe law in several States and secured its enactment in others. In addition, New York, Massachusetts, Ohio and Rhode Island provide, through their state boards of health, for the free distribution of a prophylactic.[16] While not sufficiently inclusive, both these measures are of value not only in their direct results, but in their educational bearing on the question. The latter makes easily accessible to the practitioner the means of prevention and his intelligence and conscience force him to use them in questionable cases at least. The first measure—the Howe law, although written on the statute books of seventeen States, has, unfortunately, been enforced in a few localities only. Massachusetts has one of the best of these revised laws, in that it places upon the physician, as well as other attendants, the responsibility for the report of the infection. Furthermore, it provides that, when reported, the board of health shall take such immediate action as it may deem necessary, in order that blindness may be prevented. Yet in 1907-1908—two years after the law was passed—out of forty-six investigated cases, only one was reported. During 1909-1910, in three cases resulting in blindness, a report was made to the board of health by the attending physician, and no action was taken by either to insure proper care! The excuse often given for failure to report cases of ophthalmia neonatorum is that, in so doing, unpleasant reflections may be cast upon the parents. The Massachusetts Commission's Bulletin No. 3, widely distributed, judiciously points out that "gonorrhœa, however, is not necessarily the cause of these symptoms; and as the law wisely deals with symptoms only, and not with diagnoses, neither nurses nor physicians should be afraid that, by obeying the law, they will put any stigma on the child's family."

But, somehow, in some way, let us make the parents realize that their blinded child is a disgrace which cannot be hidden. Dr.

[16] The best form in which the writer has seen the silver nitrate put up is a small, flat, dark-colored gelatin capsule, with a celluloid cap, which can be pierced with a sterilized needle. These small receptacles contain just enough for one application, and are put up in boxes of 10 each. (Prepared by Schieffelin & Co., of New York.)

Robert L. de Normandie, in speaking of this phase of the subject, courageously says: "If there is the slightest doubt of the parents' character, it is the State's duty to compel the infant's health to be safeguarded in every possible manner."

The latest word from Massachusetts announces the prosecution by the Boston Board of Health of four physicians failing to report cases of inflammation of the eyes in accordance with the law. Three were convicted. In March, 1910, the conviction and fine of a midwife in Cleveland, Ohio, was conducive of much good not only in revealing the power of the law to the woman's confreres, but in the wide publicity given the case through the press. Mothers in distant parts of the State appealed to the authorities for aid for their babies' "sore eyes." If, by prosecutions, convictions or other means, the reporting law can be kept before the public, no doubt much good will be accomplished.

Workers for prevention, however, feel that the root of the matter is not yet reached. The negligence of physicians and midwives in reporting their cases of birth infection has brought up the whole question of birth registration, which is most inadequate in the United States. A system of birth registration accounted reliable by the United States Census Bureau is maintained by eighteen States only. This so-called registration area covers but 55 per cent. of the population of the United States. The systems, or, rather, lack of systems, in the rest of the States and Territories would be difficult to match in any other civilized country. Most of the eighteen States referred to require the birth certificate to be sent to the Board of Health within ten days. Formerly, when records were required but quarterly, accumulations of birth certificates were sent to the recorder months after the birth of the child. Even now, with the ten-day limit, the death certificate is sometimes received before the birth is officially announced. Pennsylvania is the only State within our knowledge where the State Health Board's staff includes a birth registry inspector. This man is a field officer who investigates doubtful localities, endeavors to compare the infant population as he finds it with the neighboring registry office's records. If they fail to check up, he pursues his inquiries to locate the doctor or other attendant who omitted to send in the birth certificate. It can readily be understood that even a few cases probed to the discovery of the delinquents would have a stimulating effect on the

whole neighborhood. The Health Department of Pittsburg now employs such an inspector for that city alone.

The adoption and enforcement in every State of a ten-day limit for registration of births would be a distinct step in advance, and would give accurate figures for the compilation of statistics. If this requirement were coupled with a law making the use of a prophylactic compulsory and universal, ophthalmia neonatorum might soon cease to handicap our race. But while the first measure seems reasonably sure of materialization in the near future, the second seems less hopeful of achievement, and, as has already been shown, ophthalmia neonatorum may claim the eyesight, if not the life, of the next generation long before the expiration of the ten days!

The law requiring that birth infections of the eyes be reported to the health authorities does not strike deep enough; at best, it deals with the treatment and cure of the disease. We are committed not only to labor to prevent the loss of sight, but also to prevent the appearance of the causal disease. The free distribution of a prophylactic in the few States before noted is, perhaps, the entering wedge to its universal use, but at present the distribution acts principally in an educational way. How can we more effectively *prevent* infection without making compulsory the use of a prophylactic?

Two substitute measures suggest themselves:

First, earlier registration of births; *e. g.,* a twenty-four to thirty-six-hour limit for the receipt of the record at the office of the Board of Health. This plan has great merit in that the questions on the birth certificate may be in themselves a reminder of treatment while there is yet time. In the New York birth report the question is asked, "Did you employ a preventive for ophthalmia neonatorum? If not, why not?" In Indiana the query is inserted, "Were precautions taken against ophthalmia neonatorum?" Now, that health officers in each State are co-operating, similar questions will, doubtless, appear on the birth certificates in every State in the Union. With this early registration there is still time for the health authorities to send to the physicians and midwives warnings such as the data on the birth certificate demands. New York has secured a reduction in the time limit of birth registrations from ten days to thirty-six hours. This law obtains throughout the State, excepting New York City, Albany, Brooklyn and Yonkers. Some physicians in large cities where such reduction in time has been proposed

either feel themselves competent to handle the matter without the interference of the health authorities, or are so overburdened with their daily work that they resent the additional labor involved under the twenty-four to thirty-six-hour time limit.

To meet this objection on the part of the busy practitioner and to accomplish practically the same end, a second suggestion has been made, namely that the accoucheur should send to the health authorities a notification within twenty-four to thirty-six hours of the birth of a child; such notice might even be given by telephone. Dr. Cressy Wilbur, at the recent conference in New York, pointed out the value of such a proceeding, and made it clear that such notification was distinct from the registration containing detailed information, which would follow within ten days. The warning returned by the board of health after the receipt of notification could not be so specific as that which could be given after the receipt of the registration, with its definite question regarding ophthalmia neonatorum, but, as it is hardly possible that each case would receive individual inspection, the *early notification* would serve the purpose of *early registration,* in one respect; namely, to get the fact of the occurrence of a birth to the authorities promptly, that the board of health may expeditiously point out the danger of neglected "sore eyes," and call attention, likewise, to the other diseases which imperil the life and vitality of the infant.

But doctors object to being made responsible for the handing in of two certificates, however simple the first. A precedent which might be followed to reach an equitable solution of the matter is found in the English law, of August 28, 1907, Chapter XL, which places the responsibility for the early notification,[17] first, upon the father, and in case of his absence, upon the attendant. The justice of such an arrangement is self-evident. The primary cause of the disease, in the large majority of cases, is directly traceable to the father. The parents, not Providence, are responsible for the birth of the child, and also for the transmission of diseases which make the gift of life not a blessing, but a curse. The time for glossing over such facts is past. In our indictment for criminal carelessness and ignorance in the treatment of disease we must surely include, with the doctor and midwife, the parent.

[17] The suggested 24-hour postcard notification is not a substitute for subsequent registration.

In addition to giving the fact of the child's birth at a particular address, the notification should also state the language read by the family. The local board of health could then send by return mail a vividly set forth circular with simple statements printed in the appropriate language and calling attention to the symptoms of ophthalmia neonatorum and giving a warning that, without *prompt, expert medical care*, a child runs the risk of being blind. The early notification has another argument in its favor, for the same circular which serves to warn against ophthalmia neonatorum might also caution the mothers with regard to two other diseases—puerperal, or "child-birth," fever, and infection of the mother's breast, which, while not endangering the eyesight of the child, deprive him, if they go unchecked, of his best source of nutrition, thus rendering him less able to withstand the encroachments of disease. In this age of conservation, it would certainly seem as if our future citizens should receive as much protection at birth as is given them when disease has developed. Is it not time to bring the knowledge of such diseases out into the open and beseech the aid of the press, the pulpit, and the platform in attacking them vigorously? Shall not those of us who are fathers or mothers unite to protect our children from these insidious foes? The enforcement of a law in each State isolating syphilis and gonorrhœa as infectious contagious diseases would mean real progress in the prevention of blindness. In the meantime let us not deceive ourselves. It is not alone the child known to have vicious surroundings who needs to be rescued—ALL CHILDREN need to be safeguarded by intelligent and noble teaching. The policy of purity through ignorance of evil is no longer tenable. Innocence of evil through knowledge purely imparted must be our slogan for the future.

# THE WARFARE AGAINST INFANT MORTALITY

By S. W. Newmayer, M.D.,
In charge of Child Hygiene, Department of Public Health and Charities, Philadelphia.

Health is fostered by legislation and education, the one compelling and the other prompting us to seek it. The citizens of a country need laws, rules and regulations to assure to them protection, comfort, happiness and health, but the needs of the child are vastly different from those of the adult. The country which first recognizes its responsibilities to the child, and tries to fulfil those obligations will receive the recognition of the world as being the foremost civilized nation. The United States is awakening to such realizations when it contemplates a National Child Welfare Bureau. Such a department would not make laws to correct existing evils and defects, but it could collect existing data on the care of the child, study the most practical and efficient methods for its welfare; codify, simplify and place to their full and proper use existing laws. It would encourage individual investigations, and could teach state and municipal health departments and children organizations how they can best use their resources.

There is little sense in urging an increased birth rate when we do not know how to keep alive and healthy those children born. Our knowledge of food values and rational practical infant feeding is vague. Food and feeding seem too commonplace for most of our scientists to devote time to. Millions of dollars are given for research work on tuberculosis, pellagra, and other diseases that have been much advertised but are far less destructive to our population than the preventable diseases of infancy. While the important causative factors of many of these deaths are ignorance and superstition, improper feeding is the chief one.

The least read volumes published are health reports. This is true even among those whose duty it is to read them. Figures make uninteresting reading, and the more so when you must dig out that which is of value. A study of the Mortality Statistics, Bureau of the Census, United States, 1909, answers the question,

why we should be aroused to activity. A total of 140,057 babies under the age of one year, died in 1909, in the registration area reported upon by the United States Census Bureau. This area is approximately about fifty-five per cent of the population. Of this number of deaths, the diseases of early infancy claimed 33,274, including premature births and congenital debility, malformations 7,286, and respiratory diseases 22,990, of which pneumonia has 17,549. Tuberculosis of all forms claimed 2,406, and epidemic diseases 7,132. Convulsions, which means no correct diagnosis made, is charged with 4,613, and other ill-defined diseases 6,615. Diarrhea and enteritis tops the list with a score of 36,516, while other diseases of the digestive tract adds 4,645.

An intelligent comprehensive study of these statistics is necessary to plan our lines of defense. We must separate those diseases which are preventable from the wholly inevitable ones. Better and more accurate statistics are needed, especially on births. Infant mortality should be compared to infant population or the number of births. Full accurate statistics are at present not available. Accurate death certificates, recording the correct cause of death would lead our activities in the right direction. While some of the diseases causing infant deaths are classified as non-preventable or inevitable, they are, to a varying degree, preventable. The deaths from premature births and congenital debility may in coming years be greatly lessened by the education of the public on such questions as the social evil, also by the teaching of the expectant mother and placing her in better physical and hygienic conditions to meet the requirements of her approaching motherhood. The same problems that are to be considered in the premature births and the deaths of earliest infancy are important for that vast unrecorded number of infants not born. The fetus which is destroyed after the time of viability, the loss of "the possible infant" is not only adding to an unregistered infant death rate, but also making the mother less able to meet the needs of future child bearing. The plea that these earliest deaths are fortunate in that they give us the "survival of the fittest," is erroneous. That we are saving and prolonging the lives of a lot of weaklings is true only in a very narrow sense. The gardener destroys the undesirable blooms to give a hardier plant, but he studies how to obtain from the seed only the best and strongest plants.

Respiratory diseases, among which pneumonia is the arch enemy, are greatly preventable by the education of the people in the value of fresh air, the need of dressing the child according to the variations of temperature and humidity, and the improving of the housing, sanitary and living conditions. Tuberculosis and epidemic diseases are to a great extent preventable, while diarrhea and enteritis, with 36,516 deaths in the first year of life, is almost wholly preventable. This is the disease against which most cities have directed their energies. Summing up the deaths at all ages from all causes, we find that one-fifth of these deaths are among infants under one year of age, and one-fourth under five years. Of this death rate, one-half die in the first six months of life. The sad feature of this record is one-half of these deaths among infants are unnecessary and preventable. The inhabitants of the United States are not the only ones who have this perplexing problem to solve, for while some other countries are more fortunate, others are less so. Study the accompanying statistics from the various countries of a civilized world, and then ask if some urgent action is not necessary. In one year a grand total of 3,243,958 deaths in the first year of life. This means a baby dies somewhere every ten seconds, 360 every hour, and 8,640 every day; *and one-half of these deaths are preventable.*

Out of every 1,000 births, the following number of children will die in their first year of life in various countries forming the civilized world. (Compiled from the averages of ten years.)

| Country. | Deaths under one year to 1,000 births. | Deaths under one year actual numbers. |
|---|---|---|
| Chili | 326 | 30,303 |
| Russia (European) | 263 | 1,298,245 |
| Austria | 222 | 200,553 |
| Roumania | 218 | 49,589. |
| Hungary | 212 | 154,100 |
| German Empire | 197 | 374,153 |
| Jamaica | 181 | 6,414 |
| Ceylon | 179 | 23,255 |
| Spain | 170 | 106,649 |
| **United States (1900 approximated)** | **165** | **280,000** |
| Italy | 161 | 83,970 |
| Belgium | 154 | 28,499 |
| Japan | 153 | 220,013 |

| Country. | Deaths under one year to 1,000 births. | Deaths under one year actual numbers. |
|---|---|---|
| Servia | 153 | 16,268 |
| France | 148 | 115,378 |
| Bulgaria | 144 | 23,577 |
| Canada | 140 | 8,200 |
| Great Britain and Ireland | 139 | 147,660 |
| Switzerland | 138 | 11,441 |
| Holland | 138 | 19,209 |
| Finland | 133 | 10,877 |
| Western Australia | 127 | 756 |
| Denmark | 124 | 8,089 |
| New South Wales | 99 | 3,745 |
| Victoria | 98 | 2,299 |
| Sweden | 96 | 1,197 |
| Queensland | 94 | 1,120 |
| Tasmania | 93 | 433 |
| South Australia | 93 | 608 |
| Norway | 86 | 4,231 |
| New Zealand | 76 | 2,233 |
| Grand total | | 3,243,958 |

The following statistics tell most graphically what the chances are for any one at a certain age, to live. Note that the infant under one year has the same chances as one who has passed the biblical allotment of three score and ten, as the death rate at these periods are about the same.

## Death Rate at Each Age Period

(U. S. Census, 1890–1900.)

| | Death Rate. 1900. | 1890. |
|---|---|---|
| **Under one year** | 165.4 | 205.8 |
| 1 to 2 years | 46.6 | 84.9 |
| 5 to 9 years | 5.2 | 7.3 |
| 10 to 15 years | 3.3 | 3.8 |
| 25 to 30 years | 8.6 | 9.9 |
| 45 to 50 years | 15.2 | 16.5 |
| 60 to 65 years | 35.1 | 32.8 |
| 70 to 75 years | 75.2 | 64.5 |
| **80 to 85 years** | 165.8 | 144.6 |
| 90 to 95 years | 339.2 | 260.0 |
| 95 and over | 418.0 | 347.1 |

We can truly believe "the business of being a baby must be classified as an extra hazardous occupation." We have so far focused our attentions and sympathies upon the great number of deaths among infants, but how about the living, those who through ignorance or neglect in the early years of life, in that great important formative period, the time of building the foundation, are made to swell our lists of weaklings and invalids, to fill our institutions and hospitals. "The magnitude of the loss by death is also an index to the amount of harm inflicted on the living." Our national forests and waterways are of importance and claim the attention of our government, but we must not forget the value of our resources is dependent on the citizens that foster them. "The child is our greatest national asset. Let conservation begin at home."

Several countries, for years, have deplored their decreasing birth rate. Startling statements have been made as to the possible passing of certain races. They watched closely the coming of the race, but overlooked the going. "It is not the babies born, but those saved that count." Governments are beginning to learn from those who are responsible for the health of the population that "every child born healthy is entitled to become a normal, healthy and useful citizen."

What is being done to battle with the mortality among infants? Ignorance, neglect, superstition and poverty are known factors of causation. Pure, clean food and proper feeding are necessary for the infant. Statistics prove that one breast-fed infant dies to every ten artificially fed. The physician, the midwife and the mother must be taught the necessity of breast feeding. The child must not be deprived of this hereditary right on the least pretext. This need was forcibly impressed on all who visited the exhibit at Baltimore. Here was displayed a large photograph of a mother with her infant at the breast and bore the inscription "This Baby is getting a Square Deal." Is yours? Of course there are some cases in which the mother is unable to nurse her child. Many of these would have had the necessary nourishment if in the last stages of pregnancy the mother had been taught the proper hygiene of this period and if she had the proper nourishment for herself. Philadelphia has succeeded along these lines through the visiting nurses caring for expectant women. Where poverty existed the mother was given milk free, and placed in the best hygienic con-

dition. If she was compelled to work in a factory at this critical period, one of the charitable organizations was appealed to. Ignorance and superstition have been met with campaigns of education. Many cities in this country employ for this purpose literature. Tons of circulars and pamphlets, printed in all languages, have been distributed especially in the congested and foreign districts. It is questionable if these accomplish much good.

Attractive posters and wall cards, with instructions for mothers, have been successfully used in several cities, including Philadelphia, New York, Chicago and Boston. A most potent means of education is the consultations and clinics, especially for advising the parents of well infants. These have been copied after similar institutions existing for years in France. They are held at milk stations, hospital dispensaries, schools, and in open-air tents especially constructed for this purpose. New York, Boston, Cleveland, Rochester, Chicago and Philadelphia have such clinics in operation. Much of their success depends upon having physicians and nurses in charge who are interested and trained in this particular field of work. Education is a slow process and all the more so among foreigners handicapped by environment and superstition. Results are obtained by utilizing the public schools, teaching the older girls who are the future mothers. These girls also succeed in carrying home sufficient of the information to make a decided impression on their parents. Again the older child, especially among the poor, is the caretaker of her younger brothers and sisters.

The most valuable weapon against infant mortality is the trained visiting nurses and physicians, who enter the homes. They observe the true existing conditions and apply the remedies to the defects. They teach the people healthful living and correct unsanitary conditions. They prevent illness and care for the sick. To keep the well child in good health is most important, but we must also assure proper nursing and medical care to the sick infant. The wealthy can give their offspring the advantages of the services of specialists and trained nurses, while the poor are dependent on the dispensaries and hospitals. An investigation during the past summer in Philadelphia showed the hospitals to be sadly inadequate in their facilities for caring for the sick infants of the

poor. A similar investigation in other large cities may prove astonishing.

The Department of Public Health and Charities of Philadelphia, under its director, Dr. Joseph S. Neff, overcame some of this deficiency by establishing during the past summer, two refuges for babies on the recreation piers, situated on the river front. Four trained nurses, two to each pier, cared for the sick infants sent there by the nurses visiting the homes and by the attending physicians. These stations were open day and night, were practically open-air hospitals, and proved one of the most successful undertakings of the campaign.

Pure, clean and fresh milk is an absolute necessity to conserve the health of infants. This is a most serious problem with all cities. The magnitude of the task to procure a supply of good milk for a large city can be realized from the following facts: The daily milk supply of Philadelphia is 400,000 quarts, and an annual of 146,000,000 quarts. This is handled by 3,000 milk dealers and 5,000 producers, scattered in four different states. It is brought to the city by three railroads, a trolley company and innumerable wagons. Chicago requires a milk supply daily of almost 1,000,000 quarts, which is produced on 12,000 farms, by 120,000 cows. This production comes from five states. The supply for New York comes from 35,000 farms, located in six different states, and is shipped from 700 dairies. The study of this food supply, which is one of the gateways to success in reducing infant mortality, would make hundreds of volumes of literature. Philadelphia bids fair to reach a solution of the problem by the work of a recently appointed commission on milk. This commission was appointed by the mayor, through the efforts of Director Neff, the Bureau of Municipal Research, and others interested in the subject. They are studying exhaustively all phases of the situation. One thing is evident, that milk, when received, which is poor in quality can never be made suitable food for infants, and the best milk produced can be made worthless and dangerous when improperly handled after it leaves the producer. This neglect or ignorance may be in the shipping, with the dealer, or at the home. Lack of proper refrigeration seems to be a crucial point in most of the troubles. The time must come when cities will recognize it to be their duty to estab-

lish milk stations under their supervision, to supply the infant population with this necessity of life.

Milk stations to supply pure clean milk for infants have been maintained in a number of American cities. This milk is generally pasteurized and modified to suit various ages. These have in all cases been started and maintained by individuals and philanthropic organizations. New York's recent budget appropriation of $40,000 for the purpose of establishing fifteen infant milk depots with equipment and machinery, is most commendable and an important step in the right direction. There is no doubt that a city owes to the health of its infant population the guarantee of pure, clean milk, and this is the most practical plan to obtain it. Philadelphia has been fortunate in possessing an institution known as the "Philadelphia Modified Milk Society," which was organized in 1903 through one of its enterprising newspapers, which accepted the offer of a $5,000 plant from Mr. Nathan Straus, of New York. The society has been maintained and steadily increased its usefulness mainly through this same newspaper. It should be known, however, that at no time did they use the project as an advertisement. During the summer of 1910 the society met every request of the Health Bureau, and maintained eighteen distributing stations, including one on each recreation pier. The great demand for such a commodity and the scope of the work can be realized by the report from June 1 to December 31, 1910. During this period there were distributed 760,847 bottles of modified milk.

To best cope with the many and intricate problems arising to reduce infant mortality needs a division or bureau under the health department, especially equipped to meet the needs of the child. A Bureau of Child Hygiene is the logical outcome of these needs. In close relation to infant mortality is the licensing and supervision of midwives, lying-in maternities, and homes for boarding or keeping infants. The supervision of midwives, controlling those who are unfit for such duties, and teaching others is a most important duty. One can realize the folly of overlooking the midwife as a factor when from 30 to 85 per cent of the deliveries of infants in large cities are in the hands of these women. This custom of employing midwives is almost universal among the foreign population, and exists in the rural districts as well as the cities. A study of this work in Philadelphia shows that the intelligent care

of the infant by most of these women is most sadly lacking. Not only does it contribute to the mortality, but much of the blindness among infants can be traced to their neglect.

A concrete illustration of what can be accomplished by a well-organized and practical campaign was afforded by Philadelphia in the summer of 1910. Dr. Joseph S. Neff, director of the Department of Public Health and Charities, reports as follows on the Philadelphia experiment:

As a result of the provision of councils for the employment of eight municipal nurses and the appropriation of moneys for general expenses in connection therewith, and the aid rendered by various private associations in the summer campaign to preserve infant life, the statistics of the office show that during the past summer there has been forty per cent less mortality in infants under two years of age in the Second, Third, Fourth, Fifth and Nineteenth wards where efforts were concentrated, as compared with the rest of the city. The entire city benefited by the publicity campaign, the erection of new milk stations, and the work on the two city piers.

Medical inspectors of the bureau of health delivered lectures in the spring in the public schools, illustrated by paraphernalia used in the care of the baby, applied to living subjects in the presence of the older girls and their parents. Education of the mother was continued in the homes by personal instructions and demonstrations by the nurses.

*Milk Stations Helped*

The milk stations, too, were made educational centers and many medical clinics were established. Exhibits on the care of the baby were most effective teachers. They were placed in milk stations, schools, city piers, and other institutions and consisted of graphic charts, display cards, photographs, sketches and models which depicted the proper hygiene and care of the infant.

The department acknowledges its obligations to many private associations for their co-operation and the aid rendered in this movement. The Philadelphia Modified Milk Society responded to our every request to open new milk stations, which they did in eight separate instances and that without cost to the city. The Bureau of Municipal Research supplied two nurses and one clerk; the Visiting Nurse Society, two nurses; the Phipps Institute, one nurse; Starr Center, two nurses; Baby Alliance, one nurse; the Lighthouse, two nurses, all of whom reported directly to the municipal department having this campaign in charge, and worked in conjunction with the municipal visiting nurses.

In addition there were several private activities working independently along the same lines. Classes of mothers were held once a week in several sections and prizes were given by the Baby Alliance and the Lighthouse to mothers for those babies showing best results. Some of the best work in

this line was done in the Twenty-second and Fifteenth wards, under the charge of ladies interested in the movement.

As a result of the efforts of the department, through newspaper articles and public exhibits of soothing syrups and babies' comforters containing opium or more dangerous drugs, the Philadelphia Association of Retail Druggists passed resolutions indorsing the position of the department and condemning and discouraging the sale of these remedies by their members. This action was most magnanimous and has been lived up to by the druggists of Philadelphia. This movement has been far reaching as it was reported by the Associated Press and started similar movements in many other cities in the United States.

The following summary gives some idea of the amount of work performed:

*Work Performed by the Visiting Nurses*

| | |
|---|---|
| Number of visits: | |
| Original visits for investigation and instruction | 9,528 |
| Special nursing visits | 10,414 |
| Revisits | 8,213 |
| Total number of visits | 28,155 |
| Number of sick infants given nursing care | 5,043 |
| Number of expectant women instructed | 745 |
| Disposal of cases: | |
| Referred to dispensaries or district physicians | 1,635 |
| Sent to hospitals | 95 |
| Sent to country or seashore | 53 |
| Cases received at central office: | |
| Number of calls to sick infants | 503 |
| Number of cases of destitution | 71 |
| Number of cases referred to various organizations | 134 |
| Number of deaths among cases attended by nurses | 26 |

*Work Performed at Recreation Piers*

| | |
|---|---|
| Chestnut Street, opened July 25; Race Street, opened August 3; closed October 8: | |
| Number of sick infants in attendance | 2,434 |
| Number of well infants in attendance | 2,014 |
| Number of older children in attendance | 3,593 |
| Total attendance | 8,041 |
| Number of caretakers instructed | 2,681 |
| Bottles of modified milk dispensed at piers | 13,449 |

In this, as in other medical work, the needs of the poor cannot be overlooked. Besides the cases of destitution referred to the various charitable organizations, there were distributed in the homes of those too poor to pay for it about 25,000 quarts of milk and 100,000 pounds of ice.

A study of its causes and methods of prevention of the enormous number of preventable deaths among infants most clearly shows that the work is not for any one class of people, but requires the united and persistent efforts of all, health authorities, federal, state and municipal, physicians, teachers, sociologists, philanthropists and every one who has at heart the health, happiness and prosperity of the nation.

# BOOK DEPARTMENT

## NOTES

**Addams, Jane.** *Twenty Years at Hull House.* Pp. xvii, 462. Price, $2.50. New York: Macmillan Company, 1910.

**Alston, L.** *Education and Citizenship in India.* Pp. ix, 222. Price, $1.25. New York: Longmans, Green & Co., 1910.

The object of this volume is to present the relation of the educational system to conditions in general, but mainly to political activities in British India. The personal experience of the author as a teacher in the Indian schools adds weight to his arguments.

The discussion is made under four general heads: first the social and religious environment in which the educational system has been placed; second, the system itself, with its defects; third, the effects of the system as indicated by the characters of the educated natives, and fourth, the political activities and aspirations of the educated classes with the relations of these activities to the system of education.

Some of the important points concerning the system and its effects are as follows: The indigenous schools (native Mohammedan or Hindu) are mainly theological and unprogressive. The dogmatic teaching of religion is excluded from the government schools and should rightly be. The universities are primarily examining bodies, not teaching bodies. Hence the cram evil is very great. As it stands the system is inefficient; it unfits for any work except service under the government. The greatest need is for technical education in order to have the system related to the life careers of those who come under it. The educational system cannot be held entirely responsible, for the unrest and disloyalty of the educated classes, on the ground that it has failed to develop a high sense of political duty, but it is one factor tending to foster that disloyalty. On general and on specific grounds, therefore, the system is condemned as unsatisfactory and inadequate, with much weight of opinion and evidence presented by the author to support this conclusion.

**Bryce, James.** *The American Commonwealth.* Two vols. Pp. xxii, 1704. Price, $4.00. New York: Macmillan Company, 1910.

**Butler, N. M.** (Ed.). *Education in the United States.* Pp. xxiv, 1068. Price, $2.50. New York: American Book Company, 1910.

This volume is really a handbook of education. In addition to an introductory survey by the editor, there are twenty monographs by men and women prominent in the educational field. Hon. Elmer E. Brown, United States Commissioner of Education, writes on "Secondary Education;" Andrew S. Draper, the Commissioner of Education in New York, on "Elemen-

tary Education;" M. Carey Thomas, president of Bryn Mawr, on "Education of Women;" Edmund J. James, president of the University of Illinois, on "Commercial Education," to mention only a few of the writers. It will be found a valuable source of information to all who are seeking to know the genesis and present status of our systems of training.

**Cannon, H. L.** *Reading References for English History.* Pp. xv, 559. Price, $2.50. Boston: Ginn & Co., 1910.

**Casson, H. N.** *The History of the Telephone.* Pp. vii, 315. Price, $1.50. Chicago: A. C. McClurg & Co., 1910.

In this unpretentious but well-printed volume the gradual development of telephony from the instant of birth to the latest phase of its gigantic, modern growth is presented for the first time in a historical and intelligible sequence. The story of this development will interest the technical expert as much as the non-technical reader for whom the book was written. In spite of inevitable condensation the author proves his mastery of the topic by a treatment agreeable in form and of more than passing interest. Apart from the merely personal sidelights upon the men who were most prominently identified with the development of a crude instrument, transmitting vocal sounds more or less intelligibly, to the intricate and delicate but most efficient apparatus which we now recognize as a telephone, perhaps the most markedly interesting chapters are those in which the various lawsuits taken by the holders of the Bell patents against infringing interests are described. Illustrations and portraits render the story vivid, and the book is further enriched by a good index.

**Chesterton, G. K.** *What's Wrong With the World?* Pp. 366. Price, $1.50. New York: Dodd, Mead & Co., 1910.

The author states plainly the purpose of his work in these words: "I have called this book 'What's Wrong With the World?' and the upshot of the title can be easily and clearly stated. What is wrong is that we do not ask what is right." Instead of being nauseated by realistic descriptions of the sore spots of modern civilization, the reader is agreeably surprised to find an exalted idealism expressed in almost every chapter of the book. Mr. Chesterton admits frankly that things are unquestionably wrong, but the wrongfulness, he holds, consists primarily in wrong thinking. Think right and we will be right is the trite motto to which he adheres. There is but one distinctly unpleasant feature in the book,—the attempt to express ideas in startling, alliterative phrases. For example in one place the author refers in parenthesis to "excruciating eugenics." At another point he says that, "generally speaking, aristocracy does not preserve either good or bad traditions; it does not preserve anything except game." Both statements are, of course, ridiculously overdrawn in order to produce a humorous effect. With the exception of this single feature, the book should commend itself to every thoughtful student of modern social tendencies.

**Coker, F. W.** *Organismic Theories of the State.* Pp. 209. New York: Longmans, Green & Co., 1910.

**Dawbarn, C. Y. C.** *The Social Contract.* Pp. xii, 152. Price, $1.25. New York: Longmans, Green & Co., 1910.

At first glance, this supplementary monograph to an earlier work by the same author seems to be but an exhaustive, theoretical treatise on taxation in England. But Mr. Dawbarn is an extreme individualist, and the subject of taxation becomes secondary to his views on individualism as a basis of liberty. He employs both the inductive and deductive methods in order to lay bare the essential bases of his philosophy. He lays stress on the foot-note method of illustration to reinforce his theory, which has the advantage of keeping his theory at all times uppermost, but also has the disadvantage of nullifying the importance of his views on taxation which seem to be subservient to his main thesis. His views, however, are clear cut, and his arguments deserve thought and discussion. Though probably unavailable as a text-book, it is valuable as a theoretical side-light on economic and financial conditions.

**Dean, D., and Draper, A. S.,** *The Worker and the State.* Pp. xix, 355. Price, $1.20. New York: Century Company, 1910.

The authors of the present work, while engaged primarily in education, have secured a remarkably accurate mastery of the peculiar economic problems of the present era which enables them to begin their study of applied education with the very reasonable question, "What are the educational needs of modern society?" As students of modern economic facts, their answer is, "The needs are primarily economic." In other words, no satisfactory curriculum can be constructed apart from an intimate knowledge of the economic facts of present-day society.

As economic evolution has eliminated the old type of apprenticeship, and replaced the economic unity of the home by the economic unity of the factory, the basis for an educational system must be laid on the products of economic evolution, namely, a specialized factory system. So the author has discussed the educational significance of modern industry; the changes in the status of women, including a statement of their former economic position in the home, and their new economic position in industry; the lack of adequate education during the years from twelve to sixteen, which are so often described as "waste years," so far as education is concerned; and the new concept, expressed in trade schools, manual training schools, continuation schools, and other like institutions, of the social value of a form of applied education, which, holding the children in the school, will, at the same time, bring them into intimate contact with the problems of life.

**De Windt, H.** *Finland As It Is.* Pp. xi, 316. Price, $1.50. New York: E. P. Dutton & Co., 1910.

**Dorr, R. C.** *What Eight Million Women Want.* Pp. xii, 339. Price, $2.00. Boston: Small, Maynard & Co., 1910.

Eight million women want an opportunity for expression and development. The last generation has witnessed a revolution in woman's social position.

From an individualized unit, drudging in the home, or toyed with at will by a masculine care-taker, woman, through organization, has specialized her activities and risen to a position of real importance in the community. The common law placed serious obstacles in the way of feminine progress, but at the present time the organizations of women have secured or are securing readjustments of the old legal provisions which make women freer and place them in a more equitable position in their relations with men.

The author devotes two interesting chapters to the problem of working girl recreation. In the course of these chapters she points out most effectively the practical barriers which are erected against normal recreation for working girls, details the bitter results of improper recreation facilities, and suggests that the cities provide proper recreation facilities for young girls.

The book is a strong personal appeal, being the opinion of an individual investigator rather than a scientific statement of fact. It is perhaps to be regretted that the author has not come out more boldly and plainly in discussing some of the social problems. The book, nevertheless, represents a distinct contribution to the subject of woman's position in modern society.

**Ford, H. J.** *The Cost of Our National Government.* Pp. xv, 147. Price, $1.50. New York: Columbia University Press, 1910.

To those interested in the finances of the United States government, this volume is illuminating. Being originally separate lectures delivered by the author in 1909, it is not surprising that one finds a timeliness of data. The subject is presented in a logical way and in a manner that shows a deep knowledge of present conditions. The title itself is significant. Following the exposition on budget making where one is brought face to face with recent incidents occurring in our national legislature in regard to financial matters, we are asked to compare our own country with other civilized nations in the matter of expenditures, both per capita and in the aggregate, and the conclusion is drawn that national cost increases by a transfer of social costs from those that are private to those that are public.

The American system of government is discussed from the standpoint of its evolution and transmission to present conditions, and the conclusion is reached that our constitutional separation of powers is disadvantageous from an economic standpoint, in that it allows for the growth of economic parties or interests. Patronage in its relation to expenditures is treated without gloves as also are the tendencies to swell appropriations by extraneous amendments to financial bills. In concluding the volume a very pertinent though short discussion as to the possibilities of improvement is added which shows some of the defects due to our separation of powers but fails to cite any remedy except a general one—the union of these powers. As a whole the book is suggestive and at the same time well worth the close reading of every intelligent citizen and taxpayer.

**Gettell, R. G.** *Introduction to Political Science.* Pp. xx, 421. Price, $2.00. Boston: Ginn & Co., 1910.

**Ghent, W. J.** *Socialism and Success.* Pp. 252. Price, $1.00. New York: John Lane Company, 1910.

These might be designated as a series of open letters to the following groups of persons, the seekers of success, reformers, retainers, certain socialists, trade unionists and doubters of the possibility of the state directing industry. The author is a well-known socialist and his messages which are well described as "uninvited" are for propagandist purposes. Their style is personal; their spirit that of a challenge to debate. Through them all runs an apparently open mind. This is notably true in the criticism offered of those socialists who are intolerant or suspicious of the so-called "intellectuals" within their ranks. This criticism is kindly and apparently well founded. The book is valuable in portraying the spirit of socialism. It is not a theoretic analysis of the economic principles, supposedly underlying the movement.

**Gillette, K. C.** *World Corporation.* Pp. 240. Price, $1.00. Boston: New England News Company, 1910.

*A Guide to Reading in Social Ethics and Allied Subjects.* By Teachers in Harvard University. Pp. x, 265. Cambridge: Harvard University, 1910.

This is a guide to reading in social ethics, economics, sociology and political science, giving lists of books and articles selected in each of these fields, and described for the use of the general reader. The work is well done, each subject being covered by a specialist in the field now teaching at Harvard. The brief comments about the nature and relative value of the references are particularly to be commended.

**Guyot, Y.** *Socialistic Fallacies.* Pp. xxiii, 343. Price, $1.50. New York: Macmillan Company, 1910.

This is an attempt to show the inherent weakness of all reforms past and present that savor of the socialistic. The field is covered in nine divisions the first of which is "Utopias and Communistic Experiments." In this Plato's Republic, More's Utopia and the work of such men as Robert Owen and Fourier are briefly discussed. The last division of the work is on "Socialism and Democracy." In this, present conditions are discussed. The weaknesses of the book are its partisan character and its attempt to cover too much ground. The statement, page 173, "Mr. Schwab, who was a director of the United States Steel Corporation, and began life as a workman, has proved by a force of example that capitalism is accessible to all," is one hardly worthy a place in a serious attempt to explode socialistic fallacies. Moreover, when we read the following argument, page 197, *"so far from establishments, which existed in 1850, having monopolized production, they have stimulated competition,* since we find a greater number of establishments in 1900 than in 1850," we are led to question the value of the author's appreciation of American conditions. There is doubtless a field for a book which meets the socialist, argument for argument, but this will not necessitate a defense of

the entire existing order of things which too often seems to be the case with the book in question.

**Hall, C. H.** (Editor). *Narratives of Early Maryland, 1633-1684.* Pp. ix, 460. Price, $3.00. New York: Charles Scribner's Sons, 1910.

This volume is one of the series of "Original Narratives of Early American History" being published under the general editorship of Professor J. Franklin Jameson. Each of the sixteen sections of the book is prefaced by a brief introduction by the editor, Mr. Hall, who gives a few facts regarding the origin of each paper that is reproduced, and tells something of the author of each document. The value of the volume to most students would have been greater had Mr. Hall included in these "introductions" a brief historical sketch of the events or the period considered in the several original documents. In part, Mr. Hall has done this, but the original papers would have been more instructive if their historical setting had been more clearly indicated. This is, however, a criticism of minor importance. The documents are well selected, and carefully reproduced and the volume makes a most useful addition to the available materials for the first-hand study of colonial history. Several of the originals of the papers contained in the book are so rare and inaccessible as to be practically non-existent even for the investigator.

**Herbert, S.** *The First Principles of Heredity.* Pp. viii, 199. Price, $1.75. New York: Macmillan Company, 1910.

After a very brief introduction calling attention to the importance of heredity to human society, the author devotes a chapter to "Reproduction," in which he tells how all forms of life replace themselves. A second chapter is devoted to "Germ Cells;" the two following ones to "Theories of Heredity;" with a third on "The Inheritance of Acquired Characters" (which should be called the Non-Inheritance). "The Inheritance of Disease," "Mendelism," and "Biometrics" are the titles of the remaining three chapters.

The book is historical and descriptive with no pretence of offering new material. It is designed for beginners who wish to have the facts available. In this respect the author has been most successful—he gives the facts. To condense so much however in so few pages leaves little meat on the bones. The closest of attention will be required on the part of the reader not well versed in biology, in spite of the effort to avoid confusion. This difficulty aside, the volume is a very clear and compact presentation of the subject and will be found a valuable reference book. It is well illustrated.

**Judson, Katharine B.** *Myths and Legends of the Pacific Northwest.* Pp. xvi, 129. Price, $1.50. Chicago: A. C. McClurg & Co., 1910.

This is a collection of brief Indian stories concerning the creation, origin of species, theft of fire, and the cunning animal god, the coyote. They are especially linked with the physical features of the country to which they belong, such as the Columbia river, Takhoma, Shasta and other mountains. In them there is little idea of a beneficent diety similar to that obtaining among the eastern Indians.

The volume is not intended to be scientific, but the author vouches for the authenticity of the stories. Some are almost literal translations from the Indian as recorded by government ethnologists. They are told as the Indians would tell them with a simple directness and a certain degree of crudeness. The book is beautifully illustrated by numerous photographs of Indians and picturesque scenes of the Northwest.

**MacCunn, J.** *Six Radical Thinkers.* Pp. 268. Price, $1.00. New York: Longmans, Green & Co., 1910.

**Mahan, A. T.** *The Interest of America in International Conditions.* Pp. 212. Price, $1.50. Boston: Little, Brown & Co., 1910.

In this little book the author of "The Influence of Sea Power Upon History," gives a very succinct and comprehensive survey of the world politics of the present hour. As we read, we picture the mighty navies of England and Germany preparing for the possible conflict. It is remarkable how in a few lines, Captain Mahan has been able to embrace the main features of the policies of the Great Powers. A note of distrust of Germany pervades the whole work. In spite of the title, the situation of America is subordinated to the portrayal of the world as divided into two camps: England and her allies, against Germany and her allies. Even in the closing chapter, which deals with the relations between Japan and the United States, the reader is shown how the relations of England and Germany have necessitated the withdrawal of their fleets to leave with the United States the defense of the "Open Door" in the Orient.

**Mangold, G. B.** *Child Problems.* Pp. xv, 381. Price, $1.25. New York: Macmillan Company, 1910.

**McCrea, R. C.** *The Humane Movement.* Pp. vii, 444. Price, $2.00. New York: Columbia University Press, 1910.

This report deals principally with the work of the prevention of cruelty to animals, although one chapter handles the problem of cruelty to children. The history of the Humane Movement is carefully traced from the time of its origin in England in 1824 down through its expansion and development in the United States until the present time. Among the subjects covered are the nature and forms of the legislation against cruelty such as laws governing the fighting of animals, vivisection, poisoning animals, trapping, etc. The practical activities of the humane societies are briefly outlined. Included among their work is the prevention of cruelty, the training of individuals in increased humaneness and the promotion of legislation which will reduce suffering. Attention is also given to the anti-vivisectionists and to the Audubon movement. The chapter on children is largely a comparison of the work and ideals of the New York, Massachusetts and Pennsylvania societies.

The very valuable appendices comprise nearly two-thirds of the book. They contain an extensive bibliography on various aspects of the subject, a summary of state laws for animal protection, a directory of the machinery of enforcement, educational pamphlets and other interesting information

relating to humane societies. The appendix serves as a most useful compendium for all persons desirous of advancing the humane movement. Excepting the chapter on children, which should have been treated more adequately or not at all in a book of this kind, the discussion of the subject is very complete and satisfactory.

**Murray, W. S.** *The Making of the Balkan States.* Pp. 199. New York: Longmans, Green & Co., 1910.

**North, S. N. D.** (Editor). *The American Year Book—A Record of Events and Progress, 1910.* Pp. xx, 867. New York: D. Appleton & Co., 1911.

This publication is the first volume in what is expected to be an annual series. It was projected early in 1910 by a group of men who believed that such a work was needed, and that it could best be carried out by the co-operation of the national learned and technical societies. Regularly designated representatives or members of thirty-two such societies have taken part in the preparation of this volume, either by their own contributions, or by suggesting writers, or by supervising the work of such writers. It is intended to be the work of a body of experts, each reviewing the field with which he is most familiar.

The work is intended for the needs of writers and searchers of every kind. Because of its inclusion of scientific subjects, it has been necessary to limit the statistical material; the book does not indicate everything that could be useful, but is a selection from the enormous mass of details of those things which, in the judgment of experts in that field, are most significant, most permanent in value, most likely to answer the searchers' questions.

**Perry, C. A.** *Wider Use of the School Plant.* Pp. xiv, 423. Price, $1.25. New York: Charities Publication Committee, 1910.

The wisdom of utilizing invested capital is every day more apparent, and nowhere more imperative than in the school system. Nearly half a billion dollars have been invested in the school plant of the United States, yet the greater portion of this plant is utilized less than forty per cent of the time. No more serious charge can be laid against the schools than their failure to make the most of the social investments in school administrative machinery. The author, therefore, suggests that the school buildings be used for evening schools, vacation schools, playgrounds, public lectures, evening recreation centers, athletics, dancing and for any other purpose that will increase the value of the school plant to the community. The book contains an able delineation of one effective means of social advance.

**Ries, H.** *Economic Geology.* Pp. xxxi, 589. Price, $3.50. New York: Macmillan Company, 1910.

**Spedden, E. R.** *The Trade Union Label.* Pp. xix, 100. Baltimore, Johns Hopkins Press, 1910.

This monograph is "one of a series of investigations into various phases of American trade unionism undertaken by the economic seminary of the Johns

Hopkins University." It presents in compact form the history of the trade union label from its earliest inception and use. The form of the label, its administration and financing, as well as its use and trade jurisdicton, are in turn treated and developed. The legal protection of the label is one of the most interesting chapters in the book. In most cases the authorities are given in the form of footnotes, and no bibliography is appended.

**Taylor, G. R. S.,** *Leaders of Socialism, Past and Present.* Pp. 125. New York: Duffield & Co., 1910.

A leader, says the author, is a "bobbing cork in the river of history," who summarizes and expresses the thought of his time. Proceeding on this hypothesis, a group of essays is presented dealing with the socialist leaders of the past two centuries, but laying particular emphasis on those of the late nineteenth century. The essays are light, interesting and instructive, and are appreciations rather than criticisms. They give an excellent general idea of the viewpoint of the leaders without going into great detail regarding their individual lives.

**Treat, P. J.** *The National Land System, 1785-1820, and the Westward Movement.* Pp. xii, 426. Price, $2.50. New York: E. B. Treat & Co., 1910.

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REVIEWS

**Bernstein, Edward.** *Evolutionary Socialism.* Pp. xxiii, 224. Price, $1.00. New York: B. W. Huebsch, 1909.

This volume is undoubtedly the most noteworthy contribution to socialist literature within the past decade. So widespread has been its influence that it is now looked upon as constituting the "Bible" of the revisionist wing of the socialists' following throughout the world.

The author severely yet fairly criticizes the leading tenets of the Marxian philosophy and shows that revision or rejection is necessary. He declares that the materialistic conception of history with its accompanying doctrine of the class struggle is untenable so long as it is allowed to stand as originally formulated by Marx and Engels; that the labor theory of value and its corollary, the theory of surplus value, are but speculative formulae, purely abstract concepts; that the catastrophic theory of a social revolution as well as the theory of increasing misery have "now been given up nearly everywhere;" and that the Marxian idea of an ever-increasing concentration of industry, a prerequisite for the coming of socialism, has not been and cannot be substantiated by the facts at hand.

In advancing a positive program for the socialist movement of the immediate future he lays great stress upon (1) the necessity of the further adoption of certain fundamental democratic principles of government; (2) the passage of various legislative measures for the protection and relief of the working class, and (3) the economic capacities and possibilities of co-operative associations.

Bernstein's criticism of the Marxian theories of value and of surplus value is not as thorough nor as convincing as that of Böhm Bawerk in his admirable volume, "Karl Marx and the Close of His System." His statement of the abandonment of the catastrophic and the increasing misery theories will be universally accepted by all impartial students of the socialist movement who will also agree with him in his declaration that a modification of the materialistic conception of history is necessary. Although Bernstein's figures show that there has not been a noticeable tendency towards the concentration of industry in Germany, it is doubtful whether such an investigation in other countries, especially in the United States, would reveal a similar state of affairs. But even though such a tendency were shown to exist it is the opinion of many that it would not necessarily signify the approach of a socialistic form of society. Finally, his advocacy of the almost unlimited possibilities of co-operative enterprises will fall upon deaf ears here in the United States where co-operation in every form has consistently proved to be a failure, although in European countries it will undoubtedly receive hearty endorsement.

IRA B. CROSS.

*Stanford University.*

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**Black, H. C.** *Handbook of American Constitutional Law.* Pp. xxvii, 868. St. Paul: West Publishing Company, 1910.

The development of national life is reflected in its laws. It is natural therefore that there have come into our statute books in the twelve years which separate this from the second edition of Mr. Black's work a multitude of new laws which the courts have been called upon to construe. The increasing complexity of our social and industrial life, the development of new forms of business organization extending their operation over the whole national domain and even beyond, the increase in the agencies of government intended to give proper control to the new combinations and to increase the power of the government both at home and abroad have brought forth a harvest of statutes which in size and interest dwarfs that of any similar previous period. As a result the old legal principles have had to be stretched to meet new conditions, and we have a conspicuous example of the judicial expansion of a rigid constitution to meet exigencies never dreamed of by its framers.

The new edition emphasizes the decisions dealing with the delegation of authority to commissions and administrative officers, the attempts to encroach upon the so-called sphere of individual liberty through a broad interpretation of the police power, the restriction of freedom of trade and commerce, the increasing control of public service corporations and the highly interesting questions raised by our over-sea possessions. The discussion has been enlarged without destroying the proportion and conciseness which have made this work one of the most available for use as a college text and as a general reference work for the average reader. The best available authorities are cited and the revision has evidently been thorough

on all lines. In its new form the book will doubtless find an increasing sphere of usefulness.

CHESTER LLOYD JONES.

*University of Wisconsin.*

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**Brace, H. H.** *Gold Production and Future Prices.* Pp. viii, 145. Price, $1.50. New York: Bankers Publishing Company, 1910.

The author of this monograph has given his readers a brief, logical and interesting analysis of his subject. The first third of the book is devoted to a history of prices and the production of precious metals. This part of the work concludes with a description of modern processes in which gold production has been cheapened to an extent that is startling in its possible significance. The second part of the book gives a lucid discussion of the relation of demand and supply, reaching the conclusion that the value of gold is declining. The author explains that the effects of cheaper gold are not evenly distributed among commodities.. He takes issue with writers who hold that price movements cannot be attributed to changes in the value of the standard unless prices of all commodities move together, showing that this view assumes an impossible uniformity in all other price-making factors.

To this point the work may be regarded as a restatement of accepted economic facts and theory. The rest of the book, however, deals with "influences which tend to augment the effects of increased gold production" and "counteracting influences." Among the augmenting influences are (1) the extension of credit as a substitute for gold; (2) a decline in the use of gold for display among most advanced nations. Among the counteracting influences are (1) the increased facility in producing commodities; (2) diminishing ratio of new gold supplies to total stock; (3) the increased demand for gold which comes from a higher level of prices; (4) the elimination of other standards of value. The law of diminishing returns is mentioned as affording a natural check to mining operations. This, however, is a sword which cuts both ways, operating upon many commodities as well as upon gold. In view of the modern improvements in gold production, the effect of diminishing returns in that field may be for a long time postponed.

Mr. Brace seems not to be deeply concerned with the academic question whether it is the greater supply of gold or the lower cost of producing gold which makes it cheaper. In the introduction he says, "The most effective of the general influences which underlie the great swells of price movements is the cost of producing gold as compared with the cost of producing all other commodities," but on page 142 we read, "Gold is often a by-product and this tends to make it independent of its own cost of production. Then there is a thirst for gold which causes men to search for it and mine it with such eagerness that the cost, all things considered, is greater than the selling price." Throughout the discussion the implication seems to be that supply rather than cost is the fact to be reckoned with.

MURRAY S. WILDMAN.

*Northwestern University.*

**Brooks, R. C.** *Corruption in American Politics and Life.* Pp. xv, 309. Price, $1.25. New York: Dodd, Mead & Co., 1910.

We so often think of corruption as a feature of "practical politics" that we forget that it is a much broader phenomenon. Political corruption is only a symptom of a condition far too prevalent in all branches of our national life. The author aims to analyze the nature of these conditions and to show the far-reaching character of the task which thorough-going reformers must set themselves.

The first two chapters of the work, Apologies for Political Corruption and the Nature of Political Corruption have already become known to those interested in political science through magazine publication. After the definition of the field of the work in these two preliminary studies there follows an analysis of the reasons why corruption is so persistent a by-product of political and social life. A brief review of the history of corruption from the Greeks to Pepys, Tweed and our present-day offenders shows that, though the evil is still with us, its forms have become less and less dangerous. In spite of the fact that the methods of the modern corruptionist often show skill little short of genius, Mr. Brooks believes that the evil is gradually being driven into fields less profitable to exploit. Not even Chris. Magee, former boss of Pittsburgh, could now declare that a "ring could be made as safe as a bank," and it cannot be said that "the people will never kick on a ten per cent rake-off." National, state and municipal governments represent decreasing grades of success in the fight for clean government, but in every branch conditions are, on the average, far better than a generation ago.

A chapter on corruption in the professions brings out strong contrasts, especially in the opinions as to the effect of money influence on the press and on educational institutions through acceptance of "tainted money." Mr. Brooks concludes that no great danger threatens from this quarter since the improper use of money in the professions must destroy the people's confidence in those influenced and hence bring the defeat of its own ends. The most insidious forms of corruptions, and those which do most to debauch public opinion are those which appear in the world of business. Such abuses tend to leave the economic field and become a menace to the state itself. Government regulation, though its mistakes be frequent, must be our reliance here to an ever greater extent, and the government servants must be kept from forsaking the service for that of the great business organizations by adequate salaries and a general recognition of their service to the public.

Finally, how shall political corruption itself be kept down? Here, too, the machinery of the state must be called upon to regulate who may make contribution for political purposes, how much may be contributed and how the money may be spent. Other forms of corrupt reward, such as those connected with the patronage must be uprooted by an efficient civil service system supplemented by civil pensions.

A detailed exposition of the subject treated can not be expected in a book of this size. In fact that is the greatest criticism of the discussion—

that there is not more of it, but no one will read its pages without getting a clearer idea of what clean government means.

CHESTER LLOYD JONES.

*University of Wisconsin.*

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**Bruce, P. A.** *Institutional History of Virginia in the Seventeenth Century.* Two vols. Pp. xix, 1404. Price, $6.00 New York: G. P. Putnam's Sons, 1910.

It is impossible in a review, a few hundred words in length, to criticize in detail a work such as Dr. Bruce has written upon the early institutional history of Virginia. Like his previous volumes upon the economic and the social aspects of Virginia in the seventeenth century, this account of the "inquiry into the religious, moral, educational, legal, military and political condition of the people" of the colony is not only "based upon original and contemporary records," but is presented with such wealth of detail and illustration as to command the admiration of every special student of early colonial history. All three of Dr. Bruce's works appeal rather to the historian than to the lay reader of history.

Volume one of the Institutional History contains three parts, dealing severally with religion and morals, education, and legal administration. The evidence presented by Dr. Bruce shows more zealous observance of religion and higher public standards of morality than have generally been attributed to the Virginians of the seventeenth century; but the evidence presented seems to justify the author's favorable judgment. Likewise, the attention given to education is shown to have been general and persistent; and the planting class, as shown by "the surviving letters of the foremost Virginians of the seventeenth century," contained many men of culture. The development of the administration of justice in the county and general courts is admirably presented, a third of the first volume being devoted to that subject.

The second volume is concerned with the military system and political condition of the colony, one-third of the space being given to the former subject and two-thirds to the latter. The forty-two chapters, dealing with the political affairs of Virginia, the executive and legislative machinery of government, and the methods of taxation, make a most notable contribution to the subject. In this part of the work, the author is at his best. Among the minor features of volume two, mention may well be made of the two chapters upon pirates. During the two decades of the seventeenth century, piratical raids were of frequent occurrence, and were a constant menace to the plantations along the coast.

Doctor Bruce is to be congratulated upon having brought to a successful end the task he set himself some twenty years ago of presenting "a complete picture of all the conditions prevailing in Virginia previous to 1700." The accomplishment of his purpose has required a vast amount of labor, all of which has been performed with most conscientious accuracy and fairness.

EMORY R. JOHNSON.

*The Catholic Encyclopaedia.* Vol. VIII. Pp. xv, 800. Price, $6.00. New York: Robert Appleton Company, 1910.

The new volumes of this important reference work upon all subjects pertaining to Catholicism are appearing with gratifying regularity. The eighth, dealing with topics from Infamy to Lapparent inclusive, maintains the high standard of the earlier ones referred to in these reviews, THE ANNALS, Vol. XXXV, Pp. 738-740. Among the articles of especial historical interest in the present one may be mentioned the biographies of the various popes named Innocent, the discussions under Inquisition, Investiture and *Kulturkampf*, and the articles dealing with Ireland, Italy and Japan, in which the civilization and religious conditions receive full treatment. The statistics given in connection with these latter articles are of much interest and value, especially those giving the distribution of the Irish in various lands and the numbers and condition of the Italians in America. The subjects of Interest, Labour and Land Tenure are of value to the economist, though the treatment of the first of these is brief and unsatisfactory so far as it relates to the Church's prohibition of all exaction of interest on loans during the Middle Ages and even in later times. We are, however, promised a fuller treatment of this in a future volume, under Usury. To many, the articles on various books of the Bible will appeal as showing the attitude of Catholic scholars on matters of higher criticism. As an illustration of the candor with which some of these articles have been prepared may be cited the one on I and II Kings, where the author, though rejecting the views of those critics who deny the complete historicity of these books, yet states his adversaries' conclusions so fairly that the thoughful reader is as likely to agree with the critics as to accept the refutation of their views given in the article.

A. C. HOWLAND.

*University of Pennsylvania.*

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**Coman, Katharine.** *The Industrial History of the United States.* Pp. xvii, 461. Price, $1.60. New York: Macmillan Company, 1910.

This is a new and revised edition of a work first issued in 1905. Besides considerable remodeling of the first edition by the omission, transfer, and addition of paragraphs and sections, the present edition has been augmented by the expansion of one of the former chapters into two, and, to quote the author, "a final chapter on the conservation of our national resources has been added to this edition in the hope of making evident the transcendent importance of the interests involved." For the assistance of teachers, suggestions for supplementary reading and for class discussion are given in an appendix.

The revision of this test will undoubtedly add to its popularity and value. The tendency in modern thought to separate "agriculture" from "industry" has been wisely neglected by the author, and while one would naturally not expect to find the former considered in a volume with the present title, it is a pleasure to find that agriculture is not only given a place in "industry," but its history and importance to economic life are

justly emphasized. Hence, in a measure, the final chapter on "Conservation," admirably sums up the present status of the problem relating to our natural resources of every kind which have been exploited in the past with such thoughtless prodigality. There is scarcely a problem considered in this final chapter the history of which cannot be traced more or less clearly throughout the volume, and particularly those relating to our agricultural resources.

While, therefore, the text has been improved by revision for the use of teachers and students, it is equally valuable to the industrial worker, the agriculturist, and the general reader. It places concisely before the reader the many economic and social problems which our industrial history has bequeathed to the present and future generations for their solution.

JAMES B. MORMAN.

*Department of Agriculture, Washington, D. C.*

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**Curwood, J. O.** *The Great Lakes.* Pp. xvi, 227. Price, $3.50. New York: G. P. Putnam's Sons, 1909.

Among the "American Waterways" none have played a greater part in the history and development of the country than have the Great Lakes. In the wanderings of early explorers and pioneers, in the struggle for possession of the territory about their shores, and in the tremendous growth of inland commerce, these lakes have attained great prominence. Each of these phases of lake history is a fascinating story in itself; all three are covered in this volume.

The first part of the book is devoted to the lakes of the present day, especially from the standpoint of their shipping and commerce: the ships themselves; the lake traffic, with chief commodities and shipping points. For anyone who has never been in the lake region, this part of the volume reads like a novel. Few among those familiar with lake activities will fail to find here a word picture making vivid a magnitude of operations only half realized before.

There are, however, occasional questions of fact with which the reviewer takes issue, as for example, the statement that a ship yard in Detroit employing 3,000 men is "the largest in America," and the placing of the available ore supply of the Lake Superior region more than a billion tons too low. In the light of all the evidence at hand it is extremely questionable whether "hundreds of millions of bushels of wheat raised in the Canadian west" will move over the lake route. It is hard to agree with the author's opinion that the vast iron and steel industries of Pittsburgh will move to Buffalo and that the latter city is destined to become the greatest manufacturing city in North America. Why, in discussing the great prospects of Buffalo and Duluth in the future steel industry, Gary, Indiana, gets no mention at all, even as a possible rival, is difficult to explain. Finally, the assertion that Duluth and Superior "will head the ports of the world probably for all time to come," is as absurd as to say that Duluth is to become a great manufacturing center because the St. Louis Falls offer electrical power

"second only to that of Niagara." As a matter of fact, all the streams tributary to Lake Superior in this country offer less than 250,000 available horse-power at the maximum estimate. In some of these respects the taint of boom spirit mars the book for the critical reader, and is likely to make any thoughtful reader look somewhat suspiciously at other large statements. With the chapter on Buffalo and Duluth brought down to solid earth, there could be nothing but praise for this first part as a whole.

The last part of the book deals historically with the lakes, covering their relations to various important chapters in our history. From cover to cover the book is most readable. In addition it is beautifully illustrated.

WALTER S. TOWER.

*University of Pennsylvania.*

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**Ellwood, C. A.** *Sociology and Modern Social Problems.* Pp. 331. New York: American Book Company, 1910.

A society is defined as a group of individuals who have conscious relations with each other. Sociology is said to be the science which deals with human association, its origin, development, forms and functions, and its field is defined in contrast with biology, psychology, history, economics, politics, ethics and education.

Human society as now known has evolved from other forms, and hence the discussion of theories of descent and factors in organic evolution. The family is selected as the best social institution for detailed study, because it is most fundamental and is the best point of view for discovering the beginnings of all other sanctioned groupings and relations of society. There are great advantages in introducing a young student to the subject in this way. Scientific study is the description, explanation and interpretation of phenomena, and in the case of the domestic relations the young person already has in memory a considerable number of facts derived from direct observation and experience, and so can proceed from the best known to the less known and so on to the unknown without breaking continuity of mental processes. The family is so organized in relation to industry, property, state, school, church, that a careful examination of its life activities compels the teacher and pupil to go a certain distance into all these fields of social science.

The social function of the family is to reproduce the species, to transmit material and spiritual possessions, and to promote social progress. The family has its origin in the facts of sex and the care of offspring, and it has passed through various forms whose history is sketched.

The discussion of social problems begins with those of the domestic group, and divorce is selected for special consideration. The transition to growth of population is natural and easy. Since immigration is a source of increase of population in our country its problems are presented, and reasons for restricting or selecting immigrants argued. The negro element in immigration offers particular difficulties and these are taken up. The agglomeration of dense masses of people in cities causes new combinations and gives rise to new perplexities, and these are studied in their bearings on the wel-

fare of the race. Finally, pauperism, crime and socialism are studied, and the supreme importance of education for citizenship in the highest sense is demonstrated.

The book is intended by the author as an elementary text in sociology, especially for university extension courses and teachers' reading circles. It is a sensible, intelligent, interesting and clearly written volume, and well adapted to its purpose. C. R. HENDERSON.

*University of Chicago.*

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**Foght, H. W.** *The American Rural School.* Pp. xxi, 361. Price, $1.25. New York: The Macmillan Company, 1910.

"The American Rural School" summarizes contemporary opinion regarding the organization and administration of the rural school, its maintenance, supervision, sanitation, and curriculum; also its architecture, its decoration, and its environments. Particular attention is given to the training of the rural-school teacher, and to the consolidation of rural schools. The history of the rural school is briefly traced, in order that it may be shown what the prevailing tendencies are. It is pointed out that great changes have taken place in American society, so that the city has become a menace to country life. Professor Foght brings out this fact in order to impress his view of the function of the rural school—to make country life attractive, and to give rural boys and girls an understanding of the requirements for a successful and interesting life in the country. The curriculum of the rural school must be determined by the needs of rural life, although Professor Foght says that little attention is paid in the typical country school to matters pertaining to the farm and to home life in the country. He maintains that nature study and industrial work must be given a place coördinate with the study of books. The aim throughout must be to make country life complete, so that the boys and girls will not drift to the city in such large numbers as they are now doing.

In order to meet the requirements for an efficient country school, it is imperative that rural schools should be consolidated. The isolated school with its few pupils, its entire lack of equipment, its unsanitary condition, and its uninviting exterior and interior cannot accomplish effective work. The history of the movement for consolidation is briefly traced, and practicable methods of securing it are presented.

The style of the book is simple, and should be read by rural-school teachers, and all who are interested in the present condition and the improvement of the country school. Many photographs and diagrammatic illustrations are used, and these make the treatment of various topics concrete and interesting.

It should be added, perhaps, that the book does not present any new material. No new points of view are offered, and no contributions are made to the solution of unsolved problems concerning rural education. The book is simply a summary and restatement of the best contemporary views regarding feasible improvements in the rural school. M. V. O'SHEA.

*University of Wisconsin.*

**Frazer, J. G.** *Totemism and Exogamy.* 4 vols. Pp. xxxiii, 2181. Price $16.00. New York: Macmillan Company, 1910.

There is to-day a widespread popular interest in the material achievements of other and earlier peoples. Vast collections of weapons, utensils, clothing, sculpture, have been gathered and splendidly housed. The development of man's intellect, his beliefs, explanations, superstitions has, save in a few special groups, received much less attention. This is hardly a compliment to our intelligence, though it may be a tribute to the power of our own beliefs in checking investigation lest we lose some of the reverence for the assumed finality of conventional dogma. Hence it is that men like the author of this great study have received far less attention than they deserve.

The scheme of the present work is as follows: In Volume I there is a reprint of an earlier study long since out of print, "Totemism," first issued in 1887, and two articles from the "Fortnightly Review." The new work begins on page 173, under the title "An Ethnographical Survey of Totemism." Australia is discussed throughout the balance of the first volume. In the second volume, New Guinea, Melanasia, India, Africa, etc., are considered while Volume III is devoted to the Americas. A great mass of valuable evidence is presented.

In Volume IV the evidence given in the earlier volumes is summarized and the conclusions stated. This is followed by nearly one hundred and fifty pages of later notes and corrections, an index and maps of countries considered.

"Totemism is an intimate relation which is supposed to exist between a group of kindred people on the one side and a species of natural or artificial objects on the other side, which objects are called the totems of the human group." It is hard, practically impossible, to explain in detail the relationship, so varying is the interpretation in different groups. Totemism "is a crude superstition, the offspring of undeveloped minds, indefinite, illogical, inconsistent." The relationship is one of "friendship and kinship." The savage considers "the totems" . . . "as his friends and relations, his fathers, his brothers, and so forth." "Totemism is an identification of a man with his totem, whether his totem be an animal, a plant, or what not." Totems are honored but are not worshiped. In origin it is not a system of religion though it may lead to it for we find the religious aspect only among somewhat advanced groups. Among many peoples the totem may never be eaten while among others it is a solemn duty to eat the totem. Probably the latter is the older custom and later the idea that it was better not to kill and eat the totem arose.

In general—there are some marked exceptions—the totemic clan is also exogamous—it must marry outside of itself and into other totems. After long discussion the author concludes that exogamy did not grow out of totemism, but had an independent origin. Later, a fusion has sometimes occurred. The two systems often exist independently, one in one tribe, one in another. Without attempting here to outline the evidence Dr. Frazer finally decided that totemism is really based on man's ignorance of the part played by the male in generation. It is an attempt to explain paternity.

The history of the theories about exogamy is given with special attention to McLennan and Westermarck. The real clue he thinks was suggested by Morgan as a scheme to abolish the marriage of blood relatives. Dr. Frazer feels that this was the origin in Australia as well as in America.

Whether the author has stated the explanation in final terms is relatively unimportant. We cannot know too much of social origins. This is a most valuable discussion. The special student will read it all—the general reader will find the fourth volume sufficient. No reference library can afford to be without these volumes. They represent a great amount of careful study, monumental in character.

CARL KELSEY.

*University of Pennsylvania.*

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**Hall, J. P., and Andrews, J. De W.** *American Law and Procedure.* 14 vols. Pp. ccxlviii, 5912. Chicago: LaSalle Extension University.

Of the fourteen volumes constituting this monumental work, the first twelve were prepared under the editorial supervision of James Parker Hall, dean of the University of Chicago Law School. The remaining two volumes were written by James DeWitt Andrews, formerly of the Law Faculty of Northwestern University.

The work was designed to give a "brief, but accurate account of the principal doctrines of American law, in such form that they may be readily comprehensible not only to lawyers but to intelligent readers without technical training."

Volume I opens with a short prefatory note, and an interesting introduction. This introduction discusses the meaning, sources and classification of law, and gives, moreover, an outline of English legal history and an explanation of the use of judicial precedents. Volume I also treats of Contracts, Quasi Contracts and Agency. Volume II takes up Torts and Domestic Relations; Volume III, Criminal Law and Procedure and Sales; Volume IV, Personal Property, Bailments, Patents, Copyrights, etc., and Landlord and Tenant; Volume V, Real Property, Mining and Immigration Law; Volume VI, the Law and Practice relating to Wills, Equity and Trusts; Volume VII, Negotiable Instruments, Guaranty and Suretyship, Insurance and Banking; Volume VIII, Partnership, Corporations and Carriers; Volume IX, Public Corporations, Public Officers, Extraordinary Remedies and Conflict of Laws; Volume X, International Law, Damages, Judgments, etc., and Bankruptcy; Volume XI, Evidence, Pleading and Practice and Legal Ethics; and Volume XII, Constitutional Law. Volume XIII consists of a lengthy treatise on Jurisprudence and Legal Institutions. Volume XIV contains an article on Statutory Construction, a Glossary and a copious Index.

From the foregoing is apparent something of the editors' plan of treating the vast field they set out to cover. They are to be commended for paying special heed to the philosophic aspects of legal study. The work is aimed not only to afford information to those seeking it, but also

to present to the student, at least in outline, a plan of the entire system of American law from foundations to roof.

This is professedly the object of Volume XIII. Dr. Andrews insists that law is to be studied not as "a wilderness of special instances" but rather as a science. Therefore, he desires to co-ordinate all the various branches of the law, and have them studied as parts of one harmonious whole. It is to be regretted that this purpose was not kept more prominently before the minds of the editors in arranging the general table of contents. The various articles are as so many separate and independent text-books. The very order in which they appear, as indicated above, shows a lack of proper arrangement. For instance, we find Volume I ending with an article on agency, while Volume II treats of torts and domestic relations, and then in Volume III we have a discussion of criminal law and procedure and sales. Indeed, even the treatise on jurisprudence and legal institutions, which seeks to impart a scientific method to the study of law, is open itself, perhaps, to the charge of not being entirely scientific or methodical. It contains a great many quotations from all manner of writers, and while these quotations are always interesting and often illuminative, they help make Volume XIII somewhat discursive and fragmentary. If the contents of this volume were boiled down and made part of the introduction, the practical value to the beginner of Dr. Andrews' learned disquisition would be far greater.

But the general plan of treating each of the various concrete subjects mentioned above, such as torts and agency, is admirable. Even here, however, there is room for occasional criticism. Thus, for instance, wagers and agreements in restraint of trade are treated under discharge of contracts rather than under formation of contracts, although in both cases the illegality tainting the transaction prevents a contract from ever being formed, so that there is none to be discharged. However, for the most part the arrangement of each subject is excellent, and the table of contents exhibiting it enables the reader to refer promptly to the desired information.

The style of the authors of almost all the articles has been well adapted to the needs of those who will use American Law and Procedure. Legal principles are stated in a plain and business-like way. The text is throughout interesting, and technical expressions are avoided as much as possible, although not at the expense of legal accuracy. Accordingly the books are quite readable. They are not encumbered with a mass of notes, since they have been designed more for students than for active lawyers. Nevertheless, the active practitioner will find much in their pages to repay his careful attention.

Sets of questions are to be found at the end of each volume, which will enable the student's memory and understanding of what he has read to be carefully tested. Another useful feature of the work is the reference to standard text-books and other authorities wherein the subjects covered by the various articles may be found more fully treated. Above all, the correspondence course maintained by the LaSalle Extension University will add vastly to the value of the entire work.

Some of the articles call for special mention by reason of their exceptional excellence. Thus, the treatise on Copyrights and Trademarks, is quite up to date and practical, although for lack of space the trademark laws of the several states could not be set forth. The article on Patent Law is also very good. Dr. Andrews' work on Statutory Construction has great merit, and forms a valuable part of the general scheme of instruction adopted by the editors of American Law and Procedure. Special mention may be made also of the work on Constitutional Law by Professor Hall.

Many students will be able to gather more from this work than they could from a much larger and more pretentious one. Its limited size prevents it from being anything like exhaustive. But the very curtailment of the discussion on many topics, which confines the student's attention to basic principles, makes for a clearer understanding of those principles. In the larger digests and encyclopædias which purport to cover the entire field of American law, the beginner's attention is distracted by a multitude of conflicting decisions, and often where there is no conflict, the main outline of the law is lost sight of in a maze of petty details. American Law and Procedure will, therefore, find a place in legal literature, and will doubtless prove of great service to lawyers and general readers, as well as to the students for whom it is primarily intended. The fourteen volumes constituting this set of books are well written. The type is large and easily read. The binding is attractive and serviceable.

JOHN J. SULLIVAN.

*Philadelphia.*

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**Jenks, J. W.** *Governmental Action for Social Welfare.* Pp. xvi, 226. Price, $1.00. New York: Macmillan Company, 1910.

The chapters that make up this volume were given as the Kennedy Lectures, for 1907-08, in the New York School of Philanthropy. The title, which suggests an examination and exposition of principles underlying social legislation and administration, is a trifle misleading, for the book discusses the practical and personal difficulties that must be recognized and overcome in getting adequate legislation and effective administration.

Beginning with a summary of the handicaps to which social thought and action are subject, and of the prejudices that must be reckoned with in practical relations with men, the chapters take up in succession the problems involved in dealing with the various departments of government. The human element is emphasized throughout. Legislation is ever a matter of compromise. The average legislator is a practical man. He may be aware of the worth of a measure, but is unlikely to urge it unless there is a strong chance of success. He is likely to defer its consideration until a more favorable time, or by piecemeal gains to reach desired ends in the spirit and by the methods of compromise. With this, the social reformer should not be impatient. The reformer is largely a product of his surroundings and experiences. He must remember that those upon whom he depends for governmental action in the interest of social welfare are likewise a

product of the conditions amid which they live. Their conception of social and legislative activity, as well as their methods of work, must ever be viewed in this light. "Those, therefore, who wish to improve the welfare of society must study carefully the conditions of the state at the time of their movement, and must see to it that their reforms are adapted to those conditions."

Such is the vein of thought that runs through the book. The successive chapters are illustrative of its applications in various directions. The main weakness of these discussions is an apparent unwillingness to get down to fundamentals, and an all-sidedness of view that verges perilously on no-sidedness. The main element of strength is the mass of illustration that Professor Jenks' varied experience so richly affords.

ROSWELL C. MCCREA.

*New York City.*

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**Johnston, Henry H.** *The Negro in the New World.* Pp. xxix, 499. Price, $6.00. New York: Macmillan Company, 1910.

Whatever its merits and defects this volume is the most comprehensive study yet issued on this subject. It is likewise the best illustrated. We often forget that in the two Americas there are upward of 25,000,000 negroes (including descendants of mixed blood), of whom about 10,000,000 are in the United States.

The author is, perhaps the best informed man living as to conditions in Africa, where he has traveled widely and about which he has written many books. It is evident that he has read a wide literature dealing with the history of the transfer to the New World. The present book will be a most convenient source of information to the student wishing to learn of the history of slavery under the various old world nations in so far as their colonies here are concerned. This wide range, with the happy style of the author, and his wise choice of illustrations give great charm and value to the volume. The strength just noted, hints at its weakness—the danger of superficial observation. A knowledge of literature plus a brief journey through the United States hardly qualifies any man to pass adequate—let alone final—judgment on the situation.

Passing in review the physical characteristics of the negroes and the influence of the African environment, the author assigns the negro a place in a sub-order of the human race somewhere between the Australian natives and the whites. However in describing the influence of the African environment the author makes it clear that he is by no means certain how much of the imputed inferiority is due to race, how much to hard conditions of life.

The few pages on America before the negro came, contain a meager account of the Indians, chiefly in South America. This account is so poor that the chapter might have been left out. Then follow in order the description of slavery under the Spaniard, the Portuguese, the Dutch, the French, the British, the Danes, the chapters well illustrated, including good maps.

Beginning on page 353, the balance of the book is devoted to the United States. There is first a rambling account of the introduction and employment of slaves, the rise of the anti-slavery attitude, though the statement that the Quakers "set their faces steadfastly against negro slavery" is hardly accurate. A very good summary is given of the legal developments affecting slavery.

The chapter on slavery in the Southern states sketches the social development with little reference to economic conditions. The author severely criticises the South and wonders that ten thousand men did not follow John Brown instead of a mere handful, and tells how the "haughty South" —"goes about"—"with a twinkle in the eye and an amused glance at the negro institutes and colleges which are rising on every side."

The chapter on education is first devoted to the Hampton Institute, the grounds of which offer an "orderly beauty rarely to be seen in the United States." The author suggests that peacocks are needed. The plantation melodies, however, did not strike a responsive chord in his heart. The religious philosophy taught here and elsewhere is too narrow and some knowledge of "the newer Bible we are just learning to read, the Story of the Earth on which we dwell" is suggested. "The fetish of the Old Testament," the neglect of modern science is deservedly criticised. The effect of Hampton and Tuskegee on the students is highly commended. He speaks of the training in dressmaking at Tuskegee and criticises the color schemes suggested by the teacher as being designed for the color of the whites and ignoring the very different skin tints of the negro.

The beauty of the southern land greatly impressed the writer though he met no negro who seemed to have observed the *"gorgeous landscape beauty."* The author made a brief trip through the negro belts of Alabama, Mississippi and Louisiana. He thinks there is a deliberate tendency to exaggerate assaults on white women. The wanton lynchings by whites impress him as very ominous. He says, and correctly, that the United States needs a rural constabulary.

On the whole the negro is much more a part of the people than are the Chinese. They are better situated than many Europeans. Nowhere else in the world has he taken so great advantage of his opportunities. He suffers now under many handicaps, but the day will come "when the white American meets his brown-skinned brother on equal terms in the mart, the exchange, the university, and the theatre," and if then he comes across "some old book of the early twentieth century" will "smile at the rude diatribes of a Vandaman." Evidently then he hopes for a happier future.

Unfortunately the author shows no familiarity with some of the best current literature which is studious and descriptive rather than controversial. For instance, no mention is made of the work of Alfred Holt Stone or Walter F. Willcox, to mention one Southern and one Northern man. The volume is valuable, however, for its comprehensiveness, its historical review, and the frank expression of the author's impressions.

CARL KELSEY.

*University of Pennsylvania.*

**Palgrave, R. H. I.** (Ed.). *Dictionary of Political Economy.* 3 vols. Pp. lii, 2529. Price, $15.00. New York: Macmillan Company, 1910.

All three volumes of Palgrave's *Dictionary of Political Economy,* were reprinted, with corrections, in 1910. The changes in the main body of the work have been confined to minor detail without alteration of paragraphing or paging. The dictionary was, however, brought down to date in 1908, by an appendix to volume three which contains brief articles supplementary to the papers contained in the volumes as formerly published, and which discuss topics that have become important during recent years.

The editor says in his introduction to the preface that "At no period of the history of the world has applied science done more to assist industry, to facilitate the means of communication, and to promote the development of business than during recent years." The changes in economic activity and thought, the growth of government regulation of, and interference with, commerce and industry, the establishment and activity of the Hague Tribunal, the progress of labor organization, these and many other questions of first-rate importance are appropriately discussed in the appendix to volume three.

Such a work as Palgrave's *Dictionary of Political Economy,* is an indispensable reference book for all students of economics, American as well as English. It is an essential part of any well-equipped public or private library. However, the work is mainly, though not exclusively, the creation of English scholarship, and the point of view in most parts of the volumes is English. It is probably impossible for an English or German encyclopedia to lay such emphasis upon American topics as to make the treatment entirely satisfactory to American students. Likewise, it is not to be expected that American scholars can produce a work that will meet all the needs of foreign students. Palgrave's volumes are of the highest rank, but there is still need of a similar dictionary by American scholars. A *Cyclopedia of American Government,* is now being written under the general editorship of Professor Albert Bushnell Hart of Harvard University and Professor Andrew C. McLaughlin of the University of Chicago. This American work, together with Palgrave's *Dictionary of Political Economy,* and Conrad's *Handwoerterbuch,* will give students of economics and government comprehensive and authoritative reference works.

EMORY R. JOHNSON.

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**Quaife, Milo M.** (Editor and annotated by). *The Diary of James K. Polk During His Presidency, 1845-1849.* 4 vols. Pp. xxxii, 1962. Price, $20.00. Chicago: A. C. McClurg & Co., 1910.

The publication of the diary kept by President Polk during the greater part of his administration is a notable event, as it is a historical document of great importance. Probably no other President has been more misunderstood, adversely criticised, and even maligned, than President Polk. To be sure, several historians within recent years, notably the late Professors Bourne and Garrison, as also Dr. Schouler and Professor McMaster, have had access to the diary in its manuscript form and they have done much

to correct that former view of Polk's character which found expression in the name frequently given to him of "Polk, the mendacious." "It is not unlikely, however, that these printed pages," to quote from the opinion expressed by Professor A. C. McLaughlin in his appreciative introduction, "will bring in a new and juster estimate of Polk himself and a fairer view of the four years which, judged by results, are second in importance to few periods in our history."

The diary owed its origin, as Polk records, to "a very important conversation" which took place on August 26, 1845, in a Cabinet meeting, between himself and Buchanan, on the Oregon Question. "This conversation," writes Polk, in the cold matter of fact style, that characterizes all his entries, "was of so important a character that I deemed it proper on the same evening to reduce the substance of it to writing for the purpose of retaining it more distinctly in my memory. . . . It was this circumstance which first suggested to me the idea, if not the necessity of keeping a journal or diary of events and transactions which might occur during my Presidency" (II, 101). From this time on throughout the remainder of his administration and, indeed, until June 2, 1849, only two weeks before his death, he with great fidelity and conscientiousness adhered to his resolve and chronicled the events of the day, oftentimes at considerable inconvenience. There is no evidence that Polk kept the diary with any expectation of its future publication, although there are here and there indications that he may have had in mind the possibility of making use of it in the preparation of an autobiography, or historical review of his administration. Thus he writes on one occasion, "If God grants me length of days and health, I will, after the expiration of my term, give a history of the selfish and corrupt considerations which influence the course of public men, as a legacy to posterity" (II, 329). His early death prevented any such intentions from being carried out, if they were seriously entertained. Mrs. Polk, however, desired some friend of her husband to make use of this voluminous record and other papers, to prepare a history of Polk's administration, but her wishes were not carried out. In 1901 the Chicago Historical Society purchased the manuscript of the diary, which up to that time had been in the possession of the Polk family, and it is due to this Society that the diary is now presented to the public more than sixty years after the events that it records occurred.

No other President, save John Quincy Adams, has left so full and minute a record of his administration. In its pages are presented with great fulness the proceedings of the Cabinet. In the most direct and matter of fact way Polk records the views he had expressed on all the important questions of the day, such as the annexation of Texas, the settlement of the Oregon boundary, the war with Mexico and the resulting acquisition of California and the great Southwest, the struggle over slavery in the territories which, with the introduction of the Wilmot Proviso, entered upon a new and more acute stage. Many of these entries throw such new light on the views of Polk that they will correct many misconceptions, and will necessitate a reconsideration of the judgments that had been passed upon

his acts. As Professor McLauglin declares, "We are likely to form a more charitable estimate of his dealing with Mexico and England, and to acquit him of any pusillanimous bluster and surrender to England while engaged in imperiously giving intentional affront to Mexico" (I, xiv). The diary shows that in the case of Oregon he stood out courageously in the face of the opposition of Buchanan, his Secretary of State, and the southern wing of his party, for a firm policy towards Great Britain even at the risk of war. Although he did not secure the extreme demands of the democratic platform, he forced Great Britain to offer the very terms that she had previously rejected. Again these pages show that while Polk was an expansionist and desired to extend the boundaries of the United States to the southwest, they acquit him of the charge that he made war on Mexico in the interests of slavery extension. Later he even successfully opposed the proposal for the annexation of "all of Mexico" against a strong section of his party.

That he was a nationalist is apparent from numerous comments on the slavery question. Not only did he condemn the Wilmot Proviso as "mischievous and wicked," but on the other hand he was equally emphatic in his condemnation of the course of Calhoun and the Southern members of Congress. He writes "I feared that there were a few Southern men who had become so excited that they were indifferent to the preservation of the Union. I stated that I put my face alike against Southern agitators & Northern fanatics & should do everything in my power to allay excitement by adjusting the question of slavery and preserving the Union" (IV, 299).

No civil service reformer could be more severe in his condemnation of the professional office seeker than Polk. His diary fairly bristles with the invectives he hurls against the "herd of lazy loafers" and "patriots" who continually harassed him during the whole of his administration. From the numerous quotable passages relating to this subject, the following must suffice: "The people of the U. S. have no idea of the extent to which the President's time, which ought to be devoted to more important matters, is occupied by the voracious and often unprincipled persons who seek office. . . . It requires great patience & full command to repress the loathing I feel towards a hungry crowd of office hunters who often crowd my office" (III, 419). Repeatedly, he declares, "I most sincerely wish that I had no offices to bestow" (I, 261, 446; II, 105).

Polk committed to the confidence of his diary the most unsparing criticism of his contemporaries. He draws a most unpleasant portrait of Buchanan. While recognizing his ability, he regarded him as selfish, insincere, inconsistent and capricious. He was the one member of his Cabinet that caused him the greatest embarrassment. "All his acts and opinions," he writes, "seem to have been controlled with a view to his own advancement, so much so that I can have no confidence or reliance in any advice that he may give upon public questions" (III. 403). Of Calhoun's character also he formed a very poor opinion, believing that he "had become perfectly desperate in his aspirations to the Presidency, and had seized upon the sec-

tional question as the only means of sustaining himself in his present fallen condition. . . . He is wholly selfish & I am satisfied has no patriotism" (II, 457-9). From passages of similar frankness, we gain not only Polk's estimate of the character and purposes of his associates, but also a conviction of his own love of the Union and his condemnation of self-seeking and partnership that placed devotion to party above principle.

Indeed, not only does the diary present Polk in a new light as a statesman, but it also increases our respect for him as a man. Although he appears narrow, cold some times, indeed, prejudiced and inclined to place a low estimate upon the motives of men in general, nevertheless he is revealed as possessing a large measure of good judgment, decision, firmness and courage, as well as directness and perseverance, a man of force, who dominated his Cabinet and successfully carried to conclusion all of the measures he had determined upon at the opening of his administration.

The editor has taken few liberties with the text, beyond leaving out repetitions, supplying in brackets obvious omissions, and modernizing the punctuation. Professor Quaife contributes a short biographical sketch of Polk and some brief and helpful notes, which might have been multiplied and extended to advantage. The one adverse criticism upon the editor's work relates to the index, which is far from complete. Several excellent reproductions of portraits of Polk are given, and the press work is all that could be desired.

HERMAN V. AMES.

*University of Pennsylvania*

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**Rowntree, B. S.** *Land and Labour: Lessons from Belgium.* Pp. xx, 633. Price, $3.50. New York: Macmillan Company, 1910.

Mr. Rowntree was led by his study of poverty in England to investigate the connection between social conditions and the system of land tenure in various European countries. But as this task soon proved too vast, he limited himself to the single country of Belgium, and the present volume is the result. The study is, therefore, a sociological, quite as much as a purely industrial or agricultural one; for the questions ever present in the mind of the author were apparently "why did this come to be?" and "how can it be remedied?" The volume is divided into six parts, of which the first deals with the social and economic conditions of Belgium; the second considers the industrial life; the third the agricultural; the fourth the factors of education, transportation, and taxation; the fifth, which is the longest, discusses the standard of life, including such problems as co-operation, intemperance, housing, pauperism, unemployment, etc. The last part presents the author's conclusions.

A mere summary of the contents cannot give a fair idea of the comprehensive scope of the work or of the labor involved in its preparation. The author states that it is the result of "four years' close study." There were no census reports from which data could be secured, and in some cases, especially in the investigation of land ownership, mortgages, etc.,

special investigations had to be made, involving enormous labor and large expenditures. In these investigations, however, the Belgium government gave its assistance, or lent its authority, and the result is almost equivalent to a census report on agricultural conditions. It is along these lines that the volume is at once most interesting and most valuable.

Belgium is densely populated and supports a large industrial as well as agricultural population. The land is subdivided into numerous small holdings, at least one in ten persons owning some land, and forty-seven per cent of the soil being held by persons whose holdings do not exceed 100 acres each. The average size of the farm in Belgium is 14.5 acres as compared with 146.6 acres in the United States. So great is the land hunger among the peasantry, however, that the farms are often too small for the most economical working, and the parcels are widely scattered. One chart, compiled by the author, shows a farm of twenty-eight acres split up into thirty-two different plots, the farthest of which were thirty-five minutes' walk from the farm house. As a result of this minute subdivison of the land, little machinery is used, rents are high, and cultivation is intensive and laborious.

As an industrial center Belgium shows extraordinary activity and produces a great variety of goods. But in industry as in agriculture, profitable production is purchased at the cost of low wages and long hours. The workers seem often underfed, the standard of living is low, illiteracy is common, the consumption of alcohol is large, and the disbursement of poor relief tends to pauperize the community. On the other hand, Belgium has valuable lessons, at least for England, in her policy of afforestation, in the construction of light, cheap railways, and in the aid given workingmen in the purchase of their homes. But much remains to be done to improve economic conditions and develop the industrial capabilities of the people. Among these remedial measures the author names factory legislation, compulsory education, restriction of the liquor traffic, and the reform of the system of poor relief. But a higher standard of life among the working people themselves is also necessary, and a better organization of their trade unions.

He would be a captious critic who would complain of this volume. In writing it Mr. Rowntree has performed a service which is possible for but few private investigators on account of the large expenditure of time and money involved. The work has been done in a most careful and painstaking fashion, and the results are thoroughly trustworthy and instructive. High praise must be accorded the volume as a whole. The impression is unavoidable, however, in reading the chapters on agricultural conditions, that they were written by a townsman rather than by an agriculturist, though this does not detract from their value as an economic study. Not merely may Englishmen derive profitable suggestions from the chapters on land tenure, forestry, railway building, etc., but Americans also should take to heart the lessons of Belgium's experience before Old-World conditions of land ownership and industrialism develop further in this country.

*University of Illinois.* ERNEST L. BOGART.

**Seager, Henry R.** *Social Insurance: Program of Social Reform.* Pp. v, 175. Price, $1.00. New York: Macmillan Company, 1910.

In this work Professor Seager has given to the public the Kennedy Lectures delivered by him in 1910 in the New York School of Philanthropy. To the reviewer this work commends itself from two points of view—as a contribution to the literature of workmen's compensation and insurance, and as a courageous advocacy of the general principle that certain of our more pressing social problems can be adequately met only by the state itself taking direct positive action. From the first viewpoint the book makes no pretense of being a work of original research or even one giving a full account of action which has been taken in this and other countries in the field to which it relates. Instead, it is an effort to bring before social workers the importance which the questions having to do with the insurance of the poorer classes occupy in the general program of social work, and the more significant features of the problems involved.

In successive chapters each of the contingencies, accidents, sickness, invalidity resulting from old age or other causes, and unemployment, which are responsible for the economic insurety of labor, is taken up for consideration. The value of this consideration lies, not in the bringing out of facts not previously readily accessible in other works, but in the fact that it gives us the clearly-expressed opinion of one of our leading economists regarding the many difficult questions of policy which this subject of workmen's insurance presents. On all these questions the author has let his audience know exactly where he stands.

As already stated, a second point of interest in this volume is the emphatic repudiation by the author of the principle of laissez-faire as regards the attitude that the state should occupy towards measures of social reform. "It is the purpose of these lectures," the author writes, "to insist that for the other sections of the country—the sections in which manufacturing and trade have become the dominant interests of the people, in which towns and cities have grown up, and in which the wage-earner is the typical American citizen—the simple creed of individualism is no longer adequate. For these sections we need, not freedom from governmental interference, but clear appreciation of the conditions which make for common welfare, as contrasted with individual success, and an aggressive program for governmental control and regulation to maintain these conditions."

Specifically the author denies that action taken by the state for the insurance of workmen tends to lessen the spirit of independence and self-help which is the most valuable possession of any people. On the contrary, he holds that by increasing the workman's sense of security he relieves him of the deadening effect of the feeling which the poorer classes have of the hopelessness of their efforts to improve their conditions. This is the old question which has divided economists and social workers for years, and which will probably continue to divide them for years to come. In this contest of opinion, however, victory is steadily inclining towards the side of those maintaining the beneficent effect of assistance from the out-

side, where experience has clearly shown that a class unaided cannot work out its own salvation.

W. F. WILLOUGHBY.

*Washington, D. C.*

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**Small, A. W.** *The Meaning of Social Science.* Pp. vii, 309. Price, $1.50. Chicago: University of Chicago Press, 1910.

In the ten lectures here included Professor Small is seeking to interpret to mature minds the present status and problems of social science. Unless one knows something of the field the volume will prove difficult reading. The more advanced student will find it both stimulating and suggestive.

"Knowledge of human experience cannot at best be many: in the degree in which it approaches reality it must be one knowledge." "The main function of the social sciences is to make out the meaning of human experience." This is the keynote to the first three chapters, "Unity of Social Science," "Disunity of the Social Sciences," "Sociological Reassertion of Unity," Here is emphasized the present lack of correlation and collaboration of the sciences—a necessary stage perchance which must yield however to a new conception of unity. There is an "universal reciprocity" between the parts of human experience—this involves interconnections—harmony no matter what becomes of any given study—say sociology.

"The Centre of Dissertation" (chapter IV) indicates that there must be some rallying point and this is the task of interpreting the actions of men. Here sociologists have often gone astray, and by setting up such abstractions as "society" have lost sight of the real man.

In chapter V—the Social Sciences as Terms in One Formula—the author asserts his conviction that the special studies are hardly justified unless the larger relations are kept constantly in mind. "How can we tell whether the emphasis in economic theory should be on production or on distribution until we decide in some provisional way at least, what the goal of economic progress should be?" is his pertinent question. The trouble frequently is that "social scientists are not interested in the fundamental logic of the relations which they profess to interpret."

In the lecture on The Descriptive Phase of Social Science, Professor Small gives the sociologist credit for insisting "that the aim of social science should be nothing less than coherent interpretation of human experience in the large." He suggests a scheme for a large research into some period of history and shows how the various groups might co-operate therein.

"Science is abortion until its function is complete in action." Hence in "The Analytical Phase of Social Science," the discovery of the different valuations of the human groups and their efforts to achieve these in daily life is indicated as the function of the student. This leads to "The Evaluating Phase of Social Science" when we can apply our estimates of moral values. The most reliable criterion would be the consensus of scientists representing the largest possible variety of human interests. Such evaluations will result in "The Constructive Phase." No fixed rule exists for the transfer from

the recognition of the need to the realization in action—yet this is the justification of the whole.

In the closing lecture, "The Future of Social Science," it is noted that "the case of *Men versus Men's Problems,* has taken a change of venue from the theological court to the sociological." In ever-increasing degree, social sciences recognize that improvement of human conditions is their goal. We are coming to social self-consciousness.

The statement is powerful in provoking thought. A valuable book for any student irrespective of the particular section of human action in which he is chiefly interested.

CARL KELSEY.

*University of Pennsylvania.*

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**Surface, G. T.** *The Story of Sugar.* Pp. xiii, 238. Price, $1.00. New York: D. Appleton & Co., 1910.

*The Story of Sugar* is a popular treatise on the sugar industry. It contains sixteen chapters whose subject matter is briefly summarized in the following paragraph:

Chapters I-III, inclusive, are of an introductory nature. Chapter one describes the occurrence of sugar in nature, as in roots, fruits, stalks, trees, and honey; chapter II presents the important points in the history of the sugar industry from the earliest time to the present, and chapter III discusses various matters connected with sugar as a food. Chapters IV-VI are devoted to the cane-sugar industry, pointing out the controlling economic and geographical factors in production, and describing the present condition of the industry in the United States and other countries. Chapters VII-XI are devoted to beet sugar, and they form the most important part of the book. Again, they discuss the general factors controlling the industry and describe the conditions in the various countries. They point out particularly that during the nineteenth century gradual improvement took place in the tonnage of sugar beets raised per acre of land, in the percentage of sugar content in the beets, and in the completeness with which the sugar was extracted from the beets. Chapters XII-XVI take up miscellaneous matters connected with the sugar industry, including the production and use of syrups, candy, and by-products of sugar; a chapter on the marketing of sugar, with an account of the development of the sugar trust, and a very general chapter on the world's future sugar supply.

The author is an assistant professor of geography at Yale. He gives a simple, non-technical account of an industry concerning which there is a wide and perhaps inexcusable ignorance. His purpose was evidently to compress into a single readable volume as large a body of general information as possible, and he has succeeded very well. For scientific purposes, the work has very little value, and contains nothing new. As a special defect, no references are made to other works on the sugar industry, although several excellent works are in existence. The economist reading the book would like to know more about the influence of invention, labor conditions,

and legislation upon the progress of the industry; also more about the marketing of sugar and the factors controlling its prices. The book is encyclopaedic, and as such, serves a very important function.

JOHN BAUER.

*Cornell University.*

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**Underwood, H. G.** *The Religions of Eastern Asia.* Pp. ix, 267. Price, $1.50. New York: Macmillan Company, 1910.

A long familiarity with one of the lesser Oriental lands (Korea) is no charter to special competency for dealing with so vast and varied phenomena as the welter of far-eastern religions presents. It happens, therefore, that Dr. Underwood's book for the most part is based on secondary sources. Treating of Korea, he furnishes much interesting data especially on local worship and religious functionaries but his interpretive clue throughout is the dogma of a primitive monotheism based on "revelation" from which all heathen faiths have degenerated.

"The earliest worship of which we can find a secular record in the oldest countries was by every indication a monotheism. where with simplicity man worshiped his Creator only. Falling away from this came the deification of kings as the descendants or agents of this God; then came heroes, ancestors in general, powers of nature, resulting in pantheism, polytheism, fetichism; with an endless train of degrading superstitions" (p. 234). It is enough to say that except for this dogma no such interpretation would be suggested by many of the facts.

H. P. DOUGLASS.

*New York.*

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**Wicksteed, P. H.** *The Common Sense of Political Economy.* Pp. xi, 702. Price, $4.50. New York: Macmillan Company, 1910.

*The Common Sense of Political Economy* claims to be a "systematic exposition of the Marginal Theory of Economics." The claim is made good in the first book, which is devoted to minute and often exhausting analyses of the operations, psychological, physical and mechanical, which constitute all economic administration from the marketing by the housewife, to the organization of industry and the technique of foreign exchange. In Book II, which is described as "Excursive and Critical," the Marginal Concept is applied diagrammatically, with the result that certain very pertinent and destructive criticism is brought to bear on the so-called laws of diminishing and increasing returns, and on all illustrations of price as determined by the intersection of a rising curve of cost and a declining curve of utility.

In Book III, the Marginal Concept is applied concretely in the analyses of a "miscellaneous set of phenomena in the social and industrial world, both by way of exercise and by way of testing the principles." Some of the subjects chosen are gambling and speculation, the housing problem, unemployment, depression and crises, the immediate and permanent effects of

attempts to relieve distresses; changes in expenditure, such as would be involved in tariff changes; new forms of taxation, etc. Book I, therefore, is constructive; Book II is critical and destructive; Book III is practical and analytical.

By the application of the marginal principle, Wicksteed means that all economic problems are to be approached from the point of view of the scale of choices and desires of the human agent. "Every purchase," Wicksteed asserts in the introduction, "being a virtual selection, and involving choice between alternatives, is made in obedience to impulses and is guided by principles which are equally applicable to other acts of selection." To understand them we must study the "psychology of choice." In applying this principle to widely differing economic conditions, the reader is conscious of a new interest in many time-honored, even commonplace, facts. The book has many merits, and not the least of them is the new life it infuses into many hackneyed and well-worn themes. But one serious defect mars its usefulness as a text-book and its authority as a piece of research in the psychology of economic processes. The author does not take into account, nor make any mention, of other modern studies in the same field. He does not even make the reader aware that the central theme that price, "the terms on which alternatives are offered," as a problem in the psychology of choice, is a highly debatable proposition; or that since a similar theory of value was put forward by Ehrenfels in 1897, it has been the subject of the closest analysis, and of considerable controversy, with the result that the position has been abandoned in recent years by the majority of German and Austrian students.

MARION PARRIS.

*Bryn Mawr College.*

# REPORT OF THE BOARD OF DIRECTORS OF THE AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE FOR THE FISCAL YEAR ENDED DECEMBER 31, 1910.

## I. Review of the Academy's Activities.

The record of the Academy's activities during the year which has just elapsed must be a source of real satisfaction to our members. All the sessions have been well attended, and we have now reached a point at which those who have a message to deliver to the American people are anxious to avail themselves of the Academy for the delivery of such message. The influence of our publications has been strengthened, as is attested by the increasing use of such publications not only in our colleges and universities, but by many civic, commercial and other organizations.

The rapid growth of the Academy's work and influence again brings up a question which your board has emphasized at each successive annual business meeting; namely, the need of a separate building for the Academy, with adequate accommodations for the administrative and editorial work, for a library, and for a hall in which our monthly sessions, as well as the annual meetings, might be conducted. Your board is working on a plan to secure, on the occasion of the celebration of our twenty-fifth anniversary in 1914, a fund sufficient to carry out this purpose. Such a fund would, furthermore, enable the Academy to carry on a series of independent investigations, which would aid us greatly in increasing our contributions to social and economic questions, and would also strengthen the Academy's influence on the public opinion of the country.

## II. Publications.

The system of publishing six special volumes each year has now become so firmly established that there is no further thought of departing therefrom. These volumes occupy the position of standard reference works on the subjects with which they deal, both in this country and abroad. They are constantly referred to in public discussions of economic and social problems. During the year 1910 the following special volumes appeared:

January—The New South.
March—Public Recreation Facilities.
May—Stocks and the Stock Market.
July—Administration of Justice in the United States
September—Settlement of Labor Disputes.
November—Banking Problems.

In addition, there were issued during 1910 the following supplements:

January—Development of Germany as a World Power.
March—Child-employing Industries.
May—Significance of the Woman Suffrage Movement.

July—Commercial Relations Between the United States and Japan. Significance of the Awakening of China.
September—The Work of the National Consumers' League.

### III. Meetings.

During the past year the Academy has held the following meetings:
February 9—"The Significance of the Woman Suffrage Movement."
April 8-9—Fourteenth Annual Meeting (five sessions)—"Administration of Justice in the United States."
November 17—"The Meaning of Popular Government."
December 8—"The Need for Currency Reform."

### IV. Membership.

The membership of the Academy on December 31, 1910, including subscribers, was 5,467. Of these, 1,122 are residents of Philadelphia; 4,036 are residents of the United States outside of Philadelphia, and 309 are foreign members. Compared with the membership on December 31, 1909, we find that in the Philadelphia membership there is a gain of 62; in the membership in the United States outside of Philadelphia, 358; or a total gain of 420. Seven members, Captain John B. White, Arthur E. Hepburn, Henry Kraemer, George R. Howe, David H. Miller, Samuel P. Avery and Baron M. Saito have been transferred to life membership.

During the year the Academy lost, through death, 76 of its members, five of whom were life members. The death of these members has deprived the Academy of some warm friends and enthusiastic workers.

### V. Financial Condition.

The receipts and expenditures of the Academy for the fiscal year just ended are clearly set forth in the Treasurer's report. The accounts were submitted to Messrs. E. P. Moxey & Co. for audit and a copy of their statement is herewith appended.

In order to lighten the burden of expense incident to the annual meeting, a special fund, amounting to $1,510 was raised. The board takes this opportunity to express its gratitude to the contributors to this fund.

### VI. Conclusion.

In conclusion, your board desires to make a plea for a more active cooperation of the members of the Academy in the furtherance of the purpose for which the Academy was founded. We have but begun to utilize the Academy's opportunities, and our future growth will depend, to a very large extent, upon the interest and enthusiasm shown by our members.

The Treasurer's report is appended:

SUMMARY OF INCOME AND EXPENDITURES FOR THE YEAR ENDED DECEMBER 31, 1910.

| | | |
|---|---|---|
| Cash on hand January 1, 1910 | | $7,745.38 |
| *Income.* | | |
| Annual membership fees | $22,610.16 | |
| Life memberships | 709.64 | |
| Special contributions | 1,510.00 | |
| Subscription to publications and sales thereof | 8,274.70 | |
| Income from investments | 2,361.91 | |
| Income from bonds matured | 4,500.00 | |
| Interest on deposits | 139.02 | |
| | | 40,105.43 |
| | | $47,850.81 |
| *Expenditures.* | | |
| Clerical services | $6,008.18 | |
| Printing, stationery and postage in connection with publication of ANNALS and with general correspondence | 19,269.82 | |
| Office expenses | 2,851.01 | |
| Expenses of meetings | 2,243.74 | |
| Profit and loss | 5.00 | |
| Investments purchased | $12,975.00 | |
| Interest, premiums and commissions on above purchases | 266.56 | |
| | $13,241.56 | |
| | | 43,619.31 |
| Balance, December 31, 1910 | | $4,231.50 |
| Distributed as follows: | | |
| Mortgage Trust Company of Pennsylvania | $3,807.50 | |
| Centennial National Bank | 200.00 | |
| With A. S. Harvey | 134.65 | |
| With E. Tornquist | 100.00 | |
| | $4,242.15 | |
| Less overdraft Academy office | 10.65 | |
| | | $4,231.50 |

# Political and Social Progress in Latin-America


THE ANNALS

VOL XXXVII No. 3 MAY, 1911

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PHILADELPHIA
AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE
36TH AND WOODLAND AVENUE
1911

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# BOOK DEPARTMENT

CONDUCTED BY FRANK D. WATSON

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REVIEWS



## LIST OF CONTINENTAL AGENTS

FRANCE: L. LAROSE, Rue Soufflot 22, Paris.
GERMANY: Mayer & Müller, 2 Prinz Louis Ferdinandstrasse, Berlin, N. W.
ITALY: Direcione del Giornale Degli Economisti, via Monte Savello Palazzo Orsini, Rome.
SPAIN: Liberia Nacional y Extranjera de E. Dossat, antes, E. Capdeville, 9 Plaza de Santa Ana, Madrid.

# INDIVIDUAL EFFORT IN TRADE EXPANSION[1]

By Hon. Elihu Root,
United States Senator from New York.

Governments may hold doors open all over the world, but if there is no one to go through them it is an empty form, and people get tired of holding doors open as an empty form. The claims of a government to consideration soon come to be regarded as pretentious unless there are really substantial interests behind the claims. No government, and least of all our government, least of all a democratic republic, can make commerce to go through open doors, to avail itself of fair and equal treatment, and to give substance and reality to the theoretical increase of amity and friendship between nations. The people of the country must do it themselves, and they must do it by individual enterprise; they must do it by turning their attention toward the opportunities that are afforded by friendly governments, by availing themselves of those opportunities, and by carrying on their business through availing themselves of them. But while it is a matter of individual enterprise, while that must be the basis of all development and progress, all advance, all extension, nevertheless, there must be something besides the individual enterprise. The great principle of organization which is revolutionizing the business and the social enterprise of the world, applies here as it applies elsewhere. No single business can make very much advance except as all other business of the country makes advance. No one can go into a new field very far in advance of others; and the way for each man to make his business successful in a new field is to do his share as a member of the community, as a citizen of his country, as one of the great business organizations of his country, to advance the trade, the commerce, the influence of his country as a whole in the field into which he wishes to enter. A recognition of the dependence of each man's business for its prosperity and progress upon the prosperity and progress of the business of all is necessary in order that

[1]Address delivered at the Pan-American Commercial Conference, Washington, D. C., February 17, 1911.

there be real progress. Now, there are governments which undertake actively to lead in this direction, and they are governments which are making enormous progress. Germany, a country regarding which Mr. White has just spoken in such apt and appropriate terms, leads, and to a considerable extent in various directions, it requires the combination of her manufacturers, her producers, and her commercial concerns. Japan practically does also. There is solidarity brought about by the wonderful organization of that combination; so that it is one for all, and all for one, under government leadership. We can not do it here. Our country can not take that kind of lead. Our people do not conceive of that as a function of government, and as far as the activities of our government are concerned, they are largely engaged in breaking up organizations which do increase the industrial efficiency of our country. I do not want to be understood as criticizing that. It is all right to break them up when they are taking too great a portion of the field for themselves. It is all right and important to break them up when they are monopolizing the means of subsistence that should be spread throughout the great body of the people. But we must recognize the fact that when our government does enforce the law—a just law, wise law—against our great commercial and our great industrial organizations, it reduces the industrial efficiency of the country. There is only one way to counteract that effect, not violating any law, but securing through organization the united action, and concentrated action of great numbers of Americans who have a common purpose, substituting that kind of organization for the organizations which it is the duty of our government to break up, because they are contrary to our laws.

I am much gratified by this meeting and by the association of so many practical men, business men, who, by uniting, are really creating a new force in this direction, upon which I am sure we ought to move.

Let me say one thing about the practical direction of your efforts. The so-called ship subsidy bill has been reduced now to nothing but the proposition that the government should be authorized to pay out of the profits of the ocean mail service adequate compensation to procure the carriage of the mails by American steamers to South America; that is what it has come down to. It passed the Senate, as Mr. White has said, only by the casting of the vote of the Vice-President, and I do not know

what will be done with it in the House. I am afraid in these last days that it may be lost in the shuffle.

There are two reasons why that perfectly simple and reasonable proposition failed to carry a great majority of the Senate, and fails—if it does fail—to be certain of passing the House. One is because there is a difference between the people who want to have the thing accomplished about the way in which it should be accomplished. That is one of the most common things in the world. A certain set of men who want to have a revival of our merchant marine say the way to do it is to pay subsidies, the way to do it is to equalize the differences between the cost of maintaining and running an American ship and the cost of maintaining and running a foreign ship, and to equalize the subsidies paid by practically all the other great commercial nations to their steamship lines. Another set of men who equally desire to restore our merchant marine say that is not the right way; the right way is to throw open the doors and enable our people to buy their ships abroad; but still others say the true way is to authorize our ships to employ crews and officers of the low-priced men of the world, relieve them from the obligations that are imposed upon them in respect of the employment of Americans, people of the United States, who will require the high standard of living that has been produced in the United States by the operation of our protective system, relieve them from the obligations which are imposed upon them by our laws in regard to the requirements of the crew and air space, the food, and the treatment that a crew is to receive, so that it will be cheaper to run an American ship. Now, between these different sets of people, having different ideas of the way to accomplish a thing, nothing is done; and that situation which exists so frequently regarding so many measures will exist forever unless there is put behind the proposition a force that gives it a momentum to carry it over such obstacles; put force enough behind it so that the gentlemen in the Senate and House of Representatives understand that they are going to be held responsible by the American people, going to be held responsible for not doing the thing, for not finding out some way to do it, and they will come to this sensible conclusion very shortly, and that is:

"We will settle the controversy about the way it should be done

by trying one thing first, and if that don't work we will try the other."

Another difficulty about this measure is that there is a difference in appreciation of its importance in different parts of the country. Down here on the seaboard I think most people do appreciate it. You appreciate it; all the people who are concerned, or wish to be concerned, in South American trade, or trade of the Orient, appreciate it; but you go back into the interior of the country, into the great agricultural states of the Northwest, and the farther Middle West, states along in the valley of the Mississippi and the Missouri, and the people there are thinking about other things, and they have a natural dislike for subsidies, and when told that a measure means giving somebody else something for nothing they express and impress upon their representatives a great dislike for it. The way for us to get something done is not for us who are in favor of it to talk to each other about it. We can do that indefinitely without getting much further. The way is to take steps to bring to the minds of the people of the valley of the Missouri and the Northwest, and those great agricultural states the importance to them, as well as to us, of having our merchant marine restored.

I noticed here the other day that the people of San Francisco were justifying their confidence in themselves by procuring all their business correspondents in the State of New York to write letters to me in favor of having the great "Exposition and Celebration of the Opening of the Canal in San Francisco;" and these letters came in by the thousand from my constituents. They became so tiresome that I came very near voting against the project as a measure of revenge, but it showed the San Francisco people understood where to go in order to preach their doctrine. They did not talk to each other on the Pacific coast about it. They came to New York and got their business correspondents interested in it and got them to talk to their representatives about it. That is what you want to do in Kansas and Nebraska and Iowa and the Dakotas—you want, through all the relations that you have, and by every means in your power, to represent to the people of those great interior states, who have but little direct relation with the ocean commerce of the world, the real conditions under which we exist, and the importance to the whole country of doing some-

thing; and if they do come to appreciate the importance to the country of doing what you are talking about, then they will be for it, for they are sincere, patriotic Americans.

There is but one thing more I want to say regarding the relations which underlie the success of such an enterprise as you are now engaged in. Of course, you have had a great amount of advice and a great many speakers have told you a great many things you know, and I am going to put myself in line with the distinguished gentlemen who have preceded me by doing the same thing. At the basis of all intercourse, commercial as well as social, necessarily lies a genuine good understanding. That can not be simulated; the pretense of it is in general in the long run futile. People trade with those with whom they have sympathy; they tend to trade with their friends. The basis of all permanent commercial intercourse is benefit to both parties—not that cutthroat relation which may exist between enemies, where one is trying to do the other—and a relation upon mutual respect, good understanding, sympathy, and friendship, and the way to reach the condition which is thus essential is by personal intercourse and acquaintance between the men of Anglo-Saxon or German or Norse, or whatever race they may be, peopling the United States, and the men of the Latin-American race peopling the countries of the South. This is something, my friends, in which our people are very deficient. So long we have been separated from the other nations of the earth that one of our faults is a failure to appreciate the qualities of the people who are unlike us. I have often had occasion to quote something that Bret Harte said about the people of a frontier western camp, to whom came a stranger who was regarded by them as having the defective moral quality of being a "foreigner." Difference from us does not involve inferiority to us. It may involve our inferiority to somebody else. The sooner our business men open their minds to the idea that the peoples of other countries, different races and speaking different languages and with different customs and laws, are quite our equals, worthy of our respect, worthy of our esteem, regard, and affection, the sooner we shall reach a basis on which we can advance our commerce all over the world. A little more modesty is a good thing for us occasionally; a little appreciation of the good qualities of others—and let me tell you that nowhere on earth are there more noble, admirable and lovable

qualities to be found among men than you will find among the people of Latin-America.

Gentlemen, I hope for you the effectiveness of a great and permanent organization and that you may advance the time when through more perfect knowledge, through broader sympathies and a better understanding, ties of commerce may bind together all our countries, advance our wealth and prosperity and well-being with equal step as they advance the wealth and prosperity and well-being of all those with whom we deal, and advance the tie of that perfect understanding of other peoples which is the condition of unbroken and permanent peace.

# THE FOURTH INTERNATIONAL CONFERENCE OF THE AMERICAN STATES[1]

By Hon. Henry White,
Chairman of the American Delegation to the Fourth International Conference of the American States.

The promotion of friendship and closer relations with Latin-America is not a new subject to me. On the contrary, it is one, the vast importance of which to our interests and to those of the countries in question I have long realized, and its importance will be immeasurably increased with the opening of the Panama Canal. For years past I have availed myself of every opportunity to cultivate the friendship of the diplomatic representatives accredited from the other American republics to the country in which I happened for the time being to represent the United States, and to make them feel that they shared with me the honor of representing America as a whole. The result of this was not only the creation of a strong feeling of American solidarity among us all, the moral effect of which was beneficial to our respective interests in the particular foreign country to which we were accredited, but it also enabled me to realize how earnestly all the best elements in the different countries of Latin-America desire closer relations with the United States and the chief obstacles which exist to the complete realization of that desire.

It is deeply to be regretted that those vast fields for lucrative investment to the south of us—particularly in the far South—have unfortunately attracted little or no attention among our own people, and it is a source of delight and satisfaction to me which I can but inadequately express, to realize that at last we have begun to turn our attention, as a nation, to this most important subject, and that representatives of distinguished commercial bodies from all sections of the country are here in conference assembled to discuss it seriously.

Well, gentlemen, greatly as the importance of our relations with countries to the south of us had previously impressed itself

[1]Address delivered at the Pan-American Commercial Conference, Washington, D. C., February 17, 1911.

upon me, that impression was strengthened a hundred fold by my visit last summer to those two great countries of the far South, Argentina and Chile.

I wish I could give this assembly an adequate idea of the complete harmony that prevailed, and feeling of American solidarity, in the deliberations of that great Parliament of America, the Pan-American Conference at Buenos Ayres, which sat for over seven weeks, and in which not a single unkind or unfriendly word was uttered from beginning to end; of the desire manifested by all other delegates to fall in as far as possible with the views of their colleagues from the United States; and of the warm personal friendship established, which, as far as I am concerned, will be lasting between each and every delegate to the conference.

You will, however, shortly have in your hands the report to the Secretary of State of our delegation to the late Buenos Ayres conference, and I would suggest that every member of this conference read the allusions to our country made in the opening and closing speeches of the two Argentine Ministers of Foreign Affairs, who successively held office during the sessions of the conference, and also the speeches of the President of the conference, himself, on the days of its opening and of its close. I may add that similar sentiments were expressed by the Chilean President and Minister of Foreign Affairs, during the official visit which our delegates made, as a special embassy to the hundredth anniversary of Chile's independence, in speeches which they made on our arrival and departure.

But perhaps the most interesting feature of the conference—and the most important to us—next to the harmony and friendship which characterized its deliberations, was the close friendship which sprang up there between the three great powers of the far South—Argentina, Brazil and Chile—known with ourselves as the "A, B, C" of the conference, and the way in which they availed themselves of every opportunity to show their friendship separately and collectively for our country. Neither of the three ever voted otherwise than as our delegation did. We always voted first—by the conference's arrangement, not ours—and the other three voted in the order mentioned, immediately after us; and on the whole. there was very little voting against those four delegations.

Whatever may be said or written to the contrary by those

whose interest it is to promote discord between the countries of Latin-America and ourselves, I have no hesitation in asserting that those great powers of the South have no longer any fear of our wishing to obtain territorial extension at their expense or at the expense of any other country, or of our aspiring to any other undue advantage over them; and they sympathize fully with the efforts our government is making to improve conditions in Central America. It is to my mind of the greatest advantage to all America, and to this country particularly, that there should be at the southern end of our hemisphere three important powers in complete sympathy with each other and with ourselves, and anxious to develop trade relations to the greatest possible extent with us.

Those great countries are above all things desirous that our merchants should come there and do business with theirs, and they cannot understand why we should so long have neglected the opportunities they offer us, and should have left them entirely in the hands of other great commercial countries. Not only Great Britain, which has been investing for more than a century in the Argentine Republic and other American countries, has, I was credibly informed, 2,500,000,000 of dollars invested in the former alone, producing an average annual return of at least 10%, but Germany, Italy, France and other countries—the first particularly, are doing likewise. A first-class passenger and freight steamer arrives nearly every day at Rio de Janeiro and Buenos Ayres from one European port or another. There are a number of British, German, Italian and other foreign banks, in those and other Latin-American cities, and, what is perhaps most important of all, the citizens of the countries named go to Latin-America themselves—or send fellow citizens in whom they have confidence, knowing the language of those countries—and attend in person or through such fellow citizens to their own business. And in this connection, I venture to appeal to those present here to-day to urge every youth and young man upon whom they have any influence to learn the Spanish, and if possible, one or two other languages, particularly French and German.

But how is it with us—the nation of all others whose influence should be felt in those countries? Not a single American bank in Buenos Ayres or Santiago; the official representatives of our country having to cash their drafts on the Treasurer of the United

States through a British or other bank, via some European city. One direct passenger steamer a month from New York to Buenos Ayres and intermediate ports on the east coast of South America, taking about twenty-five days for the voyage, and another requiring a change of steamers at Rio, in about the same time; and those two ships under the flag of another country!

In addition to this, scarcely an American is to be found permanently representing American business interests in Buenos Ayres, even the sale of the machines of one of the greatest of our agricultural machine manufacturers being in the hands of an agent not of our own nationality, who also sells similar machines from his own country. Can that man be blamed if he gives the preference to the machines of the country from which he hails, and only sells ours when they are asked for? Of course not. And I could, if time allowed, give many similar instances of the way in which we have been positively inviting other great countries to take the lion's share of these wonderful opportunities for investment; an invitation of which they have certainly not been slow to avail themselves.

The whole situation is simply incredible to anyone who has not actually been there and seen it for himself. I have however derived much consolation during the past few days from the knowledge that the head of one of our large business firms has been recently himself to the Argentine and Chile, and has secured a ten-year contract, the largest ever made, I am told, for the supply of his particular commodity in any foreign country, and I hope, when the particulars of this transaction become known, I am not at present allowed to mention names, and especially when the voluminous returns which are certain to result from this investment, begin to be realized, that other fellow citizens of ours will follow this admirable example in constantly increasing numbers.

Gentlemen, I am not a statistician, and if I were I should not permit myself to take up your time to-day with a series of figures to show how much we are losing annually by the policy we have hitherto pursued in respect to commercial intercourse with South America.

I would merely say that in my opinion there is but one way—and one way only—by which that intercourse can be placed on a proper footing, and that is by ships of our own, such as the other great commercial countries of the world, who now practically

monopolize the trade with South America, have. By ships I mean first-class, fast passenger and freight carrying steamers, flying our own flag, between our ports and those of Central and South America.

Nothing can be more derogatory to our dignity and to our interests in those countries than the fact that our flag is never seen there on merchant steamers. This statement some persons may consider sentimental. I can assure you that it is not, but eminently practical, there being no question as to the fact that we pay an enormous sum to other nations—I understand upwards of $300,000,000 annually—for the privilege of carrying our over-sea commerce. In comparison, any subsidy that could be imagined would be the merest trifle, quite apart from the fact that under present conditions we are contributing largely toward the increase and maintenance of the merchant marine of other countries, which must at least be useless to us, and might be hostile, in the event of war. For this reason, I cannot help deeply regretting the fate which seems likely to befall in Congress the bill popularly known as the Gallinger Ship Subsidy Bill, providing moderate subsidies for steamers of not less than sixteen knots, running between our ports and those of Central and South America. It was only passed in the Senate by the Vice President's casting vote, and will, I am told, be defeated in the House of Representatives.

I am wholly unconnected with any business interests, and consequently, with any shipping interests, having devoted the past twenty-eight years of my life solely to the diplomatic service of the United States. I am neither for nor against subsidies, and am inclined on general principles to be against them rather than in their favor. But I am for ships, merchant ships under the American flag, between ports of this country and the rest of America, and if we cannot get these ships otherwise than by subsidies, then I am for subsidies, or for any other measures that will give us means of communication with our sister republics.

The size and speed of the steamers, which the European commercial powers are sending to South America, are being steadily increased; and the Italians have now two or three new ones averaging eighteen knots an hour. With such ships, the voyage from New York or other ports of the United States to Buenos Ayres could be performed in less than fourteen days, and to Brazil in about eleven

days. In order to get the American delegation to the Pan-American Conference, under our own flag, the government had to send us out in an army transport which, averaging only eleven knots, took twenty-one days for the voyage.

Nations are like individuals; they cannot become intimate with each other unless their respective citizens meet from time to time, and exchange views in personal intercourse. Still less are they likely to trade freely and to have confidence in each other save under those circumstances. On the other hand, they are not unlikely to drift apart and become suspicious of each other, if they never do meet, and the only way in which the people of the countries south of us are likely to come to us, or ours to go freely to them, is on good, fast steamships. At present the only comfortable way of making the voyage is via Europe.

Nothing can be more interesting and remarkable than the manner in which the Germans during the brief period of their existence as a great nation, and particularly of late years, have realized that it is by merchant ships of their own, carrying their goods all over the world in exchange for other goods which they bring home, *rather than by colonies,* that their influence can be most advantageously and profitably exercised throughout the world. They are consequently competing most successfully by means of their fine merchant steamers, which they do not hesitate to subsidize whenever desirable, for the trade of South America, with all the other powers now engaged therein. And I say this in no spirit of hostility, but, on the contrary, with the greatest admiration for the manner in which that great nation has realized, from the first, the best way of extending its influence and of increasing its wealth, and has allowed no question of expense or any other obstacle to stand in the way of the attainment of those objects which are not only legitimate but of vital importance for every nation. Even the Japanese, who are not supposed to be a wealthy nation, but are a very marvelous and intelligent nation, have realized also the importance of the South and Central American trade, and are beginning to compete for that of the West coast with a line of subsidized merchant steamers, and very good steamers they are, too, running to Salina Cruz in Mexico, thence to Callao and from there to Valparaiso; returning to Japan by the same route.

I cannot believe that we are the only nation unable to have

ships wherewith to compete for our share of that great commerce which is particularly within our own sphere, and should be ours, any more than I can believe that we are the only great nation of the world which cannot have a sound monetary system—a system whereby our periodical financial panics, which are the laughing stock of the world and bring ruin to thousands of our citizens, would be avoided, and whereby, if we had such a system, as I believe we shall have before long, this country would become the financial center of the world.

I would therefore urge the great commercial bodies of the country, whose representatives are here to-day, and those who are not represented also, to bring all possible pressure to bear upon members of Congress from their respective districts, with a view to turning their attention to the restoration of our merchant marine —at least to the seas between our ports and those of Central and South America; whether by subsidies or otherwise, I care not, so long as we have the ships! But ships we must have, or resign ourselves to becoming a tributary nation in so far as our ocean-borne trade is concerned, to those who carry it for us. I suppose that no one here doubts that foreigners carry our products on terms most advantageous to themselves and not to us, and in their own way.

If, however, Congress has not seen its way to the restoration of our merchant marine in American waters, I am happy to say that that distinguished body took a step last week of far-reaching importance to our commercial interests, for which it deserves all possible credit. I refer to the bill which was passed by both the Senate and House of Representatives for the purchase of houses for our embassies, legations and consulates in foreign countries.

I have trespassed too long upon the time of this assembly to venture upon a dissertation upon the importance, to the furtherance of our commerce particularly, of that measure; but I am happy, from the point of view of our relations, commercial and otherwise, with our sister republics of America, to find that the provisions of this Act of Congress are such as practically to compel our government to limit its scope at present to those particular countries, in which it is of greater importance even than elsewhere, that we own, without a moment's further delay, our official buildings.

I understand, but have not yet seen the Act since its passage,

that no more than $150,000 can be spent under its provisions upon any one building. It will be perfectly possible to obtain commodious and suitable buildings within that limit, in every South and Central American capital, except Buenos Ayres, where it will not be possible to do so, owing to the enormous rise during the last year or two in the price of land in the best sections of that city, and to the great expense there of building and of everything else.

And here, I should just like to say a word about the stress which has been laid during discussions on this subject in Congress, in the press, and elsewhere for many years past, upon the alleged impossibility for an ambassador or minister, with little or no private means, of living in a house costing $150,000, $200,000 or $300,000, or whatever the amount may be. It never seems to have occurred to those raising that question that the cost of a house depends entirely upon the place in which it is situated. In the best residential districts of New York, a house costing $150,000 would be a small one, so would such a house be in similar districts of Buenos Ayres, London, Paris, Berlin, Vienna, Rome or St. Petersburg, where houses of moderate size cost upwards of $300,000, and even $400,000, according to the price of the land on which they are built, and to other local conditions. The main point is to have a house of suitable size for our foreign representative to inhabit so that he shall not be dependent upon the rapacity of local landlords, or have to spend the whole of his salary upon his house rent, as is the case with our present minister to the Argentine, Mr. Sherrill, who has rendered invaluable service to our commercial and other interests in that country. He not only has had to do this, but has been turned out of the house in the middle of his term of office because the landlord wanted it for himself, and the same thing has frequently happened to our ambassadors in the great capitals of Europe.

Our present ambassador to Italy has so far been unable to find any residence at all, owing to the overcrowded condition of Rome, and is living in a hotel, which is eminently derogatory to the dignity of the country he represents, and constitutes a situation against which other great countries protect themselves by owning their embassy houses.

This is a subject upon which I have felt most deeply ever since my early youth, when my national pride was humiliated upon going

to Paris, just after the Civil War, and seeing the dignified manner in which the other great Powers house their embassies and legations, while all that we could call a legation in those days consisted of a few rooms up three flights of stairs, over a corner grocery store! I still hardly dare trust myself to speak of it. But fortunately it is unnecessary any longer to do so, as Congress has at last taken steps to remedy the humiliation.

Suffice it to say that nations, as is the case with individuals, are respected by others, precisely to the extent to which such nations cause the impression to prevail that they respect themselves.

Nothing produces an impression of national self-respect so completely in foreign countries, or tends so much to the development of a nation's commerce, with the exception of a powerful navy, as dignified provision for the housing of its official representatives in such countries, and a merchant marine carrying its wares under its own flag to the uttermost parts of the earth.

We have had a powerful navy for some time past. We shall soon be housing our representatives and the valuable archives under their charge as other great nations do theirs. And I would appeal earnestly to every commercial body in this country to see that we get a merchant marine before the opening of the great international waterway at Panama; that work of Herculean magnitude, which it will soon have been the glory of our country to contribute to the promotion of international commerce and to the immeasurable benefit of mankind.

# THE FOURTH PAN-AMERICAN CONFERENCE

By Paul S. Reinsch,
Delegate to the Fourth Pan-American Conference; Professor of Political Science, University of Wisconsin.

The Fourth International Conference of American Republics was held in Buenos Ayres in the months of July and August, 1910. The Argentine capital was the scene of many celebrations and festivities during the last year in connection with the centenary of independence. The main commemorative celebration took place in May and June, at which time special embassies from a great many American and European countries were present. In connection with this celebration a number of international exhibitions were held which extended throughout the year. There was an international art exposition and exhibits of agriculture, transportation, decorative arts, sanitary methods and school administration. Both American and European exhibits were represented in these collections, which gave, however, an opportunity especially for a study of the development of the arts and sciences in the different countries of America. The sessions of the International Conference began after the close of the special commemorative exercises, but the conference itself was a part of this great commemoration of South American independence; and it is certainly a notable and encouraging fact that after one hundred years of independent existence, all the American republics are incorporated in an organization which represents the effort to develop among them the relation of amity and of cultural and economic intercourse. Friendly relations existing among the republics have been disturbed only at rare intervals during this past century, and American international life for that period has been the most peaceful ever recorded for so large an area and for so many independent nations.

The personal composition of the conference is of some interest as indicating the manner in which the countries cause themselves to be represented on such occasions. The honorary presidency of the conference was bestowed upon Mr. Philander C. Knox, the American secretary of state, and Sr. Victorino De La Plaza, the

Argentinian minister of foreign affairs. The latter, a gentleman of wide experience, especially with English and American affairs, opened the conference with an address in which he gave a striking expression to the purposes of the international union. He spoke of the great utility and advantages of these conferences, "which, aside from the opportunity they afford for the elucidation of those matters of common interest which constitute the basis of their programs, draw closer the bonds of union and friendship between nations, all of which are moved by aspirations toward the common ideal of liberty, civilization and progress." When Sr. De La Plaza resigned from the ministry in order to become vice-president of the republic, his successor, appointed *ad interim,* Sr. Larreta, was elected as a third honorary president. The acting president of the conference was Dr. Antonio Bermejo, the chief justice of Argentina. A highly trained jurist especially versed in questions of international law, a judge of long experience, he conducted the sessions of the conference with a quiet dignity and a sure hand. He was effectively assisted by the secretary-general, Sr. Epifanio Portela, who had been for several years Argentinian minister at Washington. The Argentine delegation was made up of men of wide experience and acknowledged ability. Three ex-ministers of foreign affairs, Sr. Montes de Oca, Sr. Larreta, Sr. Zeballos, and a former minister of finance, Sr. Terry, who has since died, represented the official experience; the president-elect of Argentina, Sr. Saenz Peña, was also a delegate, but he did not arrive from Europe until the very end of the conference. The Brazilian delegation was especially brilliant, being headed by Senator Murtinho, one of the most experienced men in Brazilian political life. It included two senators of Sao Paulo, Nogueira and de Freitas, Sr. Da Gama, Brazilian minister in Buenos Ayres, Sr. Da Cunha, who won the hearts of everybody, not only by his brilliant oratory, but through the genial manner in which he entertained his colleagues on all occasions with a wealth of anecdote and reminiscence, and the famous poet, Olavo Bilac, who illustrates in his career the manner in which Brazilians are apt to combine literary and political life. The Chilian delegation also represented a great breadth of experience and ability. Sr. Cruchaga, its president, is the Chilian minister at Buenos Ayres, a man of genial personality; it is characteristic that all of the political parties of Chile were represented on the delegation, which included Sr.

Cruz, the beloved Chilian minister in Washington whose recent death is mourned by all who knew him, Sr. Bello, member of the Second Pan-American Conference and grandson of the first great writer on international law in South America, Sr. Alvarez, counselor of the Chilian foreign office and well-known writer on international law subjects, and Sr. Mathieu. Among the personnel of the Chilian delegation, its assessor, Sr. Phillipi, ought to be specially mentioned, on account of the effective assistance he gave to the conference on one of the most difficult subjects of discussion, the matter of customs regulations. The Cuban delegation was headed by the genial General Garcia Velez; and it counted among its members Sr. Montoro, whose reputation as a great parliamentary orator in the Spanish Cortes has been augmented by his later work and achievements, a man whose rare personal charm and dignity endeared him to all and whose oratorical power, sparingly used by him, is a thing always to be remembered by those who have heard him. The delegation included another speaker of high merit, Sr. Quesada, who was for years minister in Washington and who now represents the Cuban government at Berlin. The other members of the delegation were Sr. Perez, president of the Cuban senate, and General Carbonell, one of the leading authors and editors of the republic. The Mexican delegation represented official experience in the person of Sr. Salado Alvarez, Sr. Ramos Pedrueza and Sr. Esteva Ruiz, while the academic world was represented by Professor Perez Verdia of the University of Guadalajara. Peru had sent the first vice-president of the republic, Sr. Larrabure y Unanue, who was also special ambassador of his country at the centenary celebration; with him were associated the Peruvian minister at Buenos Ayres, Sr. Alvarez Calderon and Sr. Lavalle y Pardo, another gentleman of long diplomatic experience. The head of the delegation of Uruguay was the veteran diplomat, Sr. Gonzalo Ramirez, who has long been looked upon as one of the leading spirits in the development of international law in South America. He was the principal mover in the codification of private international law undertaken by the Congress of Montevideo in 1889. His associates were gentlemen prominent in the political life and the legal profession of their country. The countries here enumerated are those which had larger delegations. The commissioners of those countries which had only one or two delegates similarly illustrate the repre-

sentative character of the assemblage. There were diplomats like Sr. Volio of Costa Rica, Sr. Ancizar of Colombia, Sr. Toledo Herrarte of Guatemala, Dr. Lazo of Honduras, Sr. Porras of Panama and Sr. Mejia of Salvador, while other men represented the legal and medical professions and political experience gained in national congresses, Venezuela was represented by two of her most noted literary men and publicists, Senor Manual Diaz Rodríguez and Senor César Zumeta. From this brief survey of the personnel of the conference, it will be seen that it was representative of the official experience and scientific expertship in political matters within these countries. Though coming from widely different fields of activity and countries separated, not only by distance in space, but divergences in social and economic development, they yet formed a group of men who, as they became acquainted with one another, co-operated in a spirit of frankness and sincere friendship. The personal relations formed upon an occasion like this are of themselves of significance and value. Nuclei of mutual understanding are established and relations begin to grow up by which the different countries are brought much closer together as they learn to mutually understand and sympathize with one another.

The program of the conference had been settled on the basis of instructions by the various governments of the union, by the governing board of the international bureau at Washington. Aside from formal matters of acknowledgment and commemoration, it included the consideration of the following subjects: improvements in the organization of the Pan-American Union, the completion of the Pan-American railway, the establishment of a more rapid steamship service between the republics, uniformity in consular documents and customs regulations, international sanitation, arrangements concerning copyright, patents and trade marks, treaties on the arbitration of pecuniary claims, and the interchange of professors and students among the American universities. The regulations and rules of procedure had also been fixed by the governing board, so that the conference could immediately address itself to the task of working out treaties and resolutions on the subjects of the program. Fourteen committees were appointed, among which the business of the conference was distributed. Thereafter for a while the conference took up only formal matters, giving the committees time and opportunity for a thorough discussion of their respective subjects. The manner in which the conference proceeded was

exceedingly business-like. It did not spend its efforts in spectacular oratory, somewhat to the disappointment of the local press, but it directed itself quietly and persistently to the accomplishment of the purposes before it,—that is to improve, in general bearing and detail, the relations between the republics along the lines determined by the program of the conference.

It is invariably the case that when a conference representing a large number of governments is called together, extravagant expectations are entertained as to what results it can bring about. The layman is apt to look at a conference of this kind as representing the sum of the energies of all the countries concerned. It is, therefore, his expectation that results of striking and immediately effective character should be produced. In the case of the Fourth Conference, too, the outside world feigned disappointment that the radical reform of the entire American world was not immediately to be brought about. The program was criticized as being too narrow, as not allowing full play to the energies thus brought together. This view even found expression on the floor of the conference through the Dominican delegate. But it represents a misconception of the functions of an international conference, which does not represent the utmost that the combined energies of the countries concerned might bring about, but the utmost which they can agree upon with practical unanimity. Its work must, therefore, aim to be entirely practical, based upon ascertained needs of international relations and traffic. The general ideals of American international life, would, of course, also be considered and developed on such occasions; but concrete results can be expected only as detailed and practical improvements are introduced in the machinery of international intercourse.

Working upon this practical basis, the several committees of the conference addressed themselves to questions of detail, leaving aside, for the most part, the rather fruitless field of theoretical discussions. Indeed it may be said that the transactions of the committees were not only highly interesting because of the differences of the points of view and experiences represented, but that they were also notable for the practical sense displayed and the readiness, after thorough discussion, to compromise upon matters of detail. After a few weeks of careful work and intense discussion, all of the committees brought forward drafts of resolutions and treaties

which were then adopted by the conference with practical unanimity. The work of the conference as it lies before us in complete form represents on a number of points a definite advance in the development of American treaty relations. The conference was not called together to originate any new lines of action, but to elaborate further those matters which had already been taken up by former conferences and to introduce such improvements in detail as would make their working more smooth and make them as a whole more acceptable to the American countries. The organization of the international union itself was simplified and improved. The name of the bureau at Washington was changed to "Pan-American Union" in order to recognize the importance gained by this useful institution; the name of the organization in its entirety was changed to the briefer form, "Union of American Republics." A draft convention was elaborated, in which the organization of the union and its functions are laid down in a simple form, so that when ratified this instrument may serve as a constitutional charter. New impulse was given to the further development of the branches of the Pan-American Union which, in the form of Pan-American committees, or commissions, have been established in each one of the countries. Treaties were adopted for the mutual protection of patents, trade marks, and copyrights. These treaties provide for the establishment of registry offices at Havana and at Rio de Janeiro. In the substance of the provisions introduced, with respect to the law of patents and copyrights, they follow the latest European or world-wide experience, embodied in the treaties of Berne, Berlin and Brussels. The treaty for the arbitration for pecuniary claims, which was first adopted at Mexico in 1902 and re-enacted at Rio de Janeiro, was again renewed after very thorough discussion in the committee. Many interesting points of international law arose, as it was suggested by members of the committee that the sovereign authority of the individual states should be safeguarded by providing for arbitration only in case of denial of justice by the local courts. But finally the treaty was adopted in its more general form, a great gain for international arbitration, as every limitation imposed in a treaty would act as an impediment to fullest effectiveness. In matters of sanitation the results of the various sanitary conferences held in the international union since the conference of Rio were approved and the adoption of their recommendations advised. The

latter refer not only to quarantine but also to the effectiveness of sanitation in regions exposed to infectious diseases. On the difficult subject of customs and consular regulations it was possible to arrive at an agreement which, if carried out by the republics, will result in material improvement of the conditions of international commerce. By adopting standard forms for consular documents, a uniform scale as to the amount of consular fees, and recommendations with respect to customs administration, the conference led the way toward the abandonment of methods that, on account of local differences, constitute a serious impediment to commerce in many cases. With respect to the Pan-American railway, the work of the existing permanent committee, headed by ex-Senator Davis, received recognition, and it was resolved that special efforts shall be made to bring to a conclusion this important undertaking through cooperation between the countries concerned.

A subject that appeared for the first time on the program of a Pan-American conference was the interchange of university professors and students. It was felt that such a mutuality of educational life would exercise a beneficent influence on the general relations among the republics of America. American countries would mutually benefit from the scientific experience of one another, as the problems by which they are confronted in their economic and political development, often receive special illustration from what has been achieved in one or the other of these republics. Agencies for the spread of such knowledge and information are important to the welfare of all. But beyond this, the personal relations established through such an interchange of students and teachers would serve to make much closer the bonds of friendship and mutual sympathy which now unite the American nations. Only a first impetus could be given to this matter by the conference, as data were still lacking as to what the educational institutions of the different countries were desirous and able to do in the matter of such an interchange, but resolutions were passed recognizing the desirability of establishing it on a systematic basis. The work done by the Pan-American Scientific Congress, held at Santiago in 1908, was also formally recognized and appreciated, and attention was called to the Second Pan-American Scientific Congress, which is to hold its sessions in Washington in 1912.

The treaties adopted by the Pan-American conference and the

recommendations put forward by it, require ratification by the different governments before they can fully go into effect. In this connection it is important to remember that the treaties adopted at the conference of Rio in 1906 were all ratified by a large majority of the American states,[1] and are, therefore, in force as to those countries. In this respect the work of the Pan-American conferences has become constantly more effective. The first conferences had to feel their way. The whole world of possible means lay before them, and they had to select those lines of common action which promised effective results. The later conferences, building upon these tentative efforts of the earlier ones, have succeeded in elaborating a system of treaties which has proved in practice acceptable to the American republics. But even in matters upon which treaties have not been directly adopted, the work of the conferences has had a decided influence in affording opportunity for the gathering up of American experience, for the clarifying of opinion, and for the determination as to what line of action it is desirable to pursue and what objects may be striven for with a hope of ultimate success. The conference has become a clearing house of American political experience and opinion, and as it has decided to devote attention to matters of detail, its work will be progressively improved, so that each conference, instead of approaching only new problems, will be carried a step further toward the solution of the difficulties already considered by its predecessors. Comprehensive information, sympathy founded on real mutual understanding, and steady progress in the detailed solution of American problems, all these things are assuredly being realized in the institution known as the Union of American Republics.

Not the least advantage gained from these meetings, however, lies in that mutual knowledge and understanding between the two great branches of the American world, the traditions and history of which had formerly taken separate paths. Upon such well-founded mutual confidence and mutual helpfulness depends the future peace and welfare of our continent, nor are such friendly relations anything but a benefit to the rest of the world.

[1]Detailed data on these matters are given in Reinsch, "International Unions," ch. 3 (Ginn & Co., 1911).

# THE MONROE DOCTRINE AT THE FOURTH PAN-AMERICAN CONFERENCE.[1]

By The Honorable Alejandro Alvarez,
Of the Chilean Ministry of Foreign Affairs, Santiago, Chile.

So much has been written and said, especially of late, upon the subject of the Monroe Doctrine, that even among people of enlightenment, a real confusion of ideas has arisen. Even works upon International Law have not been exempt from lapses and inexactitudes in this regard. This confusion is due to the fact that no distinction is ordinarily made in what has come to be known as the "Monroe Doctrine" between the principles which properly belong to it and certain trends of policy which are foreign to it.[2] Distinctions should be made between (1) the Monroe Doctrine in its primitive form; (2) the hegemony of the United States on the American Continent; and (3) the imperialistic policy of that nation. The Monroe Doctrine, properly speaking, was simply the result of the necessity felt by all of the states of the New World of making their independence secure against the ambitions of Europe, a necessity resulting from the triumphs of their independence. The statesmen of the new nations realized then that their people must unite for such a purpose. These aims, which had not yet been definitely formulated, were crystallized in 1823, by the famous message of President Monroe. The declarations of an international character contained in this document may be reduced to three:

1. No European country may gainsay the right gained by the nations of the New World to their independence and sovereignty.

2. The right is recognized of these same American nations to organize such forms of government as best suit their interests without the intervention by any European country in the affairs relating to internal regulation, and

[1]The Academy desires to express its appreciation to Layton D. Register, Esq., of the Law Department of the University of Pennsylvania, for the translation of this article.

[2]I have devoted to just this subject a great part of my book published a short time ago in Paris: "Le Droit International Américan."

3. European nations are prohibited from acquiring by occupation any part of the American Continent.

These declarations, by their preciseness and definiteness, became henceforth the political creed of all the nations of the New World. They made clear, likewise, the bond of union which then existed not only among the Latin Republics of the continent but also between them and the United States. And this is so true that all those nations strove for the solemn proclamation of the Monroe Doctrine at the American International Congress which met at Panama in 1826. Shortly after its formulation by President Monroe, the United States, as the strongest and most influential nation, became the champion of this doctrine, and its acceptation by the other American republics was later confirmed by numerous declarations of the state departments, and by different cases of practical application in which the chief moving spirit was that same Republic of the North. From this has arisen the mistaken belief that the Monroe Doctrine is merely a rule of policy adopted by the United States and exercised for its sole and exclusive benefit, whereas in reality it is a union of declarations which, by reflecting faithfully the aims of a whole continent, and by the constant application it has received, possesses all the characteristics of an American principle of international law.

New needs arising out of the foreign policy of these countries have caused several amplifications of this doctrine, and they too have been accepted by all the nations of the continent. These amplifications establish that no European country may acquire, no matter what the motive, any portion of the New World, nor temporarily occupy all or part of a country even upon the pretext of civil or foreign war. The pretension has also been made that those amplifications of the doctrine apply not only as against European States, but even among the American nations themselves. But this pretension has not passed beyond the stage of a mere Utopia, since it has not been formally adopted with that unanimity which exists in the case of its application to European powers. Moreover it has always been violated in practice.

If the Monroe Doctrine and its more transcendental amplifications have been confirmed by express declarations from all the state departments of the American continent, the same cannot be said to have happened in the case of the other two elements which are generally conferred with it, i. e., hegemony and imperialism. This

doctrine of hegemony or leadership is simply a rule of policy of the United States which consists of imposing the opinions of her State Department upon America at large, whenever the former's interests are concerned, and of intervening in the internal and external affairs of any country of Latin-America in order to protect the interests of the United States and ostensibly to watch over the prestige of the Latin-American republics. This policy affects almost exclusively the countries bordering upon the Caribbean Sea. It is obvious that this attitude of the United States does not always coincide with the wishes of the South American continent; that, on the contrary, it is considered, upon occasions, to be a menace to the integrity and sovereignty of certain republics of this hemisphere. The imperialism of the United States is another rule of political action which also fails to find an echo in the opinion of South America. This policy is exercised within a broader sphere than that of hegemony. As in the case of the imperialism of the great European powers, one principal object of the United States is the development and expansion of her commerce and the opening of new markets in different continents until there shall be established a political and economic supremacy throughout the civilized world.

Thus we see that the policies of hegemony and imperialism of the United States, which are currently confused with the Monroe Doctrine, especially in Europe, are not principles of American international law, since they do not receive the adhesion of both the Americas. Only when stripped of these two elements does the Monroe Doctrine appear in its true light, the doctrine of a continent.

Having made these preliminary explanations, which are necessary for a perfect comprehension of what occurred at Buenos Aires to the Brazilian resolution, concerning the Monroe Doctrine, I will now enter upon the examination of the events to which this project gave rise and of the attitude which our delegation assumed on that occasion. In the middle of last July, the Brazilian Minister at Buenos Aires, his Excellency Señor Da Gama, explained to several members of the Chilean delegation that the late Ambassador of his country to the United States, his Excellency Señor Nabuco, had cherished the idea of presenting to the Conference at Buenos Aires a motion which would evidence the recognition by all the countries of America of the fact that the Monroe Doctrine had been beneficial to them. Nabuco had left in writing a formal declara-

tion, which the Government of Brazil, out of respect to the memory of the great statesman, desired to present to the Conference without any change. His Excellency Señor Da Gama added that his government was desirous of counting in this move upon the co-operation of Argentine and Chile. The proposition, furthermore, was to be presented only in case the acquiescence of all the other delegations could be counted on beforehand, so that it would be approved without criticism. In order not to go outside of the program of the Conference, the motion was to be proposed, not as a declaration of principles, but as a testimonial of appreciation presented by Latin-America to the United States upon the occasion of the first centennial of its independence. The resolution of Nabuco, endorsed by the Brazilian delegation, was in these words: "The long period which has transpired since the declaration of the Monroe Doctrine, permits us to recognize in it a permanent factor making for international peace upon the American Continent. For this reason, while celebrating her first efforts towards independence, Latin-America sends to her Great Sister Nation of the North, an expression of her thanks for that noble and unselfish action which has been of such great benefit to the entire New World." Without any formal and concrete proposition having yet been placed by the Brazilian delegation before the Chilean delegation upon the question of the presentation in common of this project to the assembly, we members of the latter were in accord in considering the resolution, as framed, very categoric in its terms, especially in view of the confusion which I have shown to exist regarding what should in reality be understood by the Monroe Doctrine.

For my part, I presented to Señor Da Gama, simply as grounds for consideration, and not as the opinion of the Chilean delegation, another form of resolution, which in my judgment, obviated those objections, and which contained, along with a statement of the principles of the doctrine, a declaration of the fact that these principles had the support of the entire American Continent. My proposed resolution was couched in the following terms: "Since their independence, the nations of America have proclaimed the right thereby acquired of excluding European intervention in their internal affairs, and, also, the principle that the territory of the New World cannot be made the object of future colonization. These principles clearly formulated and solemnly expressed by President

Monroe in 1823 constitute a factor which has contributed towards guaranteeing the sovereignty of the nations of this continent. Wherefore, Latin-America, celebrating the one hundredth anniversary of her independence, sends now to her Great Sister Nation of the North, the expression of her adhesion to that idea of solidarity, as in the past she joined her in proclaiming those principles and upholding them for the benefit of the entire New World."

Señor Da Gama found in this resolution a departure from that of Nabuco, which his government was desirous at all costs to preserve. Shortly afterwards, we personally agreed upon a new formula, which he was to submit to his government and which, when approved by it, was to be placed before the delegations of Chile and Argentine. This formula was as follows: "The long period which has transpired since the declaration of the Monroe Doctrine permits us to recognize in it a permanent factor making for external peace upon the American continent. It gave concrete and solemn expression to the aims of Latin-America from the commencement of her political independence. For this reason, while celebrating the centennial of her first efforts towards independence, the nations represented in the Fourth Pan-American Conference send to their Great Sister Nation of the North, the expression of their adhesion to that noble and unselfish action, of such beneficial consequence for the New World."

Having consulted the Brazilian Government, his Excellency Señor Da Gama believed the time ripe to ask for the approval of this resolution by the delegations of Argentine and Chile. The members of the former, with two exceptions, expressed themselves in favor of it as drawn up. The Chilean delegation, for its part, attentively studied the proposed resolutions, and while entirely agreeing with the propositions of the Brazilian delegates, they yet believed that another formula must be sought which, while it brought the proposition within the program of the conference, did not lend itself to false interpretations by Europe, the United States, and the rest of America.

The proposition formulated by the Chilean delegation was the following: "Upon celebrating the centennial of their first efforts towards political independence, the nations represented in the Fourth Pan-American Conference send to their Great Sister Nation of

the North the expression of their thanks and record their conviction that the declarations contained in the message of President Monroe met the aims of all America and contributed effectively to guarantee its independence."

The members of other delegations, in their turn, learned confidentially of the proposition which the Brazilian delegation were supporting and though in favor of the idea and motive which were guiding the Brazilian Government, they believed that it was necessary to make some additions in which it would be made clear that the Monroe Doctrine must not be understood as an impairment of the sovereignty of the Latin-American States. The point had been reached of formulating the additions which were to be made to the proposed resolution, inspired by a speech made by the Secretary of State, Mr. Root, at the third convention. And there were not wanting those who, in spite of these additions, thought that the motion was outside the program of the Conference, and that, while approving it, they might sanction along with it many acts of hegemony committed by the United States by which more than one country had felt its sovereign dignity to have been wounded.

This now considerably complicated the situation. The delegation of the United States, consulted in regard to it, made it clear that it would be very acceptable for Latin-America to make the Monroe Doctrine hers; but that if in doing this she was going to create dissensions in the midst of the assembly, it was preferable to make no presentation at all. The Brazilian delegation thus realized that an unanimous assent to its views was not easy to obtain; for though every one agreed as to the basic reasons of the resolution, it was very difficult to reduce it to a brief form, and satisfactory to everybody. In view of this, the delegation did not insist upon pushing its project.

Therefore, in regard to the Monroe Doctrine at the Pan-American Conference of Buenos Aires, it may be said to have been clearly established:

1. That all the countries of America there represented were agreed that the Monroe Doctrine, as it was formulated in 1823, is in accord with the aims of the New World and forms a part of its public law;

2. That the delegation from Chile at all times manifested the greatest willingness to propose to the conference a resolution, con-

cise and satisfactory, yet in conformity with the program of the conference.

3. That it was very difficult, nevertheless, to find a wording, which without exciting the susceptibility of Europe, would be satisfactory to all the countries of America, because there were various states which desired to see incorporated with the principles of that doctrine, other principles which might have reference to the policy of hegemony of the United States.

4. That the fact that this formula was not hit upon in no way signified that Brazil had received a diplomatic rebuff; and

5. That the Monroe Doctrine in its primitive form, was not disavowed in the Fourth American International Conference. It was not there a question of proclaiming the Monroe Doctrine, but only of recognizing a historical fact which during the past century has dominated the political life of the nations of the New World, and is to-day the basis of what may be termed American International Law.

# BANKING IN MEXICO

By the Hon. Enrique Martinez-Sobral,
Chief of the Bureau of Credit and Commerce of the Mexican Ministry of Finance.

The development of banking in Mexico is one of the most important features of the Mexican economic improvement during the last thirty years.

Banking did not make its appearance here as a state institution but as the result of investments of foreign capital, attracted by the discovery of a great field for business, as soon as the country was able to establish peace firmly, after the tremendous struggles which followed the war for independence and lasted until the final triumph of the republican system.

In the ten years following the war with France, from 1870 to 1880, public credit was of no importance, and the financial relations between Mexico and Europe were practically nil; but during those years the construction of our big railroad systems was pushed very energetically, peace was assured, and the resources of the country became apparent to the eye of foreign money owners, always looking for sound and productive investments.

Several French and Mexican business men united to establish a bank of issue in Mexico City; and, supported by the government, which granted to them a liberal charter, founded the Mexican National Bank. A few months later, Mexican and Spanish capitalists established the Mercantile Bank. The competition between these two institutions culminated in their merger, and the present National Bank of Mexico was thus created. Though not a state bank, this financial institution was authorized by the government, connected with it in many respects, subject to its supervision, and endowed with something very much resembling a monopoly of the right of issuing banknotes.

Nevertheless, the monopoly was not clearly defined in the charter; it was, besides, in opposition to the constitution of the country; no law existed restraining the freedom of issue, and very soon other banks appeared on the scene, such as the London and Mexico Bank,

which purchased an old and nearly forgotten charter granted to a bank which had never done anything serious in the way of business; the Nuevo Leon Bank, the Durango Bank and others, to which the Federal Government had granted charters, somewhat ignoring the not very clear nor legal monopoly granted to the National Bank.

A mortgage bank, also established by virtue of a charter from the government, began operations under the name of The Internanational and Mortgage Bank.

There was no definite system for granting these charters; it was not even stated in a clear manner whether the government had a right to grant them, nor were the different charters founded upon the same principles of banking; in short, the whole matter was soon in a state of great confusion.

The National Bank had gradually developed its business, and through its different branches established in the principal towns of the country had contributed to the awakening of economic activities; the ground had been thus prepared for the business of banking and it was urgent to face the difficulties arising from the operations of other banks of issue, with a view to their settlement.

In 1897, the moment arrived to put order in the banking trade and a law was enacted by the government, with the necessary authority from Congress, and accepted by the National Bank, thereby forsaking its doubtful privileges.

The other existing banks also submitted to the law (in different ways) and the whole system was thus founded, as far as possible, upon a homogeneous basis.

The following statement of the principles which govern the law of 1897 will lead to its right understanding:

(1) Plurality in the monopoly, that is to say: the authority for doing a certain set of well defined banking operations, granted not to one bank only, but to many chartered banks, to the exclusion of any other institution.

(2) The banks must be operated under the form of limited companies duly organized in Mexico and subject to Mexican law. No foreign companies are authorized to do banking business pertaining to chartered banks.

(3) Legislative regulations for the management of the banks: sound economic principles are thereby enforced, not only morally and scientifically, but legally as well.

(4) Supervision by the state, the principal characteristics of which are the obligation of rendering certain statements intended for publication, and the submission to the intervention of the Secretary of the Treasury, acting as Comptroller of the Currency, by means of special delegates.

(5) The above regulations refer only to chartered banks, which are:

(*a*) Banks of issue, especially authorized to issue bank notes. No other banks, nor institutions, companies or individuals can make issues of this kind.

(*b*) Mortgage banks, the special feature of which is the issuing of mortgage bonds.

(*c*) Promotion banks, authorized to issue cash bonds.

Deposit banks, savings banks, trust companies and other banking institutions can be freely established without requiring any charter or previous authorization, be they Mexican or foreign. Following are the limitations concerning the institutions just referred to:

(1) They cannot issue banknotes nor establish in the country any branch or office for the redemption of notes issued abroad.

(2) They cannot use the word "bank" in designating themselves, except in the case of foreign banks, provided they are previously authorized by the Treasury Department.

(3) They are not subject to any special supervision from the government.

(4) They do not enjoy the reductions in taxation granted to the chartered banks.

Later on, a law was enacted, regulating the bonded warehouses, which are practically assimilated to credit institutions.

Under the law of 1897 about thirty-four banking institutions have been established, to wit: twenty-five banks of issue, three mortgage banks and six promotion banks.

We will now proceed to survey the field of operations of said banks as regards the most salient features.

Issue banks are authorized to issue bank notes, to accept deposits at sight and on term, and to make the investment of their capital and other funds in public securities and short-time loans.

As for notes, the issue may never exceed three times the face

value of the bank's stock, nor be superior to twice the amount of cash, less the total amount of the deposits payable at call.

Let us see how the Mexican issue banks have obeyed the legal ruling and, thereby, ascertain what is the guarantee in specie for their outstanding notes.

According to the official statements concerning issue banks, their cash holdings amounted in June 30, 1910, to 89,059,802.45 *pesos* (a peso being practically equal to fifty cents, American gold). This sum was represented by the following various species of currency:

| | |
|---|---|
| Gold, coined | Pesos 53,690,870.00 |
| Silver pesos | 27,625,377.00 |
| Fractional currency | 5,705,834.83 |
| Gold, bullion | 2,037,720.62 |
| Total amount of cash holdings | 89,059,802.45 |

As has been seen, in the above total the amount of gold coined and in bullion represents about five-eights, and silver about three-eights. These figures are very interesting as, besides showing beyond a doubt the soundness of the guarantee which stands behind the banknotes, they afford the assurance that the latter can be redeemed in gold, and this assurance is one of the strongest foundations for the stability of exchange.

Banks are permitted to put in circulation notes for twice the value of their cash holdings. Using the above figures we would have:

| | |
|---|---|
| Twice the amount of cash holdings | Pesos 178,119,604.90 |
| Less the amount of deposits on demand | 67,826,271.91 |
| Authorized circulation | 110,293,332.99 |

Now, the notes outstanding on said date (June 30th) amounted to pesos 112,160,663.00, this sum being about two millions greater than the authorized circulation. The reason of this difference is that the National Bank and the Nuevo Leon Bank, as we have said before, are not exactly subject to the prescriptions of the law and can issue notes for three times their cash holdings. Besides, the National and the London Bank are not obliged by their charters to hold a special reserve against their call deposits, and they only have

the reserve suggested by their own prudence, which is not always exactly fifty per cent of the deposits. Nevertheless, the metallic guarantee of our banks of issue is a very strong one.

For a full understanding of our system we must remark:

(1) Our system is that of "banking on assets," founded upon the "banking principle," being thus a very elastic one.

(2) This elasticity is increased by the fact that our notes are guaranteed by reserve funds in cash. It will be easy to see that we have not confused banking credit with public credit, and should a crisis occur in either, it does not follow that the other would of necessity experience a contraction.

(3) Metallic reserves are required, not only for the protection of the banknotes, but for that of the call deposits as well, as the danger for the public is the same, and perhaps greater in the case of the latter than in that of the former.

Under these wise principles business has grown, as can be seen from the following comparative statement of circulation:

| Year | Banknotes outstanding. | Cash holdings. |
|---|---|---|
| 1897 | 38,497,367.00 | 43,350,648.75 |
| 1898 | 46,471,650.75 | 34,819,723.93 |
| 1899 | 56,247,355.25 | 39,808,883.43 |
| 1900 | 62,657,714.50 | 53,107,694.67 |
| 1901 | 62,392,413.25 | 49,992,373.75 |
| 1902 | 72,890,235.50 | 53,147,288.30 |
| 1903 | 88,264,218.50 | 51,260,539.13 |
| 1904 | 83,540,440.00 | 56,245,838.69 |
| 1905 | 82,995,576.50 | 79,087,706.10 |
| 1906 | 93,597,868.50 | 63,695,882.24 |
| 1907 | 98,184,395.25 | 63,989,663.85 |
| 1908 | 89,659,571.00 | 64,910,541.18 |
| 1909 | 92,221,477.00 | 84,352,541.92 |
| 1910 | 112,160,663.00 | 89,059,802.45 |

The law does not consider the redemption of notes and the payment of deposits sufficiently assured by the possession only of cash reserves, and prescribes that the funds of the banks shall be invested in such a manner as to enable them to turn their investments into ready money at any time it becomes necessary. As we cannot go very deeply into this matter, we shall confine our examination to the principal regulations enacted with a view to reducing to a minimum the danger of defalcation.

It is forbidden to our banks of issue:

(1) To lend money upon a mortgage, except when the credit of the signers of obligations held by the bank is impaired, or when the Treasury Department gives its express consent.

(2) To make loans or to discount or negotiate notes or other paper running for more than six months.

(3) To discount notes or other commercial paper not guaranteed by at least two signatures of acknowledged solvency or by collateral security.

(4) To accept uncovered bills of exchange or drafts and to open credit accounts that cannot be closed at the bank's pleasure.

(5) To allow any single person or corporation to become indebted to them, either directly, indirectly or jointly, for amounts which, in the aggregate, exceed ten per cent of the paid-up capital of the bank.

(6) To acquire real estate, except such as is necessary for the carrying on of the business of the bank, etc.

These regulations have the very important effect of allowing banks to be provided with specie when needed to meet their obligations to the public. In case of a run on the bank or of a contraction of business, the nature of the assets will allow them to rediscount their bills, securities, etc., and thus to face the difficulty. We must say that in the history of Mexican banks of issue, and under the law of 1897, there has never been a run on any bank, and up to this writing, the circulation of banknotes has always been facilitated, in spite of their not being legal tender, by the high confidence bestowed upon them by the public; their redemption has invariably been effected without the least delay or difficulty, even in cases in which the public might have been distrustful. Our monetary system, which practically excludes the exportation of coined gold in the case of an adverse commercial balance, is not without influence in these facts.

As far as the true constitution of the assets can be known, it may be stated that the total of the reserve funds in cash, and of the assets readily realizable, exceeds the liabilities involving a public interest. The following figures will prove the last assertion:

ASSETS.

| | |
|---|---|
| Cash ..... | Pesos 89,059,802.45 |

Loans, securities and bills readily realizable:

| | |
|---|---|
| First class securities | 55,832,029.59 |
| Discounted bills | 13,865,913.07 |
| Loans | 71,191,026.89 |
| Loans on collateral securities, bonds, etc. | 41,245,500.02 |
| Loans in current account | 90,385,914.89 |
| | 361,580,186.91 |

LIABILITIES.

(Only those involving a public interest.)

| | | |
|---|---|---|
| Deposits on call | Pesos | 67,826,271.91 |
| Deposits at term | | 58,026,027.36 |
| Banknotes outstanding | | 112,160,663.00 |
| Sundry creditors | | 45,971,688.52 |
| | | 283,984,650.79 |

The comparison between these two totals is evidence of the sound condition of the Mexican banks of issue.

The stock of these banks amounts to pesos 118,800,000.00 and their reserve funds, comprising those created by law and those created by the foresight of the banks amount to pesos 52,567,536.08.

Mortgage banks have not developed in the same manner as issue banks. We have but two institutions of this kind, and a third one will be established very soon. The first two do their business in the city of Mexico, and through branches, in all the country; the third will carry on banking in the State of Sonora.

The principal business of mortgage banks is the issue of bonds running for a long time, redeemable out of a special sinking fund twice a year, under the system of annuities and bearing interest payable semi-annually. The proceeds of the sale of these bonds must be devoted to the making of mortgage loans.

Special regulations are contained in the law, for the purpose of giving all security to the redemption of the bonds. Thus, the total amount of the bonds may never exceed the total of mortgage loans; the latter to be made under strictly fixed conditions in order to afford at any time a sound guarantee to the bondholders.

Banks of this kind do not enjoy any practical monopoly, neither in the nature of their investments (everybody being entitled to lend

money on mortgage) nor in the issuing of bonds, as all the limited companies, and specially the railroad companies, are authorized to issue mortgage bonds.

Such securities, as far as our banks are concerned, have proved to be an excellent investment for foreign capitalists, as the greatest part of the issues are owned by them.

The issue of bonds amounted on June 30, 1910, to pesos 44,904,-600.00 and have increased since then. The mortgage loans totaled pesos 46,872,918.47.

The prospect of these banks is a very bright one, as they can issue bonds for twenty times their paid up capital: as this amounts to pesos 10,000,000.00, they can carry their business to pesos 200,-000,000.00 even without any increase of their stock.

We give the name of promotion banks to certain institutions specially intended by the law to impart their help to agriculture, mining and manufacturing, by means of loans guaranteed according to a peculiar system which partakes of the mortgage and the pledge.

Promotion banks are authorized to issue cash bonds running from six months to three years; these bonds were created to afford opportunities for the investment of savings not yet intended for a definitive destination.

Unfortunately this kind of bank has not made great progress, perhaps owing to the influence of traditional causes closely linked to the solution of the very difficult question of agrarian credit.

The issue of bonds has only been made by one of these banks and in such a small amount that it is not worth while to mention it. The loans to cultivators or miners are practically of small importance. Two of these banks are in an unsatisfactory condition, doing but little business with correspondingly small profits. The other four, though in a thriving condition, are not properly promotion banks, as they do not carry on to a full extent the special business of this kind of institution; they are, rather, banking houses, doing a deposit, loan and exchange business, and financing other enterprises.

The most important promotion bank is the Mexican Central Bank, the individuality of which in our banking world will be set forth in the next and final chapter of this paper.

To bring this matter to an end we will state that the aggregate

of the promotion banks' stock amounts to pesos 47,800,000.00, their cash bonds to pesos 4,893,200.00; their loans for agricultural purposes to pesos 2,174,794.29, and their deposits to pesos 26,379,872.39.

The National Bank of Mexico—a bank of issue—and the Mexican Central Bank—a promotion bank—have a place of their own in our banking system.

The former is, for its capital, the importance of its notes outstanding and the bulk of its business, our principal banking institution. It has branches and agencies in all the capitals of the different states of the republic and covers the whole territory with its operations. Historically, it is the pioneer bank in Mexico and has educated all the country to the use of credit. Its relations with the government are of a very intimate character. It is entrusted with the payment of the different debts of the nation; it acts as a depository of the public funds; it concentrates the proceeds from the custom houses and other fiscal offices. Besides, it is a great rediscount bank which takes over the paper of the other banks when they are in need of money to meet their obligations.

The Mexican Central Bank is the most important of the promotion banks; but occupies a special position like a hyphen between all the issue banks established outside of the city of Mexico. It concentrates the notes of these banks and performs the services of a clearing house for them by exchanging their notes in the federal capital; it is verily a central bank as it acts as a regulator of all the issue banks of the different states of the republic. It has, besides, obligated itself to support in different ways the before mentioned banks in case of difficulty. In short, the Mexican Central Bank is, in many of its features, a result of the co-operation between the issue banks.

Such is the Mexican banking system, which may be concisely defined by saying that it is a plural system of privileged institutions under government inspection, whose business is regulated by the operation of two greater banks.

# THE WAY TO ATTAIN AND MAINTAIN MONETARY REFORM IN LATIN-AMERICA

By Charles A. Conant,
Former Commissioner on the Coinage of the Philippine Islands, New York.

For many years the names of certain countries of Latin-America were synonymous in the public mind with paper inflation and dubious finances. This stigma the more progressive countries have in recent years been rapidly casting off. They have in some cases, where they had been saddled with debt without receiving an adequate return, made equitable readjustments, as in the cases of Santo Domingo, Honduras, and Costa Rica. They have in other cases raised their credit to the point where their securities sell nearly on a parity with those of leading European countries, as in the cases of Brazil and the Argentine Republic.

The reform of the fiscal affairs of a government which has been in difficulties is perhaps a wise preliminary to reform in the monetary system; but in a sense the monetary reform transcends in importance the fiscal reform. Fiscal reform means the restoration of a favorable balance to the budget and the prompt payment of interest on public obligations. Monetary reform reaches deeper into the heart of commercial affairs, because it alone makes possible the free interchange of products and the investment of foreign capital upon a basis which ensures its permanency in gold value.

Capital shrinks from a country without a monetary standard based upon gold, because both the principal and the dividends to be remitted to gold countries may shrink radically in gold value with the depreciation of the local currency. On the other hand, a country whose currency system is based upon the gold standard is able not only to attract capital for permanent investment, but also its share of the great circulating loan fund which is available for equalizing rates for money and meeting unexpected demands by its free movement between the financial centers. It was pointed out in the report of the Commission on International Exchange, when Mexico was still on the silver basis, that Mexican bankers had sufficient credit to borrow money in Paris, Berlin or Brussels in large amounts

and make seven, eight, or ten per cent on the investment, but did not dare to do so, because if it was loaned on short-time and they were called on to repay it, the fluctuations in the gold value of the silver currency might more than wipe out all their profit.[1]

The importance of offering inducements for the inflow of foreign capital has evidently been obtaining recognition in recent years in Latin-America and is bringing about measures to restore the currency to a gold basis in those countries which have been increasing their production of goods for export and thereby strengthening their credit position abroad. Steps towards monetary reform have been taken within the past fifteen years by the Argentine Republic, Brazil, Peru, Ecuador, Bolivia, and other countries.

It will not be disputed that, in the effort to return to a sound monetary system in any of these countries, it is of the highest importance that the method chosen should be, if possible, the most economical, the most certain to maintain permanently the gold standard, and the most likely to afford a supply of currency adequate for local needs. The question naturally presents itself whether the methods which are being pursued or considered are the best for the accomplishment of these purposes. If they are not, why not? And, also, if there are better methods, what are those methods?

The science of maintaining an adequate stock of currency upon principles at once economical and safe has been until recently in its infancy. It was enough for early economists of the school of Ricardo, that a currency consisting of gold coin ensured the full intrinsic value of the national circulation, and afforded the means of maintaining stable exchange. Much has been learned in currency matters within the last few decades, especially in regard to the regulation of foreign exchange. Most of the monetary systems created since 1890 have depended in some degree, as in the case of British India, the Philippines, Mexico, Russia, and Austria-Hungary, upon the control of the market for exchange. In this field experience has developed what is substantially a new monetary system, known as the gold exchange standard.

What is this gold exchange standard, which was adopted by the Congress of the United States for the Philippine Islands and was made the foundation of Finance Minister Limantour's reform of the monetary system in Mexico? It may be briefly defined thus:

[1]See the author's "Principles of Money and Banking," Vol. I, p. 353.

The maintenance of silver coins at parity with gold, without reference to their bullion value, by restriction of the quantity to the requirements of local trade and by the sale of bills of exchange on exchange funds deposited abroad, at legal gold parity, plus such legitimate charges for exchange as prevail between gold countries.

Wherein does this system differ from the simple gold standard? And wherein is it more suitable for the undeveloped countries?

The difference between the exchange standard and the simple gold standard is the extension of the banking principle to the foreign exchanges. Under the exchange system the gold which is needed for settling foreign balances is kept in foreign financial centers instead of at home and a "gold export" or "gold import" movement is accomplished by the transfer of drafts instead of boxing up and shipping physical gold. From this system flow important economic advantages, beyond the mere economy in freight and express charges, which can perhaps be better brought out by a study of recent monetary history than by stating them in abstract form.

Among the South American countries which have taken steps towards the restoration of stability to their monetary systems within the past dozen years, have been Brazil and the Argentine Republic. These countries have been especially fortunate in the volume and value of the exports of their principal products,—coffee, sugar, wheat and hides. This has enabled them to draw gold in large amounts from Europe and North America. Under the monetary system which has prevailed for several years in these two countries, the gold has been accepted by the conversion funds in exchange for paper at a fixed rate of exchange. Up to a very recent date, gold has not been freely paid by the conversion offices for the redemption of paper. The value of the paper has been maintained by the fact that the accretions to existing issues have been covered fully by gold, and the need for this additional currency has been indicated by the willingness to buy it with gold.

From this standpoint, of the demand for currency, it might be said that even the paper which was not covered by gold, issued prior to the creation of the conversion funds, also represented just the amount of currency which the country was then able to employ in its exchanges, when taken at the gold value to which it had been reduced in use. In the case of over-issues of irredeemable paper, there is usually a tendency, others things being equal, for the gold

value of the paper to fall in the ratio of its excess above the amount of gold currency required for doing business.[2]

Among the factors which cause a variation from this ratio are the degree of credit in which the paper is held from time to time, the fluctuations caused by the demands for foreign exchange, and the possibility of ultimate redemption at any given rate. In the case of the Argentine Republic, the value of 44 gold centavos for 100 paper centavos, which was adopted as the gold value of new paper to be issued by the conversion office, was about the value of the paper at the time when the fund was established, and may, according to the above rule, be considered as representing, at its gold value, the amount of currency then demanded by the business of the country.

Now that gold is to be paid in these countries for paper, apparently without premium or other restraint upon its issue, it becomes an interesting problem whether difficulties will arise in keeping gold in the country. The merit of the system of a pure gold currency is that it leaves unhampered to the conflict of individual initiative throughout the world the movement of gold and credit. The tendency of such a system is to send gold to those communities which, by reason of their wealth, have the largest surplus available for investment in a metallic currency and have the most frequent use for gold. Unfortunately for the countries of less financial power, the tendency of this free play of economic forces is to draw gold away from them to those countries which are economically stronger. This fact has been demonstrated repeatedly in monetary experience and has extended to the further application, that any currency, whether of coin or paper, issued by a governing country, when put in circulation in a dependency, tends to return to the mother country and denude the dependency of an adequate supply of monetary signs.

The operation of this principle, of the drainage of gold, has been witnessed not only in the case of countries essentially poor, but even in those of large resources where a country of stronger resources has possessed the same monetary system. This has been the history of the Latin Monetary Union, where the coins of each country have

[2]Thus in Brazil, the 297,800,000 milreis in paper in circulation in 1890 was worth more in gold than the 788,364,000 milreis which had been forced into circulation in 1898. *Vide* the present writer's "History of Modern Banks of Issue," Fourth Edition, p. 501.

common currency in the others. This has facilitated such a steady drainage, first of gold and ultimately of silver, from Belgium and Switzerland into France, that it has been repeatedly urged by responsible economists that Belgium and Switzerland should withdraw from the Latin Union and establish each for herself a currency which should be to some degree under her own control and not subject to free exportation by individuals for an insignificant profit and independent of the legitimate demands for exchange. In the case of Brazil and the Argentine Republic, one of the factors which has drained Belgium and Switzerland of their gold will be lacking,—uniformity of the currency with that which circulates in other countries. The Argentine Republic acted wisely, from this point of view, in rejecting the proposal to adopt a unit of the same value as the franc, which might have led to the draining away of her gold coins to France and other countries of the Latin Union.

The reason for the disappearance of gold from countries which are not the centers of exchanges is found in the principle of economic selection, otherwise described as the law of marginal utility. To the individual desiring foreign products, gold in his hands is the most convenient means of obtaining them. He parts with gold because his need for it is less intensive than for the goods, but in so doing he deprives the community of metallic currency. So long as the control of the supply of metallic currency, therefore, is left in such communities to the play of individual initiative, gold tends to disappear.

It is at this point that the advantages of the exchange standard reveal themselves. The government has the same interest and economic sanction for taking measures to maintain a local currency, adequate to the needs of the country, which it has for doing other things, like the provision of water supply and sewerage, which are not sufficiently the interest of a single individual to insure their being done by him, but which are of essential value to the community as a whole. Upon the individual trader there is no responsibility, except his own convenience, to contribute a share of his capital sufficient to afford an adequate circulating medium for the country; but the government, viewing broadly the need for such a medium for the promotion of mercantile exchanges and the development of the natural resources of the country, may justly decide to devote a certain portion of the national capital to the maintenance of a sound and suitable currency.

In the ideal financial world, gold should be permitted to move freely from one country to the other with the smallest possible obstacles except those set up by changes in the rate of discount. It has come to be recognized, however, in recent years, as the result of the experience of British India, Chile and other countries, that the obstacles of a variation in monetary units and in legal tender laws, and restraints upon the free delivery of gold for export may contribute their share in checking the adverse current of the foreign exchanges, without violating sound economic principles. The protection afforded by the exchange standard to the monetary system is indeed only a variation and extension of those methods of foresight, management of the discount rate, and accumulation of foreign bills which are now recognized everywhere as the legitimate weapons of the central bank of issue, charged by law or financial public opinion with the function of safeguarding the national credit.

The principles of the gold exchange standard have been in operation in British India since about 1899; in Peru since 1901; in the Philippine Islands since 1903; in Panama since 1904; and in Mexico since 1905. Such dangers as were feared at first in its operation have been met and overcome or have been proved to be mythical. The supreme test of the system took place in British India as the result of the crop failures of the spring of 1908, which deprived the country to a large degree of the means of meeting its foreign obligations by the sale of bills against the exportation of its products. The result of this test was that the reserve fund of about $90,000,000 held in London for the protection of $600,000,000 in Indian currency was reduced about one-half by the sale of drafts in India upon this fund. The silver coins paid for these drafts were locked up in the Indian Treasury until the time came for the revival of Indian agriculture and trade and the demand for an increase in the circulation. This demand was met by renewed sales in London of drafts on the Indian Treasury, which drafts were paid off in India in the local currency, which was thus restored to active local use.

The principle of the gold exchange standard is the same which has governed banking operations during the past century,—the existence of an adequate reserve in gold or gold credits to maintain a credit circulation. One of the important questions which was put to the test in this experiment in British India was how far an adverse balance of foreign trade or other unfavorable circumstances

may reasonably be expected to go in their demands upon the exchange fund. The mathematical answer in this case was the ratio of $50,000,000 to $600,000,000, or about eight per cent. Obviously a country will not part with all its currency in order to meet obligations abroad, even if there are no obstacles in exchange rates to check the free flow of coin; and much less is it likely to do so if such obstacles exist. The suggestion that demands upon the exchange funds could reach such a limit, or the half of it, is parallel with that of the novice, without knowledge of banking history, who enquires what would happen to a bank if all its depositors should demand currency for their deposits on the same day. Experience rather than abstract possibilities has determined the attitude of the financial world towards these questions. In the case of a token currency of silver, however, diffused over an entire community, the position is much stronger than in the case of a single bank, with a circulation largely local and subject to the possibilities of sudden distrust. It is not merely that the national currency commands greater confidence, but that it constitutes the sole medium of exchange. Even if depreciated, experience has shown that a currency will continue to be employed for the necessary transactions of daily life, while in the case of a single bank it might be conceivable that all its circulating notes could be withdrawn from circulation without impairing to any noticeable degree the means of exchange in other forms of currency at the command of the community.

Thus there has been evolved the principle that the demands upon an exchange fund arising from the transfer of capital, adverse exchanges, or even distrust, are limited to a small proportion of the total volume of the currency of the country. The experience of British India in 1908, when the contraction which was expressed in the demand for exchange on London amounted to about eight per cent of the estimated total circulation of the country, may not be the ultimate limit of possible demands upon a reserve fund in case of financial calamity,—indeed there is no means of fixing an arbitrary limit. That test was a very severe one, however, and took place in a country where the token coinage had been accumulating for generations to an amount which could not even be accurately ascertained. In any such test in a country which deliberately adopts the exchange standard hereafter, a reserve will be created in advance adequate to meet probable demands as determined by statistics ap-

proximately accurate of the amount of coins issued, the amount exported or consumed in the arts, and the amount actually in banks or in circulation at any given moment. The statistical problem will be comparatively simple, except in the case of ignorant hoarding of the coins, because the difference between their face value and their bullion value will prevent any considerable consumption in the arts or exportation as bullion. If hoarding occurs in spite of the credit element in the value of the coins, it will only reduce by its gross amount the net circulation to be protected by the gold exchange fund.

No burden of permanent indebtedness or of annual interest payments is required for launching and maintaining the gold exchange standard. If conducted purely as a government operation, as was the case in the Philippine Islands, a temporary advance of funds is necessary for purchasing and carrying the silver bullion until it is converted into coin and put in circulation. When once in circulation, however, the amount expended for bullion would be reimbursed by the new coins and a profit of from 30 to 40 per cent of the face value of the coins would remain to be covered into the gold reserve. In other words, the coin would pay for itself in much the same manner as the minting of gold under free coinage. The difference would be that in the case of the silver coins issued under the exchange standard, their deficiency in intrinsic value would be made up by the seigniorage profit, which would be set aside as a gold reserve.

If the transaction were entrusted to bankers willing to make the preliminary advances for the purchase of bullion and to assume all the expenses of coinage and expert services necessary to put the system in operation, the bankers could be compensated by an equitable division of profits between the government and themselves, without reducing the gold reserve below the point of safety. Indeed, in the case of a comparatively small country, if the bankers themselves were the custodians of the reserve, they would undoubtedly be able and willing to take any necessary steps to maintain parity in case of unusual drafts upon the reserve fund, so long as the government concerned was performing its part in good faith and was maintaining civil order.

*Inter armis silent leges.* The gold exchange standard, in case of an upheaval which wrecked the finances of a country, would not

operate very differently from any other form of currency. If the currency of a country under such conditions were gold coin, it would be exported or hoarded. If it were paper, it would drop to unknown depths. If parity could not be maintained under the exchange standard, the coins would tend to fall to their bullion value in silver.[8] Undesirable as such a consummation would be, it would be much better than the unfathomable depth to which a paper currency would fall.

It is not necessary here to enter in detail into the processes by which a new coinage based upon the exchange standard would be put in circulation. If the government were redeeming depreciated paper at a fixed rate, the new coins would be exchanged for the paper at their gold value. If the existing currency of the country consisted of foreign coin or paper, for which the government was not responsible, such currency when received for public dues would be disposed of to the best advantage through the banks and the foreign exchanges and the new currency would be disbursed for the obligations of the state. In either of these cases, if considerable amounts of the old currency were in the keeping of the banks, they would be permitted to exchange the old for the new on equitable terms or would be left free to export the foreign currency and to substitute in their reserves the new currency obtained through the sale of foreign bills against such exportations.

The process of transition is always one of the most delicate phases of the introduction of a new currency. It is because of the intricacies of the problem that the co-operation of the banks would be preferable in most cases to direct action by the government. All these problems, however, would be solved with equity and with comparatively little disturbance to business if the matter were entrusted to a strong bank which sought the services of competent experts. Within a very short period the transition was accomplished in the Philippines and in Mexico, without serious disturbance to business or to existing standards of wages and prices, and in both countries the system has been operated with such success, that a

[8]That they would not inevitably fall to this point is demonstrated by the present status of the Spanish silver coinage, which has an exchange value above 90, while the bullion value of the coins is below 50. Two factors contribute to this result,—the limited quantity of the coins and the possibility of the resumption of gold payments,—apart from intrinsic bullion value, which fixes for any given moment the minimum below which the exchange value of the coins cannot fall.

large surplus has been earned for the gold reserve fund from the sale of drafts and from interest on the deposit of the fund in foreign financial centers.

In both countries, while an ample local currency remains always in circulation, it responds in substantially the same automatic manner as a currency of gold and bank-notes to the changes in the demand for circulating capital and the movement of the foreign exchanges. This it does through the sale of drafts upon gold funds abroad and the temporary retirement of the currency thus employed, until it shall be called into use again by a counter-movement of the exchanges. In both countries the soundness and exchangeability of the currency is never called in question, and at the height of panic in New York in 1907 international bankers availed themselves of the financial tranquillity existing at Manila, to transfer funds to the beleaguered metropolis through the automatic working of the exchange fund, in order to mitigate the currency famine which had caused suspension of currency payments under the defective monetary system of North America.

# CURRENT MISCONCEPTIONS OF TRADE WITH LATIN-AMERICA

By Hugh MacNair Kahler,
Editor of "How to Export;" Vice-President Latin-American Chamber of Commerce; Publisher of the Spanish periodicals "America" and "Ingenieria."

Generalities on commercial subjects are deceptive. Much of the popular misunderstanding of our Latin neighbors grows out of the inclusive title which for convenience we are accustomed to apply to the twenty republics which occupy the rest of our continent.

The name is applied to a territory so vast and a range of conditions and populations so varied that its extremes have absolutely nothing in common. And one of the most general of our American delusions on the subject grows out of the very natural inference that Latin-America stands for certain definite, concrete and invariable elements.

This, and a host of other forms of ignorance are so easily corrected by reference to readily accessible facts that scant attention should be devoted to them in such a paper as this. That Latin-America includes countries of all sorts and conditions, climates ranging from the very hottest tropics to the frigid antarctic zone,—with a corresponding variety of products,—populations of totally distinct origin, speech, habits, needs and ambitions, is visible in every school geography, and it should be no part of such a disquisition as this to mention such facts. And although errors arising from ignorance of these truths are still the commonest and most damaging of all the host of misconceptions which militate against our commercial progress in Latin-America, there can be no question as to the rapidity with which they are disappearing with the advent of a vital and general need for the patronage of our southern neighbors.

This common error should, however, be corrected first of all. Hayti and Chile have absolutely not a single point in common save religion, and scarcely can be said to share even that. Brazil and Bolivia, though neighboring countries, differ radically in race, cli-

mate, products, speech, and all other important features, and Argentina, while differing almost as vitally from Bolivia is quite as different from Chile and Brazil, its other neighbors. Obviously, the very general tendency to make no distinction whatever between these widely different constituent elements, exercises a decidedly unfavorable effect upon the careless attempt to win their patronage. And there is no easy, general means of setting the matter plain, for the reason that in different lines of business the division of the territory and the alteration of the methods by which it is to be approached successfully, will vary as widely as the lines of business or as the countries themselves. For example, Argentina and Chile are very similar so far as their requirements in clothing are concerned, since the tastes and means of their populations and the demands of their climates are nearly identical. Yet as fields for the sale of mining machinery, they are very far apart, Chile offering an excellent and highly developed market, and Argentina holding forth almost no prospect at all.

Such errors as this, however, are matters of ignorance, errors of general information, of premise. Their correction requires only the rudimentary investigation which can be made by any business man without other facilities than an atlas. This paper cannot concern itself with the manifold details by which a clear, accurate knowledge of the varied conditions obtaining in this territory can be gained. It must be limited to the more involved misconceptions which grow out of faulty logic rather than insufficient knowledge, whose correction is a matter for careful thought, rather than superficial investigation.

Commonest of all such delusions affecting our commerce with Latin-America is the very deeply rooted and nearly universal belief that Europe is a preferable field for export effort. This error has a solid foundation in truth. Until one year ago Europe was unquestionably our best foreign customer. But until one year ago the major portion of our exports had consisted of raw products, grains, meats, textiles, crude metals, rough timber, etc., which naturally found their logical market in the crowded manufacturing countries of Europe, where such products have been items of imports for from fifty years to a century or more. Very reasonably we considered Europe as our best export market. So long as we were primarily a nation of farmers, no other territory could offer us a fraction of

the inducements held forth by the hungry, overcrowded manufacturing cities of England and the continent.

But in the year 1910, for the first time, our exports of manufactured goods exceeded our foreign sales of raw products. The former showed a consistent and heavy increase for a number of years back. The latter displayed a slight but consistent decline during the same period. We are no longer a farming nation, save for our own needs. Our surplus, for export, will hereafter tend steadily toward the more involved types of manufactured goods which leave us the maximum number of profits and bring us the maximum price abroad.

But with a surplus of manufactures to sell abroad, it by no means follows that those who have been readiest to purchase our wheat and beef will be the first to make us offers on our machinery and cloth. On the contrary, we find ourselves in direct competition with these former customers of ours, and under the necessity of finding a neutral market, where our merchandise shall have at least a fair field, without favor, which we can never expect to attain in these competing lands themselves.

Despite this obvious truth, and notwithstanding its self-evident nature, comparatively few American business men have as yet realized it. It is quite commonly advanced, in serious commercial papers, that because England buys our wheat, it must be a logical market for our harvesting machines, whereas the precise contrary is obviously true, the need for imported wheat being excellent prima facie evidence of the scant requirement for harvesters.

This, like all generalities, is of course deceptive. It is true only in the main and in the majority of cases, with a vast number of more or less important exceptions. Europe still presents a splendid market for many manufactured lines, and Latin-America still purchases certain raw products. But in the main it may be stated categorically, that our manufactures will find their best acceptance in non-manufacturing, but wealthy, lands, such as Latin-America, and that we shall gradually be forced out of the protected markets of crowded manufacturing territory, such as Europe.

Even the most notably successful lines of American manufacture, which have almost dominated the European market since their origin, prove this assertion rather than contradict it. Among these, typewriting machines present perhaps the most striking example. In

this case, commercial conditions are vastly in favor of American export as opposed to local manufacture for the European markets. The American domestic market was by far the largest individual field for such an innovation. Commercial tradition here had not solidified into the rigid prejudice which still exists in Europe, and the machine met a wide and ready acceptance in America which enabled its inventors to manufacture on the enormous scale which is most favorable to the economic production of such an article. Each individual European market was relatively small, and hampered, as well, by the ancient traditions of commerce which vigorously opposed the innovation. European manufacturers, even with cheaper skilled labor, plenty of power, material and capital, and a tariff protection as well, saw scant incentive toward local competitive manufacture, and the field was left almost entirely to Americans, who spent enormous amounts of time and money in its development.

In spite of the unfavorable conditions, a market was created and enlarged. European branches began to show heavy profits instead of losses. But no sooner had this become manifest than the European manufacturers entered the field, and, in spite of the expensively acquired prestige of the American machines, speedily began to command a considerable share of the local trade and even to compete for export. To-day in neutral as well as protected markets German and French typewriters compete quite notably with the American machines.

Opposed to the inevitable competition which successful export of manufactured goods to Europe must invite, Latin-America presents a field in which the possibility of local manufacture is so remote as to be quite outside of present consideration. Not only are all the essential conditions for successful manufacture lacking in nearly all of the territory, but the incentive is absent as well. Latin-America draws its income from the production and export of a few agricultural products, certain precious metals, a few textiles and a relatively insignificant amount of hard woods. Its principal sources of revenue lie in rubber and chocolate and coffee, aside from the grain and beef of Argentina and Uruguay and the nitrates of Chile. And rubber and chocolate are nearly unique in two respects. First, their price has almost no relation to their cost of production, the demand being far in excess of the supply, and second, their production does not exhaust the soil, but can be continued

indefinitely, with little attention, without fertilizer, and with practically no skilled labor or machinery. Under such conditions, even an increasing population can scarcely bring about the establishment of the less profitable manufacturing industries, for which the larger portions of the territory are, be it remembered, topographically and climatically unfitted, and which require capital, skilled labor and close attention both to production and to sales. In brief, Latin-America, is in the main so suited to the primitive industries and enjoys such an immense return from those industries, that it is almost inconceivable that manufacturing pursuits will ever materially command the energy and resources of the Latin-American peoples.

With a foreign commerce of considerably more than two billions a year, affecting only thirty or forty millions of population, at the most, Latin-America is and must continue to be an exceedingly wealthy, even luxurious, territory, demanding as necessities all the adjuncts of a complex, modern civilization.

To be sure, its present capacity in certain lines is much inferior to that of Europe. But it should always be borne in mind that its capacity must increase, without danger of local competition, while that of Europe will in all probability decrease, and suffer, moreover, from increasingly bitter local competition.

It is peculiarly illustrative of our immature views on export, that precisely those who are most thoroughly imbued with the idea that Europe is our best market, should hold also to the diametrically opposite delusion, equally incorrect, that European competition shuts us out of such neutral markets as Latin-America, and even threatens our home market unless barred out by a steadily rising tariff wall.

Like most of our errors regarding Latin-America, this delusion has a sound foundation in fact. There can be no question as to our inability to compete with European manufacturers in certain lines, *providing price is the sole factor.* And failure to take into account the significance of that proviso, as we have learned it in our home trade, constitutes the error.

It would be regarded as laughable folly should the aristocratic tailor to the wealthy clubman seek protection against the cheap competition of the humble dealer in cast-offs. The maker of the luxurious motor car does not complain of the ruinously cheap competition of the trolley and subway, and the makers of fine

watches find that the wide sale of cheap, machine-made timepieces aids rather than hinders the traffic in their goods. In a word, we have come to realize better than any other commercial people, that price is by no means the deciding factor in many, if not in the actual majority of lines. And this is exceedingly true of export.

English, German, French, Belgian and Italian competition in certain lines would be impossible to meet were our arguments confined to prices. But on a basis of quality, convenience, economy, strength, efficiency, comfort, luxury or taste, competition is not only practicable but comparatively easy. To this there are certain exceptions, as to every general assertion, but it is hard to mention a line in which we do not meet with at least a fair degree of success in any reasonably neutral market.

The predominance of certain European nations in the Latin-American markets is due almost entirely to the fact that they began long ago to solicit that trade and to serve it with some degree of intelligence. A recently published interview with Napoleon, during his brief sojourn in Elba, as related by an English hardware manufacturer who visited the Emperor there, is illuminating, in this direction. It discloses the fact that just a century ago the English manufacturers had succeeded in forcing an entrance into the closed market of the River Plate, then a dependency of Spain. And at that time they were not only distributing their goods free of all charges, but were going to considerable expense to educate the colonials in their use and advantages. Here is the real reason for England's present position in the Argentine market. It is not to be found in any other feature of English export methods, which, as a whole, are by no means so intelligent as we are led to believe by those pessimists who see no future for us in export, and particularly little in export to Latin-America.

European predominance, where it exists, is due very largely to priority, and in a relatively insignificant degree to lower prices, more intelligent methods, or better facilities. And European predominance is by no means so extensive as it might appear, which is another misconception which merits individual attention.

English sales to Brazil, for example, are much larger than ours, despite a certain degree of reciprocity in tariff arrangements which favors us. But on examining the nature of English exports to Brazil, it appears that more than the entire excess over our own

sales is made up of *coal, coke, cinders, jute bags* and *cotton yarns!* None of these is an item in our own exports, and none of them offers any great volume of profit to the seller. Quite frequently an apparently enormous difference between our sales and those of some European nation can be accounted for in the same manner—Spain, with her wines and grapes; France, with her wines, liqueurs and clothing; Italy, with macaroni and olive oil; Germany, with dyestuffs and toys, all hold a large volume of trade without fear of competition, just as we ourselves hold the field in typewriters, phonographs, sewing machines and harvesters.

The real advantage of European priority in the Latin-American market lies in the more highly developed commercial machinery which this older commerce has called into being, and which has in turn served to enlarge and perpetuate that commerce. Shipping and mail facilities, international banking and mercantile corporations, a closer mutual acquaintance and understanding, all of these things are creations of trade rather than creators of it. And this brings us to another very common illusion on the part of Americans, who frequently refrain from effort toward Latin-American trade because of the lack or inferiority of these adjuncts of commerce. Indeed, there are a number of very influential organizations engaged in endeavors to create this commercial machinery by treaty, by act of Congress or by private benefactions, with a view to placing our foreign trade efforts on a basis of equality with those of Europe.

Honest endeavor of any sort is deserving of something better than ridicule, yet it is hard to refer to these misguided enthusiasts without a touch of sarcasm, at least. A bank, a steamer line, a commercial agency, are purely business institutions, and cannot exist properly on a basis of philanthropy. In plain language, a bank does not prosper if it must create the conditions by which it exists, a steamer line cannot show dividends if it must create a market for its cargo and a source for its return cargo. That we have not already built up such incidental institutions to export trade is due simply to the fact that until last year we were not actually engaged in export, for the main part, but were devoting the greater share of our energies to the production of raw goods whose foreign sale was a matter of accident and not of design. The banks, steamship lines, credit facilities and similar conveniences which European exporters enjoy to-day are the outgrowth of their older export endeavor. We shall

have these, and better, before our export effort is as old as that of Europe is to-day, but their origin and prosperity must of necessity follow rather than precede the demand for their services. Greater New York prospers to-day because of its rapid transit systems, yet it would be self-evident folly to assert that had such a system been established fifty years ago, New York would have been able to use it economically and to profit by it. Instead of building up the city, the operation of such a system would assuredly have bankrupted it.

The matter of credits, briefly mentioned above involves another misconception of wide and disastrous effect. Many American manufacturers absolutely abstain from entry into the Latin-American field because of an essentially incorrect impression that success there requires protracted credits on unsafe grounds. Nothing could be further from the fact. Of our present very creditable showing of sales to Latin-America,—of about one-eighth of that territory's total imports,—it is conservative to state that more than one-half are cash transactions, in which the manufacturer receives his full payment before parting with his merchandise. No more definite rebuttal of the delusion of necessary credits could be desired. But it is quite true that long dealings with European houses, who, among customers of many years' standing are willing to give liberal time accommodations, have led certain Latin-American houses to ask for credits which would appear slightly longer than those commonly extended to the same class of trade in this country. But such cases are comparatively rare, and when they arise, it is usually entirely practicable to arrange some compromise mutually satisfactory. And the unwillingness of the American manufacturer to extend the credit is usually due less to his inability to meet the terms desired in point of time, than to his instinctive distrust of the honesty and solvency of his foreign customer.

Naturally, no credit transaction can be considered advisable unless the buyer is able to present reasonable proofs of his worthiness. And the relative difficulty of securing information as to the resources of a Latin-American business house, inclines the American to distrust it. As a matter of fact, the level of business morality in all Latin-America is far higher than here at home. Fraudulent bankruptcy is nearly impossible, because of rigorous governmental inspection of books, and a record of business and bank failures throughout Latin-America would show so remarkably few instances

that no American would be willing to believe it. This somewhat theoretical statement is amply confirmed, moreover, by the experience of those who have learned to extend credits to their Latin-American trade as readily as they oblige their domestic customers. Without exception the largest shippers of this class testify that their losses abroad from unwise credits are negligible compared with losses at home, figured proportionately and not on the aggregate business.

A further incorrect impression exercising a deterrent influence on Americans who could profitably enter the Latin-American field, grows out of the anxiety of certain advocates of a ship subsidy. These persons strengthen their plea by belittling our present shipping facilities, until it is not remarkable that many Americans should believe that we have no facilities for the transfer of freight to Latin-American points. It is no more than the truth that our freights to these countries, as to all others, are carried almost entirely by the ships of foreign nations. We have not found marine carrying a profitable field for our capital and our energies and have left it to those who are willing to undertake more risk and labor for a smaller return than we can accept. But there has never been, nor can there ever be, any lack of carriers for all goods which we can sell abroad. The ocean carrier is not limited to any one course. He brings his ships wherever cargoes are to be found, and though local prices may occasionally rise slightly through unexpected increases in freights, there is not, there never has been, and there never can be, any definite shortage in the supply of carriers. This is a categorical denial of contrary statements, without other proof than the reader's common sense. As for the relative merits of foreign and American merchant ships, that is a question which has nothing to do with Latin-America, and which need not enter into the present discussion.

Such are the chief misconceptions of commerce with Latin-America. It is evident that no attempt has been made to treat specifically the host of minor errors which are far more common than correct views. As has been said, these minor mistakes arise from basic ignorance of easily discovered facts, from an imperfect knowledge of history and geography which a brief return to the text-books of primary-school days would suffice to remove. And it is pleasant to chronicle the rapid diminution in these more elementary and more harmful delusions, under the impetus of our new-

born need for a growing, profitable foreign outlet for manufactured goods. The day is not far distant when most Americans, instead of a very few, will realize that a Spanish catalogue in Hayti or Brazil is unproductive, that skates are not in demand in Venezuela or Cuba, that it is better to export flour to Brazil and harvesters to Argentina than to seek outlets for both in both countries. We shall learn, too, to meet courtesy with courtesy, to study the Latin trend of thought, to observe our field and to interpret intelligently the conditions under which we must labor. We shall assuredly overcome these problems, for we already feel the pinch of necessity.

Dropping criticism, there is much ground for pride in our accomplishment thus far. Indeed, if we require proof of the ultimate success of American export endeavor in Latin-America, we need only survey the deeds which have been done in the last decade to realize that not even we ourselves can prevent our final and complete domination of what unquestionably is to be the greatest import market the world has ever known.

# INVESTMENT OF AMERICAN CAPITAL IN LATIN-AMERICAN COUNTRIES

By Wilfred H. Schoff,
Secretary, Commercial Museum, Philadelphia.

Interest in foreign investments is a new feature, comparatively speaking, in American business. Until recent years the United States sought capital and had no reserve to offer for financing enterprises beyond its own borders. Word of golden opportunities, promising returns even beyond those anticipated from the domestic field, was met by the objection that American savings should be employed as a matter of patriotic principle in American undertakings, and that every bridge or railroad or street-car line built in a foreign country meant one less at home, of which we stood in greater need. Under such conditions it was natural that our regard for our sister republics was sentimental rather than practical, and that however much we might declaim against political or territorial aggression threatened by foreign powers, we had no objection to the assumption by our neighbors of obligations for current needs, as well as improvements, which placed them under the control of influences far more real than our proclamation of an international doctrine. The story of the first century of Latin-American independence was then, like our own, a record of improvements made by the goodwill of financiers in London and Paris, under bond-issues marketed in competition with our own demands.

The result was a matter of course. English capital provided for the construction of railway lines for bringing down the coffee crop of Brazil for shipment, largely to the American market; English capital made possible the harbor improvements, the sanitation of the cities, the extension of credit upon the season's crop, the arrangement of the national finances so as to meet deficits arising from lack of resources, extravagance or inexperience in many places. Similarly in the River Plate republics, Argentina and Uruguay, it was English capital that made possible the opening of vast tracts to cultivation, the transportation of the crop to the seaports, the economical handling and shipment of it to the consumers of the

old world. To such an extent was English capital involved in these undertakings that a bad season or two meant the downfall of a great London banking-house a score of years ago, bringing on a period of stringency and liquidation felt throughout the world for several years.[1]

Large investments in public and private securities, bringing dependence on the London market, led naturally to the establishment of English banks from the Amazon to the River Plate, which have grown and prospered with the development of the countries they serve, and which are to-day, after a century of operation, among the strongest and most respected financial institutions in the whole world, uniformly paying large dividends and strengthening their position from year to year.

The greatest of the Latin-American republics then are bound to England by every tie of interest and gratitude, from the placing of their crops to the marketing of them at the point of destination; shipment being made very largely in English cars, on English rails, through an English-built terminal to English-built warehouses, whence it is carried in English bottoms and sold—more than half of it—in the English market. And, in return, it is no more than natural that the steamers should carry out English manufactures on their return voyage and that there should be a predominance of English trade, which is because England is situated so well as regards encouragement, development and stimulation.

To a less degree and of later upbuilding is the participation of the other European countries in the affairs of Brazil and Argentina; but their influence is now being extended rapidly and profitably, so that German, French, Spanish and Italian banks and trading houses are found side by side with the English, taking away little or nothing from the share of the first comer, but building up their profits on the exploitation of the growing countries. Conspicuously absent from the list are financial institutions acting for the United States.

Such are the conditions that are to be faced as our own country passes from the list of those constantly seeking loans to the company of the older nations having surplus resources, the investment of which, in foreign undertakings yielding larger profits than those now customary at home, may by the very fact of such larger profits tend toward an easier condition in the market for domestic under-

[1]Failure of Baring Bros. in 1890.

takings. For there can be no question that in the less developed countries there are many legitimate opportunities promising a richer return than is usual at home, and that such investments must strengthen our own position and further stimulate our own development. And in that direction follow the extension of trade, the advancement of commerce and industry, and the better realization of that noble dream, the sisterhood of the American nations.

It has been a common complaint for years that our trade relations with the Latin-American countries are not what they should be. In one sense that may be granted, namely, that our efforts in that direction are not what they should be. On the other hand, it might be said that they are as good as could be expected, and that the doubling of our trade in the past decade is evidence that our neighbors are willing to meet us at least halfway. The mere fact that we buy more than we sell is of little moment; the same is true of our European competitors. The Latin-American republics, owing to their relative condition of development, require a large balance of trade to meet their obligations and to provide for improvements; and this state of things may be expected to continue indefinitely. Neither is the absence of vessels under the American flag, often urged as a discouraging factor, any real reason for the relatively poor showing of our trade. Steamers of other nationalities there are in plenty, offering frequent sailings from our ports and excellent accommodations, and, it is to be feared, returning to their shareholders a lower rate of dividend than American investors are accustomed to expect. The decadence of our merchant marine is a question of national importance, but so long as cheap and frequent ocean freights are offered, it has only indirectly an influence on our foreign trade. It is a question apart.

Of more importance is the reason, also frequently urged, that there are no American banks. This is very near the root of the matter. For while in matters of exchange alone, it is entirely feasible under existing facilities to finance any transaction of international trade with our sister republics, the absence of American banking houses means the absence of Americans interested in making loans and investments, in creating those conditions of prosperous development which in turn create a market for foreign goods and lead the beneficiary to turn naturally for advice and for trade to his benefactor. This is the weakest point in our present relations with Latin-

America. Our position is selfish. We offer a surplus stock of goods, not always in a way to suggest interest in continuous relations, and we tender no assistance that can be compared with that offered by our competitors. Investment of capital in legitimate development is the surest way to bind these republics to us in friendly relations and in mutual commerce.

South of our borders, on the American continent, are seventeen republics; in the Antilles, three. Between Texas and the Isthmus our trade is predominant; in the continent of South America we hold a minor place, except in a few great staples; coffee and rubber on the one hand, flour and oil on the other. Yet if from the current statistics of commerce we turn back a couple of decades, we shall find that no great while before Blaine's call for the first Pan-American Congress, this country was second to Great Britain in the trade of every one of the Latin-American republics. Even our next-door neighbor, Mexico, now bound to us by the closest ties of commercial dealing, involving nearly three-quarters of the total volume of her trade, was then dealing to a proportion of nearly three-fifths with England. Central America was neglected, except for the project of an interoceanic canal; Cuba, under the Spanish commercial system, took her trade across the ocean instead of over the Florida Channel; South America was a region relatively unknown, its possibilities so little understood that an American consul at Buenos Aires under the Harrison administration prepared a lengthy report, duly published by the Department of State, in which he pleased the American farmer by the prophecy that owing to poor soil, drought, distance and lack of intelligent labor, the River Plate republics could never become factors in the world's wheat market; could, therefore, never seriously compete with America's staple export!

The two decades since the Blaine conference have brought about the displacement of Great Britain, and the predominance of the United States in the trade of ten of the twenty Latin republics. Those which have come close to us, including two which did not exist at the conference of 1890, have a population altogether of some twenty-two millions. Those which remain aloof have a population of double the first ten, approaching forty-four millions, and an area many times as large, a production and total trade enormously greater. A brief survey of the conditions which have linked

us with the first ten, and of those which have held the greater ten to their earlier relations, may assist us to estimate what may be our progress during a like period of the future.

In the Antilles, the two republics occupying the ill-fated Hispaniola of Columbus have not materially changed during the two decades. Adverse conditions, discouraging to themselves and their neighbors. have kept capital away from Haiti and Santo Domingo and limited commerce to necessities. The helping hand of the Roosevelt administration has insured stability to the Spanish-speaking republic, and similar conditions may be brought about in the French-speaking one. The prosperity of this island in the late colonial period, when it supplied the finest mahogany and logwood to the world's markets, may be duplicated and greatly extended when railroads bring the rich valleys of the interior into cheap and quick communication with the coast, opening up forest areas still virgin, and fruit-growing areas nearer to our Atlantic seaports than any of the present areas of large production. Increased export duties, swelling the government revenues and placing money in general circulation, will raise the conditions of life among the people and increase their purchasing power. That this will be the work of the next twenty years can hardly be doubted; that it will be the result of the investment of capital attracted from the United States rather than England is as certain as that the commercial benefits arising will flow principally in our direction.

In the greatest of the Antilles, the republic of Cuba has made such strides that the figures of its trade in the days of Blaine have no appreciable relation to those of the current year. A prosperous nation, sure of its economic position, and dealing confidently with the social and racial problems that are its colonial heritage, has supplanted the starving and desperate colony of the earlier period. Investment of capital in its railroads and highways, under the stimulus of a great citizen of Canada, accommodation readily accorded for the improvement and extension of its plantations and the safeguarding of its national obligations, have all brought Havana closer to the money market of New York than many a city within our own boundaries.

Coming now to the continent, our southern neighbor, Mexico, is at the same time the most conspicuous example of the expansion of mutual commerce and of the investment of American capital. A

generation ago the seaport of Vera Cruz was the principal gateway to Mexico. But several lines of railroad linking the capital with our own railroad systems have been constructed, the work being financed largely from this country, and stocks and bonds have been listed on our exchanges like those of any home enterprise. The effect has been to change the direction of travel and trade, so that the Mexican district is a part of the field regularly covered by our merchants and manufacturers. It is at present hard to realize that only a few years ago we were almost strangers to this near neighbor, when we were striving to prevent her from falling under the control of European influences, which predominated to the exclusion of our own. The flow of American capital into Mexico has been one of the most notable features of our foreign relations; the exploitation of its vast mineral resources has had the first place, then came the extension of its transportation system, the development of its local transit and lighting, the harnessing of its watercourses to provide power for industrial use, and even experiments in plantations under corporate control. The effect in raising the general level of prosperity, the standard of life, in stimulating local education and enterprise, in enlarging the purchasing power of the country and our trade with it, can hardly be calculated in figures. Recent uncertainties have brought out the statement that American capital is invested in Mexican enterprises to the extent of more than a billion of dollars. Whatever the total may be, the result is evident. Mexico will never again appear in the list of those republics whose trade is predominantly beyond the seas. It is more intimately a part of the commercial system of the United States than if it were actually a part of our body politic. And the change has been brought about without detriment to the interests of older nations. English trade with Mexico has increased, so have English investments. Very appropriately the greatest enterprises for the improvement of Mexican over-sea commerce have been under English guidance. The harbors of Vera Cruz and Tampico, and, even to a more conspicuous degree, the railroad across the Isthmus of Tehuantepec with its modern ocean terminals, which brings Hawaiian sugar to New York at a large saving in the cost of transportation, and built up almost over-night one of the busiest lines of traffic in the world, are enduring monuments to English foresight.

In the five republics of Central America the transformation

has been less rapid. Suffering like the other tropical republics from the economic changes coincident with the modification of their monetary standard, there are yet many problems of social and political organization which have tended to delay their enjoyment of the rich resources that are normally theirs. But the greatest sources of encouragement have been those following the development of fruit cultivation, bringing regular steamer communication with New Orleans, Mobile, Baltimore, Philadelphia, New York and Boston. And there is no reason to doubt that American capital will be employed, as soon as conditions justify the venture, in the much-needed railway extensions that will link their rich uplands with their natural outlet on the Caribbean, and so end the comparative isolation under which they still suffer. In the republic of Costa Rica this work, begun under English capital, and extended to meet the needs of fruit plantations in which Americans and Costa Ricans are interested, has furnished very nearly the system of communication needed.

On the Isthmus itself conditions are peculiar in that the greatest demand arises from the needs of the American colony engaged on the canal work. And here is, of course, the greatest single instance of the investment of American capital abroad stimulating the interest felt in this country by all the republics south of the canal, and promising great changes in transportation and commerce immediately upon its completion, which will come about mainly under assistance from this country. Guayaquil and Callao, now nearer to London and Hamburg by sea than to New York, will be brought almost to our doors; and the flow of capital, which has been most marked in recent years in the case of Peru, may conceivably increase until our investments attain a position almost if not quite as commanding as in Mexico. Southern Colombia, Ecuador, Peru and Bolivia possess latent resources of which the United States stands in need, and which are sure to be developed and exploited to the benefit of those countries as well as our own. Railroads to bring the ores down to the sea, and to reach great tracts of fertile uplands now inaccessible to trade but capable of raising great quantities of cacao, cotton, rubber, sugar and fruits, will stimulate settlement, industry and commerce, along lines which will point toward New Orleans and New York rather than the ports of Europe. The west coast is singularly rich in natural resources, but lacking in population

and funds for developing them. In this work the participation of American capital is assured.

There remain to be considered the more powerful and advanced of the South American republics, Chile, the River Plate countries and Brazil. Here the situation is altogether different. Mineral resources are known and worked, railroads are built as the traffic justifies, agriculture is highly developed, busy cities have grown up, and the work has been done with capital supplied from England and the continent of Europe, which in turn take the greater part of the resulting product. Here in the most prosperous portion of Latin-America the work is already largely done which we are beginning to do in the tropical republics, and the opportunities for investment are those arising in a developed community in many respects like our own, instead of in a new and untried field. Yet here are the greatest accumulations of wealth, the greatest interest in improvements of all kinds, and in some respects the greatest need for American participation if our relations with these republics are ever to gain any prominence. And in these countries there is no American bank, no systematic study of the many opportunities for American investment, and but a meager representation of American business houses; while Valparaiso, Buenos Aires and Rio de Janeiro are full of just such outposts of progress representing all our European competitors, watchful over the needs and desires of twenty-seven millions of people.

It is not to be expected that the United States will ever be as intimately concerned in the development of Chile and Argentina as England and Germany have made themselves. The work is already too far advanced. But the rapid increase of wealth in those countries is constantly leading to new projects affording promise of safe and substantial returns; in which an enlarged interest on the part of American capital will be at once profitable and productive of a feeling of greater cordiality and solidarity on the part of these progressive nations, whose co-operation is so desirable in the defense of American unity and progress. The influence of an American investing interest in these southern republics would be mutually stimulating and beneficial.

In Brazil, great as has been the total of English investment, and advanced as the work of development has become, the future possibilities are incalculable. Within an area greater than that of con-

tinental United States, dwell hardly more than one-fifth our population, served by about one-twentieth our railroad mileage. The improvement and growth of this great nation will be one of the features of the coming century. More closely bound to us by ties of friendship than most of the South American republics, sending us the major part of her greatest staples, the possibilities of co-operation are enormous. The very fact of the extent of the present investment of European countries will tend to turn Brazilian leaders toward seeking a larger share of help from the United States. And every increase in such accommodation will be reflected, inevitably, by an increase in the exchange of goods between the two countries. Trade is no matter of sentiment, and other things being equal, a nation buys where it can get the best terms.

In the earlier days of foreign investment in Latin-America, concessions were sought and granted which were too sweeping to be capable of execution by either side. Venal cabinets and congresses were induced to vote rights which their successors found it politically profitable to repeal, leading to bitter disputes and international complications; conditions were smuggled into such grants which provided for large advance payments to the grantor, with strong probability that the task would prove beyond the power of the grantee, and that a new proposal might be invited after a short interval; while on the other hand rights almost involving national sovereignty and honor were sought and obtained under various forms of persuasion by persons of no responsibility. Such grants would become the basis of unscrupulous speculation and of clamorous appeals to the national government to intervene for the protection of privileges which they would never have dreamt of granting within their own borders, even to their own citizens. The passing of such adventurers is most fortunate. The lesson must be learned that to avoid jealousy and distrust of the foreigner, the native citizen must at least be offered a visible benefit arising from the right he grants, and in some definite proportion to the profits accruing. There should be no more reason for diplomatic complications to arise from an investment in a railroad through a tropical country than from one in connection with a reservoir for a large city in our own country. Mutual confidence and benefit should govern all such enterprises. Greed and exclusiveness, arrogance and supercilious disregard of native rights are responsible for the distrust of the "gringo." The

native sensitiveness of our Latin neighbors, directly responsive to the appeal of sympathy and consideration, should be made a sure support in extending our relations with them.

From national policy and natural position, American capital may be expected to claim its share in the development of the new world, rather than to seek returns in more distant lands, where others will have greater interest and concern. It is through such influences that the broad principle of solidarity which inspired the Monroe Doctrine may be soonest and most surely realized.

## COMMERCE WITH SOUTH AMERICA[1]

Our trade relations with South America have latterly again become a popular subject and the newspapers present daily articles on "our neglected opportunities" there. The average reader is led to believe that all South America is still a virgin field for the American merchant and manufacturer, that the trade has been idly abandoned to our European rivals, that we should really now go in and take the lion's share of the business, which is to be had for little more than the asking, and that the peoples of our southern continent are really only just waiting for us to discover them and supply all their needs. The press tells us that these neighbors are eager for American goods, in preference to all others, but do not know how to get our articles.

Then there are those who write a book hastily to inform us authoritatively on the situation. Their hearsay facts are generally more worthy of the fiction shelf than of being spread broadcast as verities.

Some misleading reports have been prepared by men commissioned to submit carefully ascertained facts. A hasty trip through a country can yield but superficial knowledge and casual evidence, yet information so obtained is freely set forth as authentic, often to the intense astonishment of those who have long resided in the country which is made the subject of report. There are also many self-constituted authorities, who print or speak similar vagaries. So recently as February there was published an address in which it was implied that goods for Buenos Aires must still be shipped via England! Also that Callao (Peru) is "an exposed open roadstead where ships must anchor off the surf and unload into barges tossing and heaving on a rolling swell," the truth being that it is a fine harbor, with magnificent stone docks, within which a large fleet of vessels may enjoy all modern facilities for discharge direct to railway cars. Indeed, Callao is by far the best equipped port on all that coast. It was also stated as a fact that "the business integrity of the Spanish-American is so high that he very seldom fails to

[1] It is the general policy of the Academy not to publish anonymous articles, but there are special reasons in the case of this article for complying with the wish of the author.

pay." And yet the author of the article referred to poses as having traveled intelligently throughout South America.

Again, we constantly read reports from the United States consuls, chiding us for our neglect of those markets, where golden opportunities cry out to us and yet pass unheeded. We are charged with indifference to trade of all sorts, trade that is immensely profitable, trade that is workable on wholly safe lines. Consuls are not situated to fully appreciate the financial and other manifold responsibilities which underlie many of the undertakings that, to them, may seem just like out-and-out business propositions; yet these, upon closer inspection, often turn out to be either impracticable, or else lack the necessary funds to carry them through.

So consular reports should not be taken as the forerunner of trade, nor the creator of trade. They are likely to deal more accurately with what has already taken place, or be reviews on the general situation, or else afford statistical information. This statement refers to consular reports generally, not alone those from our own representatives. The consul cannot be expected to enjoy the inner confidences of the local business man, nor be hourly informed on commercial and financial movements.

It is a mistake to regard South America collectively, for no two of the fourteen countries have the same currency, and they vary widely as to climatic and other conditions. Some have large expanses of plain, while others are principally mountainous, ranging up to plateaus of 12,000 feet; and instances where we find their most important towns at altitudes of 7,000 to 13,000 feet are numerous. Here at home we pay due regard to the fact that conditions in Arizona are radically different from those of Maine and that the Dakotas do not want just the same goods as are required by Florida.

Again, distances in those countries are great, and forms of transportation are varied; but, for the major part, cart-roads are still of the primitive sort and in many places even these are almost impassable. Except for the southerly part of the continent, there is as yet no great railway development.

Then, except for a few favored harbors, which are almost wholly on the Atlantic side, the so-called "ports" are little better than

open roadsteads in many of which the ship is really at anchor on the high sea. This subjects her to the ocean swell which, especially on the Pacific coast, causes such heavy movement that, even in normal times, the uninitiated observer may well wonder how the handling of cargoes is at all possible. When the long swell sets in heavily, at certain seasons of the year, the careen of the vessel is almost like that of a log and it is only with consummate skill that the native laborers can handle the lighters bobbing wildly alongside.

Each of these countries must be considered separately, but cannot be treated *in extenso* in such a paper as this. With special reference to the Pacific side, we find that:

Chile is unique in conformation, having nearly 3,000 miles of sea coast and a back country which averages only about 100 miles in width. Walled in physically by the lofty Andes, it must ever be regarded as a country of only north-and-south, and so must be served through its innumerable ports rather than from any land center. With a population of about 3,500,000 people, it is a wonderfully large consumer of foreign articles. It may be roughly divided into three zones: the southern, embracing the old Patagonian territory on the Straits of Magellan, and the long strip of wet, desolate and almost uninhabited country up to the latitude of Puerto Montt; the central zone, from Puerto Montt to Coquimbo, is the really developed section of Chile, being rich in agricultural and pastoral pursuits, and blest with a beneficent climate. Irrigation is carried out very thoroughly; from Coquimbo to Arica, constituting what we may call the northern zone, is practically all arid country, but rich in mineral resources, and contains the only commercial supply of nitrate of soda, of which very important article about 2,500,000 tons is now annually exported to all parts of the world.

Bolivia lost her seacoast when warring with Chile, thirty years ago, so it is now an inland nation. The population is estimated from 1,500,000 to 2,000,000 but consists so largely of Indians, and mostly in such remote regions, that no reliable census is possible. The country's principal cities are on the high plateaus of the Andes, at great altitudes. This is the only region of much development, and railway construction there is now active. It is very rich in silver, copper and tin, and holds out prospect of great mining operations in the future. The production of tin has been rapidly increasing

and Bolivia promises to become the chief source of supply for the world. The easterly part of the country, on the tributaries of the Amazon and other great interior rivers, is practically inaccessible from the Pacific and its only development has been in the rubber districts.

Peru offers the combination of a long seacoast, to which many fertile valleys are tributary; and her immense regions on the easterly slope of the Andes will undoubtedly undergo great developments, as the means of communication with the interior are gradually opened up. The population is roughly estimated as somewhere between 2,000,000 and 2,500,000, including the remote native tribes. Her great sugar estates are all under irrigation, and the cutting of the cane is carried on through practically each month of the year, while most other sugar countries are limited to a short harvesting season. In mining wealth, she is proverbial. And she produces a peculiar long-stapled-rough cotton not to be had elsewhere.

Ecuador is essentially a tropical country and still in the very early stages of development. The population is difficult to estimate, but is probably about 1,500,000, mostly of the Indian race. Her products are principally of the tropical sort, with cocoa in the lead. The trans-andean region is little known, but offers much for the future.

These countries of the Pacific slope offer many mountain streams suitable for electrical power purposes, but there is a lack of markets for the power so obtained. In most cases the necessary money investment could not find sufficient consumers to support it. The notable exceptions are Santiago (in Chile) and Lima (in Peru). The latter has, under American auspices, undergone a development, for trolley and industrial purposes, which has no equal in all South America.

Each country has its industrial enterprises, according to local conditions, but, along the west coast, Chile has by much the lead in its variety of manufactures, although Peru is decidedly to the front in the making of coarse cotton goods. Railway and mining developments are really the great hopes of nearly all that part of the coast to the north of central Chile.

It is already a threadbare platitude that "the trade follows the flag," in so far as dealing with foreign markets is concerned; and,

in parallel, is the rather wearisome chant by certain interests, and by unthinking persons who join in the chorus, that our commerce with South America languishes simply because we absolutely lack frequent and cheap communication.

It is frequently asserted, sometimes by those who should know better, that we cannot ship goods to distant ports of South America, unless via Europe for trans-shipment thence by the numerous lines plying to all parts. The misleading and even untruthful nature of such statements is shown when we consider the facts. Taking the calendar year 1910, it will be found that from the port of New York alone, steamers were despatched as follows:

| For | Regular lines. | Monthly sailings. | Annual sailings. |
|---|---|---|---|
| Brazilian ports | 5 | 8 to 12 | about 125 |
| River Plate ports | 6 | 10 to 12 | about 125 |
| Chilean and Peruvian ports, via Magellan | 3 | 3 to 4 | about 40 |

So it will be seen that the trade is not hampered by infrequency of sailings, and the various companies operating these great fleets are all only too ready to still further increase their tonnage, to satisfy any temporary or permanent demand. In fact, having regard for the volume of cargo available, these countries are already relatively as well served from New York as are the principal ports of Europe and Asia.

Nearly all the boats for Brazil, as well as those for the River Plate, accommodate passengers, and some of the lines operate excellent passenger boats on good schedule time. So it is no longer necessary to travel via Europe, except for those travelers who wish to spend more time and more money, because they like to take in the pleasures of London and Paris en route. In addition, many steamers and sailing vessels were loaded from our South Atlantic and Gulf ports, carrying principally whole cargoes of lumber, rails, refined petroleum, etc., etc.

Between our own Pacific coast and the countries on the South Pacific, there is also a considerable trade, but it is mostly in lumber from Washington, Oregon and California, although considerable flour is shipped, as also a limited amount of canned goods and miscellaneous wares.

There are two steamship lines regularly in this trade, and numerous sailing vessels are chartered to carry cargoes of lumber.

In addition there is an American line of steamers covering the various ports from San Francisco to Panama, which also carries passengers and cargo for trans-shipment southward at Panama.

The west coast is also served by the Panama route. There are four regular steamship lines from New York, and a couple from the Gulf, which make the connection at Colon. This route naturally takes the passengers, mails, and high-class cargo, not only from the United States but also from Europe.

From Panama southward there are two very excellent passenger and cargo lines, one English and the other Chilean, with sailings to make a weekly average; these include a fast fortnightly express service, covering the principal ports between Panama and Valparaiso in fourteen days. So it is possible to make the journey from New York to Valparaiso in twenty to twenty-one days.

In 1909, with the support of the government, a Peruvian line inaugurated a fast fortnightly service between Panama and ports of Peru. Two fine new passenger boats were put on but misfortunes soon led to a suspension of operations. This company, however, has now resumed its service, and with the building of additional steamers contemplates extending the voyages to Chile.

The matter of freight rates is another bugaboo which is constantly emphasized, to impress the American trader that we are sadly handicapped in that respect. The truth is that we pay ocean rates which, while averaging about the same as those from Europe to South America, are frequently even lower. By way of illustration, we have examples of rates current during the last year, on low class goods, as follows:

To Brazilian ports.....Voyages of 4,000 to 5,000 miles, 15 to 18c per 100 lbs.
To River Plate ports....Voyages of 6,000 to 7,000 miles, 16 to 20c per 100 lbs.
To Chilean ports.....Voyages of 8,000 to 9,000 miles, 20 to 25c per 100 lbs.
To Peruvian ports.....Voyages of 9,000 to 10,000 miles, 22 to 25c per 100 lbs.

in contrast with which graphic array we have examples of nearby rates on similar goods, such as:

Pittsburg to New York, by rail.....about 450 miles, 10½ cents.
New York to Charleston, S. C., by sea.....about 625 miles, 15 cents.
New York to Savannah, Ga., by sea.....about 800 miles, 15 cents.
New York to Cuban ports, by sea.....1,000 to 1,300 miles, 15 cents.

From this exhibit it must be seen that there is no lack of adequate transportation facilities to South America, nor that exorbitant rates prevail. And it is all done without ship-subsidy, except that enjoyed by one line under the Brazilian flag.

Quite recently a large manufacturer of automobiles, in either Michigan or Wisconsin, publicly stated that he was doing a very nice business with the Argentine; and, when asked whether shipping charges were not an impediment, he frankly stated that he was entirely satisfied, as it cost him only $85.00 per car from his factory to Buenos Aires, whereas the freight on a similar car from his factory to San Francisco cost him $125.00.

Much clamor is made because there are no strictly American banks in South America, and because for lack of same, we cannot foster our trade. There is nothing to hinder our capitalists from going there, if they wish to do so, and their money would be more than welcomed. But they find no special inducement in prospective profits compared with more comfortably employing their funds at home.

There are numerous first-class British banks in all the principal southern countries that afford all manner of facilities and do not abuse the confidences of their customers. Most of these have their own agencies in New York.

The German banks are aggressive for a big share of this business, but do not limit themselves to purely financial functions, for they also invade the commercial field and go out of their way to secure contracts—for local industrial enterprises for the German manufacturer, all a part of the admirable system of the Germans for Germany forever.

The French, Italian and Spanish institutions are also important factors, more particularly in east coast banking. And all the South American countries have native banks, ranging from purely local concerns up to powerful institutions that figure largely in international finance.

The advent of American banks would add nothing in facilities, or cheapness, to what is already enjoyed. Europe buys the great bulk of South American produce, also furnishes the necessary capital for both public and industrial developments, on terms not yet likely to tempt the American investor. So London, Paris and

Berlin will probably remain the international clearing houses for a long time to come.

There is already a large American banking corporation, organized particularly for Asiatic, Philippine and Panama business, which cannot finish up its business in New York, and is compelled to use London as its settling center.

There are a great many banks and private bankers in New York, as well as other American cities, only too ready to serve the reputable South American trader by discounting his drafts at six per cent per annum, plus a charge for collections which will vary from one-eighth per cent to one per cent depending upon the remoteness of the collection point. And with the pound sterling as his settling medium, he does not really suffer a loss in financing, for his bills are freely negotiable, at the current rates on London, which rates are subject to a very keen competition upon the enormous New York exchange market.

There is no doubt that the introduction of special lines of goods is greatly assisted by the special salesman, and his mission is helpful to all concerned. But there are few American commercial travelers who go out fully qualified for their missions.

The novice starts bolstered with the American idea of "get there somehow," and has his conceit of vanquishing the field easily. He has no respect for well-established conditions, and his rough effort to override these frequently results in his undoing. Seldom is he fluent in Spanish and rarely is he tolerant of customs quite strange to his habits of life. In contrast, the commercial men from Europe are patient and indulgent, for they do not expect to carry all before them.

In the South American countries, principally for the purpose to provide municipal revenue, it is customary to license all lines of business and professions, whether banks, doctors, traders or lawyers, according to a graduated schedule. So it is natural that the local tradesman, whether wholesale or retail, quite openly resents the invasion of his field of itinerant salesmen who do not carry the burden of fixed expenses. In some parts the result is a town tax levied upon all visiting salesmen, and woe to him who tries to elude this fee, for if not betrayed by his prospective customers, he will likely find that his innkeeper has privately reported him to the tax

collector, with whom he is in collusion for a share of the heavy fine then imposed.

Although the assertion is frequently made that we do not look for South American trade, the fact remains that every commercial center, in all that continent, down to towns of the sixth and seventh degree in importance, is constantly visited by American travelers, and also drummed incessantly by local salesmen, who are either Americans, or so closely represent American merchants and manufacturers, that full justice is done to such trade as far as it is possible under ever-changing conditions.

The struggle to transact the largest possible business is very keen indeed, and it is so all along the line. The competition is so close in many cases that the margin of profit reaches practically the vanishing point. American articles are prominent in this mercantile effort.

Here in our domestic trade the merchant, jobber, or manufacturer would often refuse to do business on the slender margin that the South American importer must constantly accept, in transactions of any magnitude, in competition with his British, German and other European rivals. Moreover, the merchant there has usually to extend terms of credit that would not be conceded here, and in some countries he is hazardously exposed to fluctuations in the values of the currency, much more violent than was the case of our own paper money in Civil War times. The resident South American merchant has by no means the indolent and prosperous life so often pictured of him.

We have been so fully engaged in opening up and developing our own vast country, under very profitable financial and mercantile conditions, that the inducement to put money into foreign countries, especially those to the south of us, was not tempting, compared with returns equally good and usually much safer to be found in our home markets. But latterly we have reached such a condition of industrial development, even in times of normal demand at home, that we have a surplus of manufactured goods, which more than ever forces us to seek sales in the foreign markets, and South America is now paraded as a new field for enterprise.

There is nothing mysterious about this export trade, but our

manufacturers must realize that more care is required, and that they must feel some larger responsibility, of at least a moral sort, than in our domestic sales. It should not be imagined that the customer at the other end has any respect or sentiment for the national origin of the goods he is prepared to buy. The consumer is the ordinary human being and struggles to get the best value for his money, without a care whether the article is of American or European make, so long as price, quality and style are suitable.

The proper packing of goods is certainly an important matter. It often happens that our factory people feel that almost anything is "good enough for those people down there," in which spirit the packing-room and shipping-room get rid of their work in the confidence that the goods are going so far away that any negligence can scarcely be brought home to the guilty parties. In our home trade, where freight is all charged on the weight, there is always an effort to reduce the gross weight of goods to a minimum; so boxes and other containers are made cheap, thin and light, to the limit of shipping condition tolerated by the railroad or steamboat.

Just here comes in the great difficulty of getting the American manufacturer to have his packing room distinguish intelligently between the preparation of goods for domestic trade and those intended for the foreign market. Ocean rates, except on dead-weight goods, are charged on the cubic measurement. Fragile packages, put up without regard for their bulkiness or their many rough handlings en route to destination are unsuitable for export. Frequently second-hand boxes are used and reach the steamer in such wretched condition that no carrier could be expected to sign for them as being "in apparent good order," and these often bear old shipping marks which cause confusion at all points of re-tally, and then difficulty in the South American custom house, to distinguish which mark is really intended.

It is notorious that such articles as boots and shoes, patent medicines, perfumeries, fancy soaps, etc., etc., are always liable to robberies en route, whether before or after reaching the steamer, so the packages should not have their contents "advertised" on the outside, as this is a standing invitation to loot them.

Most American manufacturers do not charge openly for packing, but it is in their prices all the same. Far better to pack well

and charge frankly for it. The European manufacturer has the reputation of good export packing, and charges for it, often quite heavily, but he always provides new packages. So we should pack properly, under reasonable charges, and try to give our foreign customers satisfaction. They would much prefer to get their goods in sound condition and on time. Claims for breakage or damage, arising from careless packing, are usually disputed and, anyhow, are disagreeable for all concerned.

As a final word on this subject, however, it is but just to state that a general complaint against the American manufacturers for bad export packing is undeserved; it is the few careless ones that cause the trouble. The British factory is often at fault for too dear and over-heavy packing, the latter a serious thing where import duties are assessed on the gross weights.

We hear criticism of the rough finish of our machinery, whereof it is contended that nothing is added to the utility, or wearing qualities of the machine, by fine finish of the invisible and non-working surfaces. It is a common practice to use a filler, for smoothing-out the rough parts of castings, and all is then nicely painted over, so that the machine may have a pleasing appearance to the customer. Sometimes before and sometimes after sale, this filling material drops off and leaves such a scarred looking machine that the customer considers he has been deceived and forms a new prejudice against American machinery.

The latest complete annual statistics on *our* trade movement are for the year 1909, and show up for the principal countries as follows:

| | Exports. | Imports. |
|---|---|---|
| Ecuador | $2,397,995 | $3,416,146 |
| Peru | 5,923,340 | 6,835,530 |
| Bolivia | 4,349,412[2] | Negligible |
| Chile | 9,601,084 | 19,649,707 |
| Argentine Republic | 43,068,829 | 26,066,790 |
| Brazil | 22,265,534 | 123,817,298 |

in which our sales consist of all sorts of goods, implements, and machinery; while our purchases were

From Ecuador, principally cocoa and rubber.

From Peru, principally copper-produce, cotton and alpaca wool.

[2] This is a palpable error, for $1,500,000 is nearer the fact.

From Bolivia, practically nothing.

From Chile, mostly nitrate of soda, the balance mainly copper produce, and ores. The world's supply of nitrate of soda is absolutely monopolized by Chile, which article accounts for our comparatively large importation from that country. We *must* have it, so Chile owes us no special favor because we have to buy it of her. Leaving this article aside, she purchases from us about $5.00 of our goods to our $1.00 of her products.

The Argentine Republic is another example of our great lead in sales, compared with our purchases; and the figures for 1910 will prove not only much further growth but a still larger share in our favor.

In Brazil the trade balance is against us, simply because of our unavoidably enormous purchases of her coffee and rubber.

With the nearer countries of South and Central America, we enjoy such a preponderance of trade that we have no reason for complaint.

The foreign buying power of the several countries is a useful index to their trading possibilities. Taking up the official statistics and also the estimated populations, we can arrive at a per capita capacity, such as shown by the following:—

| Country | Total importation for the year 1909. | Estimated population. | Imports per capita. |
|---|---|---|---|
| Ecuador | $9,350,000 | 1,500,000 | $6.23 |
| Peru | 26,000,000 | 2,250,000 | 11.55 |
| Bolivia | 14,775,000 | 1,750,000 | 8.44 |
| Chile | 94,350,000 | 3,500,000 | 26.96 |
| Argentine | 302,750,000 | 7,000,000 | 43.25 |
| Brazil | 179,700,000 | 21,000,000 | 8.56 |

It cannot be pretended that such a table is authentic; but even approximate figures permit us to approach the facts. Those figures in the case of Argentine, which is passing through a period of great prosperity, are plausible. In Chile the people spend freely and are proverbially improvident. The other countries have not so much spending power. The tabulation, altogether, is fairly illustrative.

In all this trade, the exporting merchant is a very important factor, whether buying for his own houses or for his agents in South America or on commission for the many firms whom he may repre-

sent. This established merchant is constantly a pioneer in bringing to the notice of his South American customers the possibilities of business in new articles; or, as changing trade conditions arise, the opportunity for dealing in staple lines of American goods which had not hitherto been available on terms of competition in the foreign markets.

He is usually the man to supply the cash demanded by the manufacturer, promptly upon delivery of the goods, the merchant doing this with his own capital or making his necessary financial arrangements. In turn, he has to grant the necessary credits to his customers in South America, few of whom remit in advance; and it is generally necessary to wait for remittances until thirty, sixty or ninety days, and even six months, from the arrival there of the shipping documents, or of the goods themselves. It can be stated that the capital of a merchant exporting to South America cannot, as an average proposition, be turned over more than *twice* in twelve months!

The merchant has further to carry a direct responsibility for all his errors of omission and commission, as well as for delays in shipments arising from factory, railway or steamer disappointments; as also for mistakes in the hurried preparation of consular documents, which involve calculations from American weights into the metric system, and translations into the Spanish (or Portuguese) nomenclature of all the unending variety of articles in his invoices. He is held at least morally, and too often pecuniarily, accountable for any fluctuations in the market, whether real or fancied, that may operate to the disappointment of his customer; and he is always exposed to repudiation of his shipments, by customers over-ready to shirk their obligations on any sort of pretext, brought on by some unfavorable change in the mercantile situation or by an adverse turn in exchange there, which may lead a customer to prefer not to receive the goods.

The body of our merchants engaged in South American trade are reputable men and well regarded. Of course, in all walks of life, there are some who abuse; and it is only the occasional commission merchant, over-greedy of profit, who is responsible for the feeling of many manufacturers that the commission men altogether are highly detrimental to the trade and should be eliminated at all costs.

The merchant is under heavy expenses, which constantly tend to increase, including lavish outlay for cabling; yet his legitimate

remuneration steadily diminishes, under the sharp competition he daily undergoes. For the few large markets, capable of taking big quantities, business in staple lines seldom leaves the merchant a gross remuneration of over two per cent and he has often to work for even less than one per cent. For the purchase and shipment of miscellaneous goods, he does not average more than two and one-half per cent to three per cent, coupled with the giving of credit. In the handling of orders for small wares, such as hardware, tools, glass-ware, notions, etc., etc., his clerical work is disproportionately expensive; and the merchant is by no means recompensed by a lesser charge than five per cent although, in the stress of competition, the mistake is often made of handling such business on two and one-half per cent to three per cent commission. This multitudinous detail exposes the documentation to petty and almost inevitable errors, whether as to description, contents, or weights; and in this line of trade the customer is usually of the sort who makes claims on general principles. Were the merchant to keep close watch on the allowances he is constantly compelled to make, to satisfy such claims, it would be demonstrated to him that the business soon becomes absolutely unprofitable, when worked on a too meagre margin. In fact, even the Hamburg commission merchant, who is supposed to work for almost nothing, has now become unwilling to pare down his commissions, where the clerical cost and incidental responsibilities are so onerous.

After all, this question of credit is just about the same, whether the goods are from Germany, England, or the United States. For it is usually the merchant, or merchant-banker, who has to accommodate the customer; as the manufacturer, whether European or American, is reluctant to carry the foreign risks, or have his capital tied-up awaiting uncertain returns. In substance, the worthy South American tradesman gets about the same facilities for payment, in one or another form, whether he buys from the United States or from Europe. It is usually the unworthy customer, whether he be located in Chicago, or in Buenos Aires, that protests the loudest when a cautious merchant declines to grant him unreasonable terms.

All trade must eventually work back to the primitive law of barter, which principle leads up to a statement of the simple fact that we now buy absolutely nothing from South America unless com-

pelled to. Notwithstanding, we try to cajole ourselves into the idea that those countries really must, almost under pressure, deal with us, and should even accord us preferential trading favors not to be conceded to our commercial rivals.

The American slogan now is that we must multiply our exports to South America. Yet, do we deserve a larger share of that trade than we already hold? Do we contemplate increased bartering? Can we expect to do all the selling, that the trade shall be wholly one-sided and at that in our favor? Is not our tariff "in restraint of trade" with South America? Is not its "spirit" to buy the least possible from a customer to whom we insist upon selling much?

We already have ample shipping facilities. We also have good financing facilities. We have plenty of goods to sell. We have enterprising merchants and manufacturers. But, have we yet established the proper national policy for dealing with the South American countries? The answer is a negative one and therein is to be found the real obstacle to a fuller and more rapid development of our commerce with the southern continent.

# PUBLIC INSTRUCTION IN PERU

By Albert A. Giesecke, Ph.D.,
Rector of the University of Cuzco, Cuzco, Peru.

There can be little doubt that the greatest problem confronting Peru to-day is the organization and extension of public instruction.[1] The country is in a fair way towards settling its boundary controversies, with the possible exception of the Tacna and Arica question pending with Chile. Hence the boundaries need no longer be the central theme of discussion and agitation by the large majority of Peruvian citizens.

As a background for the discussion of the educational problem in Peru, it seems expedient to state briefly some of the obstacles which impede rapid progress to the best interests of education. In the first place, the physiography of the country merits consideration. With an area approximately one and a half million square kilometers, and a country practically divided into three, more or less, independent sections, Peru is severely handicapped in carrying on the functions of government. The coastal region extends along the western part of the Republic, in a strip averaging less than a hundred miles in width. It is generally devoid of rainfall the year round. It occupies about ten per cent of the area of the republic. The "Sierra" or mountainous region lies to the eastward, and is the seat of the plateaus and high peaks of the Andes. Roughly speaking, it occupies about twenty-five per cent of the area of the republic. The mountains are largely responsible for the climatic conditions of the country. Still farther to the east is an immense tract of land, exceedingly rich in flora and fauna. It occupies almost two-thirds of the area of the country, and, with the exception of two or three small districts, is practically unknown. Located in the upper regions of the Amazon basin, it is a land of present surprises and of great promise for the future. At present it is sparsely settled, and, indeed, inhabited in part by an uncivilized race.

[1] I hereby desire to acknowledge the courtesy of several persons who have so kindly supplied me with the necessary data, all of which is of an official character. I refer to Dr. Matias Leon, Ex-Minister of Instruction; Dr. H. E. Bard, Adviser to the Minister of Instruction; Dr. Justus Perez Figuerola, Director-General of Instruction; Mr. Aurelio Gamarra y Hernandez, Chief of the Bureau of Secondary and Higher Education, and Dr. Vincente Delagado, Chief Statistician of the Department of Instruction.

The second obstacle to the rapid development of a rational educational system may be considered under the social organization of the country. As in the United States, there is a great mixture of races. The main distinction in a comparison between the two countries, however, lies in the fact that in the former country the white element predominates, numerically considered, whereas in the latter, the Indian, or Cholo, element, *i. e.*, the descendants of the Incas, comes first. Most of the white, and mestizo, or mixed white and red blood, is found along the coast. It is the center of influence of the Spaniard. The other two regions are settled chiefly by the mestizo element. The negro element is also present, and is concentrated chiefly in the coastal region. Allowing for exceptions, there is naturally a difference in the intellectual capacities of these race mixtures. This difference comes out more clearly in an investigation of the location and work of secondary and higher institutions of learning, which are concentrated chiefly in the coastal region. Yet this region has only about twenty-five per cent of the three and a half million inhabitants of the country. More might be added with reference to the influence of climate, racial assimilation and the effects of Spanish colonization upon the social organization, but none of these presents insurmountable obstacles to the advancement of public instruction.

Political drawbacks also exist, and they are most in evidence in affecting the administration of the public schools of the country.

Peru has a cabinet or ministerial form of government,—as in France. The Minister of Justice, Instruction and Religion, who is one of the six Ministers of State, has charge of public instruction. Under the minister is a director-general of public instruction—a position which was created last January.[2] The Director-General therefore has all the administrative work of public instruction in his hands. Under him are the following chiefs at the head of their respective bureaus. These include the chief of secondary and higher education; of the personnel and general administration, an important post under the present organization; of equipment and supplies; of statistics; and archives. Aside from these bureaus under

[2]Previously there was a Director-General of Justice, Public Instruction and Religion, but by decree that of Public Instruction has been established separately. Legally the work of secondary and higher education was left in the hands of this Director, and primary education in the hands of another Director.

the director-general, the minister has an expert adviser in matters appertaining to educational administration. Concerning the present organization it would seem highly desirable to make the work of all of these officials free from political influence, except that of the minister. There is also a Superior Council of Education, but it has had a rather checkered career. It has been suggested that there be a separate minister for education, but there are two sides to this question.[3]

The constitution of Peru guarantees the existence and diffusion of primary instruction, which shall be free and obligatory.[4] The present law of public instruction, primary, second and higher instruction, was passed by Congress in 1901; the portion dealing with primary instruction was remodeled in December, 1905. Upon these two laws are based numerous executive decrees, amplifying the system of public instruction.

### *Primary Instruction*

Elementary education is obligatory for boys between the ages of six and fourteen, and for girls between the ages of six and twelve. Primary schools are of two classes: (1) elementary; (2) "centros

[3]It will be noted that Peru has been securing (for some years) from time to time from Germany, Belgium, Switzerland, and other European countries, teachers for the national colegios. The duties of these teachers have been confined entirely to teaching in these schools, or in a few instances to directing them. It was only a year ago that it was realized there was need of well-trained and experienced men in the administrative branch of education. Dr. Manuel V. Villaran, who had made a thorough study of the educational situation (*Revista Universitaria*, Año III, Vol. II, No. 23, pp. 1-21, and No. 24, pp. 105-130, Sept. and Oct., 1908), upon being called to the Cabinet with the portfolio of Justice, Instruction, and Religion, decided to engage from the States, a director general and four departmental instructors of primary instruction, and a director and number of special teachers for the national colegios and for normal instruction.

Dr. Villaran's plans were only partially carried out when a change of Cabinet brought to the department of instruction a new Minister, who did not find himself entirely in sympathy with the plans of his predecessor. Before this time, however, four of these men were on their way to Peru. They were men especially prepared, by practical experience as well as by large academic and professional training, for the work they were to do. They are now rendering important service of an administrative character, the full value of which will receive recognition only in time. Dr. H. E. Bard, who is adviser to the Minister of Instruction, had for some years before coming to Peru given special attention to the administrative sciences, and particularly to the science of educational administration. He had had valuable practical experience also in this field in the Philippine Islands. Some far-reaching reforms have already been effected through his initiative. It is expected that the work of these men will demonstrate the need of others like them, and in this way will one of Peru's greatest educational needs be met.

[4]Article 24. See Constitution of Latin-American Republics published by the International Union of American Republics.

escolares," or literary school centers. Kindergarten schools are also provided in two or three instances. The elementary schools take up the studies of the first two years' work of primary education. From the following curriculum it will be seen that in these two years reading, writing, arithmetic, the metric system, notions of geography and history of Peru, the Christian doctrine and physical exercises are provided. The executive decree of June 20, 1906, makes a conscious effort to provide primary education in a comprehensive way, but in practice the results have not been perfectly satisfactory. The curriculum for the five years of primary instruction follows:

| *First Year* | *Second Year* | *Third Year* | *Fourth Year* | *Fifth Year* |
|---|---|---|---|---|
| 1. Reading and writing | Reading and writing | Reading and writing | Reading and writing | Reading and writing |
| 2. Arithmetic | Arithmetic | Composition and grammar | Composition, grammar | Composition and grammar |
| 3. Object lesson (plants, human body, colors, seasons, with drawings of objects where possible) | Notions of geography with special reference to Peru | Arithmetic | Arithmetic, including metric system | Arithmetic |
| 4. Christian doctrine | History of Peru | Geography, with special reference to Peru | Geography of Peru and the rest of America | Geography of eastern hemisphere |
| 5. Games and singing | Object lessons (as in first year) | History of Peru | History of Peru | History of Peru |
| 6. | Principal duties of man (labor, saving, electoral obligations, military service, truth, cleanliness, etc.) | Notions of Physics | Physics | Physics |
| 7. | Games and singing | Notions of chemistry | Chemistry | Chemistry |
| 8. | | Natural history | Natural history | Natural history |
| 9. | | Notions of agriculture | Notions of agriculture | Notions of agriculture |
| 10. | | Notions of arboriculture | Notions of arboriculture and horticulture | Notions of arboriculture |
| 11. | | Manual labor, geometry and drawing | Manual training, geometry and drawing | Manual training, geometry and drawing |
| 12. | | Music | Music | Carpentry (in boys' schools) |
| 13. | | Christian doctrine | Ethics | Music |
| 14. | | Physical training and notions of hygiene | Physical training | Ethics |
| | | | Notions of hygiene | Physical training and hygiene |

Selecting at random one or two of the subjects provided for, we may get an idea of the breadth of the course of studies, which is not however carried out in practice under present conditions. In the fourth year, the course in chemistry presumably includes a study of the air, combustion, hydrogen and oxygen, water, chlorine, sulphur, phosphorus, carbon, notions of chemical nomenclature, acids, bases, salts. The fifth-year course in arithmetic includes mental operations, the decimal system, prime numbers, maximum and minimum divisor, proportion, metric system, weights, measures and money systems, bookkeeping, commercial documents.

Executive decrees provide for the division of the country into sixty school districts, for the purpose of primary education, although previously there were over one hundred school districts. In each of these districts is an inspector who sees that the school regulations of the central government are carried into effect. There is an exception in the case of Lima and Callao, where two inspectors are provided, one for boys' schools, the other for girls' and mixed schools.[5]

In the past the inspectors have not always proved efficient, visiting the schools infrequently, and knowing or caring little about the requirements of their position. Consequently, there has been a recent decree providing qualifications which may result in a better system of inspection. The new decree, however, has one serious defect in that it requires the inspector to telegraph the fact of his intended visit to the director-general in Lima and to the sub-prefect of the province which he expects to visit. By this means the school authorities may secure advance notice, and be prepared. An inspector will now be required to have (1) a degree (bachelor, or diplomas from the normal school), (2) the inspectors now in office must take an examination within ninety days to prove their competence, otherwise new inspectors are to be appointed.[6] Furthermore, the Minister of Public Instruction has another check on the work of the schools in the special inspectors (visitadores) who may be

[5]The latest decree is dated January 22, 1910.

[6]Executive decree of January 22, 1910. The previous decree provided for departmental, provincial and district inspectors. The present plan, therefore, according to the claims of its advocates, effects an economy in the number of inspectors, increases their efficiency, reduces the amount of official routine, and saves money.

appointed from time to time by the minister in order to make special investigations.

In general, at least one elementary school, giving the work of the first two years of primary instruction, must be established for every two hundred inhabitants. The departmental capital must have at least two primary schools—one for boys, the other for girls; the provincial capital must have at least one primary school even if the population should not be large enough. Public schools are established by decree.

The last annual report of the Minister of Instruction shows that the number of schools in actual operation, school year 1907, was 2,262, or about one hundred less than there should have been. Of these over ninety per cent gave instruction for the first two years of primary education only—840 were for boys, 677 were for girls, and 745 were mixed schools for boys and girls. Instruction was given to 161,660 pupils during the year, two-thirds of whom were boys, and only 5,450 of these received instruction in the upper classes of the primary school. The average daily attendance was about sixty per cent. With the pupils in private schools, less than one-fifth of a million of children were receiving primary education throughout the Republic.[7] This appears to be a small proportion for a population estimated at more than 3,500,000 inhabitants.[8]

The following table will furnish the details:—

| | Receive instruction | Do not receive instruction | Could read | Could not read | Could write | Could not write |
|---|---|---|---|---|---|---|
| Boys ... | 65,536 | 164,794 | 73,778 | 156,609 | 50,615 | 179,726 |
| Girls .. | 34,478 | 151,736 | 41,273 | 144,884 | 28,285 | 157,918 |
| Total | 100,814 | 316,530 | 115,051 | 301,493 | 78,900 | 337,644 |

A census of school children within the age limits[9] for the purpose of primary education was made in 1902.[10]

According to racial distribution there were 67,928 white children, 198,674 indigenous or native children, 144,298 mestizos and

[7]Annual Report of the Minister of Instruction for 1908, Vol. II, pp. 333-337.

[8]The last general census was taken in 1876, but doubts have been entertained about its accuracy. At that time there were 2,700,000 inhabitants. Partial censuses, etc., led to the estimate given above. The coastal region has about one-fourth of this total, the Andean region about five-eighths, and the eastern region the rest.—A. Garland, Peru in 1906 (2d edition), pp. 100-101.

[9]Including 75,000 from the ages of 4 to 6, *i. e.*, children who could attend a kindergarten school.

[10]Censo Escolar de la Republica Peruana correspondiente al año 1902.

5,644 blacks. Unfortunately it is impossible to make comparison of this data by the three physiographic divisions, since it is given only for the twenty-one departments of the Republic. For the department of Lima, which includes the capital and a few small towns and plantations, there were 11,038 whites, 26,664 indigenous or native, 12,468 mestizos, and 2,432 blacks. In a way, therefore, Peru has its racial problem to settle, from the educational point of view, just as we have in the United States. It would seem plausible that the introduction of American teachers and American methods, from sections where the education of mixed races is prominent, should be carefully considered by the government of Peru.[11]

The teachers in the primary schools are women in the majority of cases. Although supposed to have a diploma, the majority of teachers are not so provided.[12] Thus, out of 2,944 teachers, 1,225 men, 1,719 women, two-thirds did not possess a diploma.

At present there are three normal schools—one for men and two for women. Two are located in Lima, and a comparatively smaller one for women in Arequipa. Previously there were more, but financial and other difficulties have caused the closing of the others. The act of Congress (March, 1901) provided at least three normal schools for men, and three for women. In the normal school for men the curriculum provides three years of study, which differs somewhat from that provided for the women's normal school. In the normal school for women in Lima the course of studies is as follows: First year: Spanish grammar and literature, penmanship arithmetic, geography, history, religion, object lessons, domestic economy and hygiene, manual training, French or English, vocal music, physical exercises, attendance upon model classes in the School of Practice. Second year: general notions and anthropology and infant psychology, pedagogy, history, general hygiene, domestic economy, religion, elocution and composition, manual training, French or English, music, physical exercises, attendance upon model classes in the School of Practice. Third year: Methodology, notions of the history of education, school hygiene, domestic economy, civic education and school legislation, manual training, French or English,

[11]q. v. La Educación Nacional (órgano de la Dirección de Primera Enseñanza), May, 1904, pp. 199, 205. Last year the government of Peru sent for some American teachers and superintendents of schools. This policy should doubtless be carried out on a larger scale to attain the best results.

[12]Report of the Minister of Instruction (1908), Vol. II, p. 334.

music, physical exercises, daily teaching in the School of Practice, pedagogical conferences. The courses at the normal school for women in Arequipa are most limited.

The government pays all expenses of most of the pupils in the normal schools in Lima, and in exchange requires them to teach in the primary schools of the respective departments from which the students come for a certain number of years. They are guaranteed a minimum salary per month for this work.[13] During the school year 1907 the men's normal school had fifty-three students, the women's normal school in Lima forty-four and in Arequipa, sixty-three.[14] A total of about $100,000 was expended during 1906 for salaries, equipment and other expenses, and twenty-five students were graduated. These figures fairly represent the work of preceding years.

### *Revenue and Expenditure for Primary Education*

The Minister of Instruction has the portfolios of Justice and Religion in addition to that of Education. Consequently, the congressional appropriations for the Department of Education form only a part of the revenues and expenditures which he controls. Nevertheless, to insure at least a certain amount of revenue which would not depend entirely upon the action of Congress, a law was passed providing special sources of income. All told, the revenues for primary instruction are derived from the following sources: (*a*) A special tax, or mojonazgo, on alcoholic drinks and mineral water, insofar as money from this source does not furnish more than fifty per cent of the total revenue of any municipality; (*b*) local taxes created by special acts of Congress; (*c*) special funds and revenues from property; (*d*) thirty per cent of the departmental revenues, deducting from this the subventions assigned to secondary instruction, on the basis of the departmental appropriation of 1905; (*e*) five per cent of the national revenues; (*f*) fines imposed for infractions of the law and decrees relating to primary instruction. In 1906 these revenues amounted to $1,150,775; in 1907 they were slightly higher; in 1908 they amounted to $1,309,090. Owing to the economic crisis, the sum voted by Congress for 1910 has been reduced

[13]Decrees of April 4, 1907, and January, 1910.
[14]Report of the Minister of Instruction (1908), Vol. II, p. 338.

considerably, so that less than a million dollars were available this year.

### *Some Defects in the System of Primary Education*

As late as 1860, Dr. Francisco Calderon, in his excellent Diccionario de la Legislacion Peruana, stated that the country still felt the lamentable consequences of the repressive system of education which had been provided by the Spanish government during the colonial period.[15] Although most of these consequences have disappeared to-day, some still remain. A temporary decree bearing on public instruction had been promulgated in 1855—the first general decree up to that time. It remained in force until 1876, although attempts had been made in the meanwhile to change it. By the latter decree, issued March 19, the system of public instruction was decentralized, especially as regards primary instruction. The departmental authorities were intrusted with secondary, the municipal councils with primary education, i. e., so far as the financial powers were concerned. The directive body was a Superior Council of Public Instruction. It soon became evident that the local authorities did not, or would not, provide suitable funds, and matters went from bad to worse. Under these circumstances Congress enacted a law in 1901 centralizing the administration to a large extent—a work which has been carried out more thoroughly by the act of 1905, for the central government was given full control of public instruction.[16]

The majority of the reports of the Ministers of Instruction throughout this period, aside from the question of administrative centralization, emphasize the importance of primary education. Yet almost invariably these same reports state that primary education was in a condition far from satisfactory. The complaints usually take the form of lack of money, lack of schools and equipment, dearth of suitable teachers, and the need of better salaries, and more punctual payment of teachers. Thus, in his report for 1893, the Minister of Instruction pleads for a broader basis of primary education in accordance with the Constitution, and complains of the comparatively large sum spent for secondary and higher

[15]Vol. II, p. 324.

[16]Exposicion sobre el Estado de la Instrucción Pública en el Perú enviado al Congreso Pan-Americano de Chile, pp. 4-6.

education, when the majority of the children of the country did not even know how to read or write; when many of the provinces did not have teachers, nor school buildings, nor any income for the most indispensable equipment. He blamed these conditions largely upon the decentralized system of administration.[17] Unfortunately, the defects which existed under the decentralized system of administration have by no means disappeared. With several exceptions, they are just as glaring as before. The main defects lie in the administration itself, and the lack of sufficient funds to carry out a progressive program of reforms. The administrative machinery needs remodeling, but should undoubtedly remain centralized. The financial problem is considered very serious at present, but even here there is room for improvement in the expenditure of the money voted by Congress for schools. The State could really spend profitably five times the sum voted for this year. It would then be in a much better position to carry out the provision of the Constitution providing obligatory primary education.

This applies with added force to the education of girls by public authority. As one prominent Peruvian writer puts it: "So long as the intellectual and social level of the family is not raised, by the education of the mother, our people will forge ahead very slowly. That task, the realization of which is of national importance, belongs to man, who should make it a reality. Women cannot at one and the same time attempt the problem, propose the remedy, and bring to pass the miracle. The task belongs to man. The surest way is to multiply the centers of instruction and provide for the better education of woman." [18]

### *Secondary Education: Administration and Curriculum*

Secondary education is under the direction of the Minister of Instruction. Outside of Lima the prefect of the department acts for the Minister. The act of 1901 forms the ground work upon which is based the present decree relating to secondary education. Until this school year (March 1, 1910, to February 28, 1911), the

[17]Page xxv. Cf. also report for 1891, page xli; 1892, pp. 23, 26, 30; 1894, p. xxxv, etc.

[18]Elvira Garefa y Garcfa. Tendencias de la Educacion Feminina, p. 37. This report was presented to the Pan-American Congress of 1908. Cf. also article by L. S. Rowe in report of U. S. Commissioner of Education, 1909, pp. 326, 327.

decree of March, 1904, was in force. It regulated the curriculum and gave in general outlines the subject matter to be taught in each course. Beginning with this year the following curriculum has been introduced by the decree of January 29, 1910:

| *First Year* | *Hrs.* | *Second Year* | *Hrs.* | *Third Year* | *Hrs.* | *Fourth Year* | *Hrs.* |
|---|---|---|---|---|---|---|---|
| Spanish | 4 | Spanish | 4 | Spanish | 3 | Spanish literature | 3 |
| Modern languages | 3 | Modern languages | 3 | Modern languages | 3 | Modern languages | 2 |
| History | 3 | General history | 3 | General history | 2 | General history | 3 |
| General geography and geography of Asia | 2 | Geography of Europe and Africa | 2 | Geography of America and Oceanica | 2 | History of Peru | 2 |
| Arithmetic | 5 | Arithmetic | 1 | Algebra | 2 | Philosophy | 5 |
| Zoology | 3 | Algebra | 2 | Geometry | 2 | Civics | 1 |
| Religion | 1 | Geometry | 2 | Geology and mineralogy | 2 | Trigonometry | 1 |
| Penmanship | 1 | Botany | 3 | Physics | 3 | Physiology and anatomy | 1 |
| Drawing | 2 | Religion | 1 | Chemistry | 3 | Physics | 3 |
| Music | 1 | Penmanship | 1 | Drawing | 2 | Chemistry | 2 |
| Physical exercise | 2 | Drawing | 2 | Music | 1 | Drawing | 2 |
| | | Music | 1 | Physical exercise | 2 | Physical exercise | 2 |
| | | Physical exercise | 2 | | | | |
| Total hours | 27 | | 27 | | 27 | | 27 |

The principal changes over the previous curriculum, and some of them are undesirable changes, include fewer hours devoted to the study of modern languages, and more hours to philosophy, which was added to the studies of the fourth year, physical exercise, and the exact sciences. Prior to 1904, secondary education was given in a six-year course. The change to four years was based in large part upon the French reforms of 1902.[19] Although the decrees have provided the full course of studies in secondary education, it has not always followed that each year's work has been given in full in each colegio.

Last year the government had also approved a plan of commercial education for Guadalupe Colegio, which I had the honor to formulate. It gives the student a chance to get secondary education which will put him more in harmony with his economic environment. There is great need for such education owing to the unusually large proportion of those who enter upon professional careers—law, medicine, engineering. Commercial education must occupy an exceedingly important position in the educational problem of all Latin-American countries during the next two decades. Commercial sections have already been established in several other colegios since

[19]Exposicion sobre el estado de la Instruccion Publica en el Peru, p. 19.

then. The plan of studies for the commercial department at Guadalupe Colegio includes the following:[20]

| *First Year* | *Hrs.* | *Second Year* | *Hrs.* | *Third Year* | *Hrs.* | *Fourth Year* | *Hrs.* |
|---|---|---|---|---|---|---|---|
| Spanish and commercial correspondence | 4 | Spanish and commercial correspondence | 4 | Spanish literature | 3 | Spanish literature | 2 |
| English | 5 | English | 4 | English | 3 | English | 3 |
| Outlines of general history | 4 | French (or German or Quechua) | 2 | French (or other languages) continued. | 3 | Other languages (continued) | 3 |
| Arithmetic | 5 | Commercial arithmetic and algebra | 4 | History of Peru and neighboring countries | 3 | History of commerce and modern industrial history | 3 |
| Geography (physical and general) | 4 | Bookkeeping | 3 | Geometry | 3 | Commercial arithmetic | 2 |
| Natural history | 4 | Commercial products with chemical experiments | 3 | Bookkeeping | 3 | Chemistry | 5 |
| Penmanship | 1 | Penmanship | 1 | Com'l geography | 4 | Civil government and notions of commercial law | 3 |
| Physical exercise | 2 | Shorthand and typewriting | 7 | Physics | 3 | Political economy | 3 |
| | | Physical exercise | 1 | Shorthand and typewriting | 4 | Shorthand and typewriting | 3 |
| Total hours | 29 | | 29 | | 29 | | 27 |

The present law on secondary education (1901) provides two types of schools—the *colegio* and the *liceo*. The work of the former can be determined by referring to the curriculum already given. The colegio was intended to be a stepping-stone to higher education. The liceo was intended to provide instruction adapted to agriculture, commercial education and mining and mechanical arts, "in order that pupils might acquire the knowledge indispensable for dedicating themselves to industries dependent on those branches of instruction." Colegios were to be established in places where universities were located, and in departmental capitals at the discretion of the Superior Council of Public Instruction. Liceos, according to the law, were to be established in provincial capitals (101 provinces in Peru) by the same Council. As yet liceos have not been established, nor is there any likelihood of such action taking place. The course of studies was to be formulated by the Council as the basis for an executive decree, and instruction in the colegio or the liceo was to last six years. No plan of studies could be modified during a period of five years. Yet by decree of 1904, the course of studies was cut down to four years in the colegio, the only institutions of secondary instruction in existence, and the amount of work per year increased. Whatever advantages may have been produced by cutting down the course to four years, this action illustrates one of the defects from which the educational work suffers. I refer to the

[20] Decree of January 29, 1910.

plethora of decrees introduced by rapidly changing ministers. Some of the decrees, moreover, are evidently a violation of the spirit, if not the letter, of the laws of Congress.

### *The Director and the Professors*

In each colegio and liceo the law of 1901 made provision for a director, a sub-director, a secretary, the professors, inspectors, and the office personnel. The director is supposed to have received a university degree, but this provision is not always enforced. He is expected to reside in the colegio. He is responsible for the carrying out of laws and other regulations; for the discipline of the school; for the work of the employees; for the proper accounting of the revenues of the school; for the calling of faculty meetings; and for the annual report showing certain details with reference to matriculation and examination of students, equipment, etc. The sub-director has to do more directly with discipline, and aids the director. He is also expected to live in the school building if there are any students boarding at the institution.

The professors are classed as full professors and assistant (*adjunto*) professors. The former may hold their position for ten years as a result of a competitive examination—a position which may be made permanent if the professor has written a meritorious scientific work within this limit. The Superior Council of Public Instruction decides on the merits of the case. Less than a dozen positions of this type exist to-day, in a total teaching staff for all national colegios of more than 400. The appointment of professors is by the Director, or by the government directly—depending on the subjects to be taught. Salaries are by no means uniform in the colegio. Moreover, many professors simply teach part of the time in a national colegio and devote the rest of their time in private colegios or engage in other work. Complaints have been made on this score, as well as regards the salary, which may be said to average about five dollars per month for one hour of instruction per week. The *adjunto* professors simply replace the regular professors in case of absence of the latter.

Quite a number of foreign teachers, chiefly German, Belgium and Swiss, have been teaching in the national colegios during the last three or four decades. It must be added, however, that they are

by no means looked upon with favor by the native teachers. The professor is aided by inspectors in maintaining discipline in the class-room. This system of discipline has its counterpart in few educational codes of other countries; it certainly does not offer any real advantages.

### *Students in Secondary Institutions*

The school age of pupils attending the colegios is presumably from thirteen to seventeen. The former decree rquired the pupils to have completed the twelfth year, but in practice this has not always been insisted upon. The new decree requires pupils of the first year to be between the ages of twelve and fifteen. Admission to the colegio may be by examination, or upon satisfactory completion of primary instruction. The latter method prevails almost entirely.

There were twenty-eight national colegios in Peru in 1908 with a total of 3,289 pupils. The largest and most important by far is Guadalupe Colegio, in Lima, with over five hundred pupils. In fact this colegio serves as the model for the others, and has a building costing all told about half a million dollars. In 1904 there were twenty-three colegios with a total of 2,041 pupils. Only three of the national colegios are for girls, with a total of about 200 pupils. These three colegios are located in Cuzco, Ayacucho and Trujillo. Supplementing the national colegios are the private colegios, located chiefly in Cuzco and Lima, and directed by the church, or as business ventures. These private colegios numbered thirty-four in 1908, of which twenty were for boys, and fourteen for girls. The number of boys who attended totaled 1,016, of girls, 275.

The law provides that pupils may board in the colegio. The maximum number of such pupils is determined by the Superior Council of Public Instruction, according to the law, but not in practice. Many pupils, both in national and private colegios, take advantage of this provision of the law.

The expense of a pupil in Guadalupe Colegio may be taken as representative. The charges here include the following: Matriculation fee, $1; for annual examinations, $2; tuition, $20 per year, for pupils in the primary grades which happen to be given in this colegio, and for the first two years of secondary instruction, and $30 for the

last two years of secondary instruction; board and lodging for the year, $105; fees for the use of equipment, $3; although third- and fourth-year students pay $2.50 additional for the use of the laboratories. Laundry charges, for those who care to avail themselves of the opportunity amount to $1.50 per month. In 1909 Guadalupe Colegio provided board and lodging for 175 pupils, and in addition board for over 200 additional pupils. This year the number was almost doubled, owing to extensions and improvement to the building still under way.

Practically each department gives scholarships to a limited number of pupils, many of whom are sent to Guadalupe Colegio. Such a scholarship provides all tuition and living expenses.

The students are not accustomed, as a general rule, to do much, if any, school work at home. School hours are from 8 to 11 in the morning, and 1 to 5 in the afternoon, six days per week. As the curriculum provides less than thirty hours of class-room work, the other hours are utilized for study, physical training and military drill. Irregularity of attendance on the part of pupils, and even of professors, is one of the marked defects of administration which merits rigorous corrective measures.

### *Examinations and Prizes*

Mention must be made of the system of prizes existing in all branches of education—public as well as private. Medals, books and other useful objects are distributed for the meritorious at the close of the school year. The annual exercises correspond to our high school commencement, only here the exercises come at the close of the year. The prefect of the department, or in Lima, the Minister of Instruction, and perhaps even the President, and other school authorities, attend the exercises at the national colegio.

The system of examinations is worthy of special attention. At the close of each of the four years there is an examination in each subject in the official program of studies. The term work counts one-third of the general average. The written examination, usually lasting less than one hour, counts, one-third; and the oral examination, usually five to ten minutes for each pupil, the other third. For national colegios, special examining boards of three members each are appointed by the Director. The professor of the class

acts as president of the board. For private colegios whose pupils desire to present themselves for the examination in accordance with the official program, three special examining boards are appointed by the government. For Lima, they are appointed by the Minister; for the departments by the prefects. These boards examine in letters, sciences, and languages respectively. It was my privilege to act as president of the last mentioned board for Lima during 1909. The examining boards for private colegios receive a fee for every student who is examined, regardless of whether he presents himself, or whether he passes the examination. For national colegios one copy of the marks is sent to the Minister of Instruction; for private colegios one is sent to the Minister, one is left in the colegio itself, and the third is sent to the national colegio of the department in which the private colegio is located. The examining boards for private colegios are also required to prepare a report for the Minister relative to the pedagogical conditions existing in each colegio which has been visited. This board can only examine in the colegios which have previously sent to the Minister a request for such examination, including in this request the list of students who are to be examined. Practically all private colegios do this. A method of examination somewhat similar prevails in the universities. The system is not only cumbersome and time-consuming but in the public schools at least it is subject to log-rolling methods. Moreover, the actual examinations—oral and written—need modification. Even more serious defects might be noted as regards the examinations for private colegios. A competent national examining board, or perhaps even several departmental boards, should provide uniform examinations based on the official curriculum.

### *Income and Expenditures*

The income of national colegios consists (1) of the sum voted by Congress; (2) any sum voted by the department; (3) special income assigned to a colegio; (4) fees of students; (5) rent from property owned by the school—usually insignificant. The budget of each colegio is made up toward the close of the school year by an Economic Council. This council consists of the Director, the treasurer, a professor of the colegio and two fathers whose sons are attending the school. The council meets several times during the

year to consider financial matters of the colegio, and towards this end it is generally convened by the Director.

For the twenty-eight colegios in 1908, the total income amounted to $310,000, about twenty-five per cent of which came from tuition fees. It was spent in large part for salaries. A smaller sum was spent for maintenance of the school buildings, equipment, and supplies. On the whole there should be more money appropriated for secondary education, although it should at the same time constitute a smaller proportion of the total spent on public instruction than is the case at present. The objects towards which this increase could be devoted advantageously include: (1) adequate buildings and equipment; (2) pay of professors; (3) extension of commercial education in various national colegios.

There is need for greater elasticity in the courses open to students in the colegio. The law of 1901, in providing the liceos, sought to attain this end. The financial condition of the country, however, does not justify separate schools. Separate departments within the colegio should be provided along the lines of the organization in our high schools.

The establishment of a commercial department in the leading colegio of the country is a step in the right direction. After the adoption of a well-considered plan providing separate departments for the colegio, the government should make an earnest effort to encourage a larger proportion of the students to attend the national colegios than is the case at present. As it is, the national colegio is superior to the private colegio from almost every point of view and yet for one reason or another about forty per cent of the total number of students are attending private colegios. It is a fact of some significance that there is no national colegio for girls in Lima, and that there are only three in the country.

### *Higher Education*

The universities of Peru include the University of St. Mark in Lima, founded 1571 by Pius X and royal decree of Philip II, and the "minor" universities of Cuzco, Arequipa and Trujillo. These were established in 1692, 1835 and 1824 respectively. The university of Cuzco was closed temporarily last year owing to certain irregularities. The occasion gave rise to a sharp discussion at the

recent regular session of Congress, and the executive was given power to provide for the reorganization of the university. It will probably be a matter of two or three years when Congress will revise the law affecting higher education.

The University of St. Mark has six faculties—theology, jurisprudence, medicine, natural and mathematical sciences, letters, and political and administrative sciences. The University of Cuzco has faculties of jurisprudence, letters, political and administrative sciences, and a "section" or partial faculty of natural science. The other two have these same faculties with the exception of the last mentioned.

University instruction is controlled by the state, but there is more autonomy in higher education than in secondary or primary instruction. The administration of each university is under the immediate jurisdiction of a University Council. Its duties are similar in nature to those of the board of trustees in our large private universities. For Lima, it consists of the rector, the vice-rector, the secretary, the deans of the various faculties and another delegate from each faculty. The delegates are elected by the professors of the respective faculties. In the other universities the Council includes all of the professors. The Council administers the property of the university, approves the annual budget, authorizes special expenditure, provides for auditing of accounts, acts upon the proposals of the rector for the better administration of the institution; formulates the by-laws, creates or changes courses and professorships, proposes to the Superior Council of Public Instruction changes deemed essential in granting university degrees—bachelor or doctor.

The rector of the university must have a doctor's degree, and although appointed as a rule for four years, may succeed himself. He and the vice-rector are normally elected by the University Council, except the University of St. Mark, where only the deans of the faculties make the selection. The rector is responsible for the administration and progress of the university, and acts as the intermediary in communication with the Minister of Education. Each faculty elects its own dean and sub-dean, formulates its budget which it submits later to the University Council, examines candidates for degrees, approves the outline of studies for each course, authorizes payment by the dean of sums exceeding $50, and makes suggestions with reference to the curriculum. There are two grades of

professors, viz., principal or active professors, and adjunct professors who replace the former in case of leave of absence. The latter receive a salary only during the time that they teach. The active professors are of two classes, and include those who are named ad interim and those who secure the position through competitive examination. They must have the doctor's degree. As a rule they have less than ten hours of actual teaching per week; moreover, they are almost invariably engaged in other lines of activity outside of university circles. The courses within a given faculty are usually arranged in groups, and the professor must teach all the subjects within a given group. No professor is permitted to give courses in more than two of these groups. At the University of Arequipa, for example, one group includes courses on diplomacy, private international law, and history of the treaties of Peru. The law of 1901 provides the courses which are to be given; the arrangement in groups is left to administrative authority.

Students can matriculate in the University upon graduating from the colegio.

To secure a degree in the faculty of theology requires six years of study; in jurisprudence, five years; medicine, seven years; sciences, letters, or political and administrative sciences, three years. These are required for both degrees, viz., bachelor and doctor. A student is permitted to register in several faculties, under certain restrictions. In order to matriculate in the faculties of jurisprudence and political sciences a student must have completed two years in the faculty of letters. For example, he may matriculate in the faculty of political and administrative sciences, as a regular student, and also in the faculty of letters to pursue special or regular advanced courses.[21]

With the exception of the University of St. Mark, the universities have little property of their own from which they may secure revenue. Hence most of their income comes from the state subventions. In 1908 the income for all four universties amounted only to a third of a million dollars. Of this total, matriculation fees furnished sixteen per cent of the total income of the University of St. Mark; fifteen per cent in the University of Arequipa; twenty-five per cent in the University of Cuzco; and thirty per cent in the Uni-

[21]Annual Report, Minister of Education, 1908.

versity of Trujillo. In other words, about one-fifth of the total income comes from tuition fees.

Besides the four universities, there are three other national institutions of superior instruction, viz., the Engineering School, the Agricultural College, and the School of Industrial Arts—all located in Lima. The first of these institutions has the following departments: (*a*) preparatory section requiring two years, with emphasis on natural and mathematical sciences; (*b*) department of civil engineering, 3 years; (*c*) of mining engineering, 3 years; (*d*) of mechanical engineering, 3 years; (*e*) of electrical engineering, 1 year.

The Agricultural and Veterinary College also has a preparatory section of one year, with special emphasis on natural sciences. The regular work of the Agricultural College requires three more years of study. In addition to these studies, there is a special Grange School giving a two-years' course along specialized lines.

The School of Industrial Arts, as in the case of the former two institutions, also has a preparatory section, with the view to reviewing the work of the primary education. Hence, in reality, this school cannot properly be classed as an institution of superior education. After the preparatory work, specialized work is given along lines of manual training and industrial arts.

Space will not permit a review of the various problems which need attention in a revision of the educational system of the country. Some of the defects have been mentioned in the article, but what is especially needed is a change in the administrative machinery under a new law of Congress which shall re-organize the work of public instruction on a permanent basis. The country is ready for this change, and a special commission established by supreme decree last April will present a project to Congress. It is certain that it will contain radical changes, but it is not so certain that Congress will accept these.

# THE MONETARY SYSTEM OF CHILE

By Dr. Guillermo Subercaseaux,
Professor of Political Economy, University of Chile.

The period of paper money as legal tender through which the country is passing at present dates from 1898. (Law of July 31, 1898.) Metallic circulation was re-established in 1895 (Law of February 11, 1895), and lasted only until 1898. This law of 1895 established in Chile the monetary régime of gold, the dollar of 0.59/9103 grams (or 18d) being the monetary unit. With this law passed away the old bimetallism of colonial origin. The monetary system of to-day is thus nominally that of the gold standard established by the law of 1895, but superseded by paper money as legal tender. The monetary unit, therefore, is the paper money dollar, whose nominal value (at par) is eighteen pence, but whose real value in the markets of international exchange is very different. After these general explanations about the national monetary system, we may pass to a rapid survey of the more important economic characteristics of the legal tender in this last period—that is since 1898.

## I. *The First Issue of Paper Money in* 1898

The régime of gold had been established in 1895 in the midst of a panic characterized by an increase of interest on money, the stagnation of business, failures and disastrous liquidations, the failure of many banking institutions, the decrease of the prices of town and suburban properties, of bonds and stocks, etc. The change of the monetary system also aggravated the crisis.[1] Strained conditions in our international relations, especially with the Argentine Republic, which caused great alarm, came coincidently with this critical situation of the economic state. The danger of war became more imminent each day, and tended to aggravate the economic situation, since the public was convinced that the declaration of war would also mean the declaration of a legal tender. The persistency

[1] "The Paper Money in Chile," by Dr. William Subercaseaux, Santiago, 1898. Similar account in "Le Marché Finance of 1898," by M. Raffalovich, Paris, 1899.

of the government in maintaining this reform withstood all outside pressure until June, 1898, at which time the danger of international conflict reached its culmination. The rumor began to spread in Santiago that the government was preparing to return to a legal tender basis, and, as a consequence, the bank depositors began to withdraw their deposits in order to save their gold. They did not try to exchange bank notes for gold, since there were no bank notes in circulation. Soon this movement spread and caused a run on the Santiago banks, which in less than two days placed these institutions of credit in a most precarious condition.

This panic was confined to the capital of the republic; in Valparaiso and in other cities the position of the banks was not affected. The banks of the capital finding themselves unable to pay their depositors, and the panic threatening to spread throughout the republic, the government authorized these banks to close their doors. Following this a general extension was ordered for thirty days, during which period Congress should determine measures to meet the situation. After a lively discussion Congress decided upon the issuance of $50,000,000 of legal tender notes. Thus, through the cause of the fall of the metallic standard, its replacement by paper money was made necessary in order to save the banks from an accidental run. It was not possible to think of importing gold from abroad in order to weather the storm of the panic; for the nearest available hoard of gold was in Buenos Ayres, which, since the range of the mountains was closed, was fifteen days distant. If the legal tender had not been restored the metallic circulation would have continued, but the principal banking institutions of the country would have failed.

The state of distrust prevailing during this hazardous stage of the internal crisis and international dangers created, upon the appearance of the legal tender, high premiums on gold. Before the factors appeared which resulted in the panic, every premium paid in order to acquire metal of international exchange seemed justified. In that way the principal fluctuations of the previous period were produced, as can be seen in the appended tables. It was the moral effect of an unfavorable impression concerning the monetary future, either because of international dangers or because of the small amount of confidence with which the legal tender note issue was received, that caused the premiums on gold. The greatest

increase in the premium of gold was produced in January, 1899, in consequence of a bill introduced into the Senate for the purpose of increasing the legal tender issue, which failed to become a law because of the opposition of the government. These wide fluctuations, caused by the uncertainty and distrust of the times, show the instability in such periods of the value of paper money in relation to gold.

The international difficulties which had so greatly influenced this situation were definitely settled during the month of May, 1902. The return of confidence is clearly shown in international exchange,[2] for the gold premium steadily decreased from that time. The crisis existing at the beginning of the legal tender period in 1898 began to abate in a short time, and then slowly and gradually subsided. Beginning with 1902, the movement toward a re-establishment of credit indicates the beginning of the new period of prosperity. And here, apropos of the great fluctuation of exchange in the first part of this period of legal tender, we may call attention to the distinction already made, with great truth by some of the paper money theorists,[3] to the effect that the value of paper money as an instrument of internal monetary circulation of a country must not be confused with the premium on gold, that is, with the standard of international exchange. It is true that between both phenomena there are important relations that I cannot mention here, but it is also true that there is a distinction. It may happen that a great depreciation of the paper relative to gold might come as a consequence of heavy demands for gold or bills of exchange, and yet the value of the paper as a national monetary unit for transaction of domestic business, not related to foreign trade, might not suffer an equal depreciation; in other words, the prices of the merchandise not imported and other domestic wealth might not increase. In that way during the first period extending from 1898 to 1902, the great increases in the premium on gold are not followed by proportionate increases, either of salaries, prices of town or suburban properties in the rentals of leases or of the prices of domestic products. As we shall see the depreciation of the dollar as reflected by a general increase of the prices resulted later.

[2] See table of premiums on gold.

[3] Adolf Wagner, "Die russische Papierwahrung." C. Ferraris, "Moneta é curso forzoso." Milan, 1879. Lexis, Conrad's "Handwörterbuch."

We must observe, however, apropos of what has been said, that the influences which the premium on gold or standard of international exchange exercise in a country with paper money, depend to a large extent on the economic relations of this country with foreign countries. In Chile, as a consequence of the necessity of importing from foreign countries a large part of the products necessary for life—such as clothing and the different manufactures of silk, linens and wool—the depreciation of paper money relative to gold has a greater influence in the general monetary valuation than it would have in the case of products of prime necessity by itself. In the case of necessaries of life, wide fluctuations of exchange are felt very directly amongst ourselves when they last for a fairly long period.

## II. *The Period of Prosperity that Followed the Panic*

The economic crisis that made its painful ravages felt with such force from the years of 1894 until 1901 had been subsiding little by little, like the gradual healing of wounds. The premium on gold was disappearing rapidly[4] as the probability of peace with the Argentine Republic approached nearer and nearer to certainty. In January, 1901, it had fallen to 2.6 per cent, but it again increased until in the first months of 1902, when the condition of our international relations again inspired distrust, it had passed thirty per cent. Beginning in May of that year, the dispute over the boundaries with a neighboring republic having been definitely settled, the premium on gold began to decrease once more.

When the legal tender currency was increased in 1898 the law directed that the customs duties on imports should continue to be paid in gold coin. The state changed the gold thus received for legal tender paper money, and in this manner a small quantity of gold which remained without monetary employment on account of the legal tender of the paper money was kept in circulation in the country. This was a measure which had no solid justification since the government did not need the gold collected in its custom house to make its payments abroad. Moreover, this measure, which took away from the paper money its financial support, tended all the more to depreciate it.

The greater part of the gold existing as circulating medium in

[4] See appended table.

1898 was exported to foreign countries, contributing in this manner to create a balance of trade with foreign countries favorable to this country. The Argentine conflict once terminated, the financial situation which was produced was not considered dangerous; the premium on the gold continually diminished toward the end of 1904.

At the same time that the financial position of the legal tender notes was being adjusted in such a satisfactory manner, the settlement of the crisis was turned day by day into a period of economic reaction. In place of the desperate depression of former years, signs of activity were now noticed and new fields of wealth and production opened to the country a larger route to progress. In the barren regions of the north important nitrate deposits were discovered, such as those of Antofagasta, Taltal and Aguas Blancas, which invited domestic and foreign capital and led to the formation of new companies for the exploitation of the nitrate beds. In the southern regions, and especially in the lands of Magallanes, the sheep-raising industry produced magnificent results, demonstrating the great value of fields almost wholly unused up to that time. This reaction continued until the end of the year of 1904, when a period of bourse speculation was introduced into the modest economic life of this country. Gold had a premium of less than seven per cent, and the financial condition being stringent, it being felt that the development of business would not adjust itself to the inelastic "$50,000,000 legal tender plan," which constituted the only circulating medium since 1898, a movement for improving the situation was at once inaugurated, and Congress and the executive department decided to take up the matter. The banks complained of the decrease in their deposits, and it was noticed that the new impulse given to business required an increase of currency. How could this problem be solved? The creation of a convertible fund, a device tried with success in the Argentine Republic, was proposed by some; that is to say, a fund for the purpose of issuing notes in exchange for gold at par and of refunding gold in exchange for notes when the latter should be solicited. Others advocated an increase of legal tender notes. The latter idea triumphed and the government itself presented to Congress a project for their issuance, from which resulted the law of December 29, 1904, which author-

ized $30,000,000 in fiscal notes, which in addition to those of the former issue made the total of circulating notes $80,000,000.

This was without doubt an unfortunate solution of the agitation resulting from the financial stringency. Exchange was almost at par and the same financial limitation that was felt in the middle of that reaction, so favorable to economic life, would have brought as a consequence the easy operation of the convertible fund, and in this way the circulating medium would have received that elasticity which the legal tender lacks. Only in the presence of a certain necessity for circulation and with exchange at par, does a very favorable occasion present itself to sell paper at a par with gold. In 1904 the situation was such that without an increase in the issue, even if the convertible fund had not been created, gold would have been circulating at par with the notes, thus completing the circulating medium that was beginning to be too inelastic for the new situation.

The procedure of increasing the note issues on one side and, on the other, of depositing in the banks the sums issued, had the effect of lighting the fire of stock speculation. In contrast to the quiet and consistent course along which the settlement of the old crisis had been going up to the present time, the increase in the note issues and the fiscal deposits in the banks lent wings to the violent speculative movement which ushered in the new period of prosperity and progress. In "El Ferrocarril" of December 2, 1904, I wrote the following in regard to this question: "It cannot be denied that that was a very favorable occasion for the re-establishment of exchange at par without injuring debtors or creditors. But we must not deceive ourselves. This method that so clearly presented itself six months ago to-day meets new obstacles, which have since intervened,—and it is hard to admit it—in consequence of the project of Minister Sr. Ibanez.[5] In truth this project was the starting of the real metamorphosis in the turn of business; it was the falling of a curtain separating two acts in the economic life of the country. Although the past crisis had disappeared, the raven and other birds of prey were still flying over their camp of spoliation, but a more promising outlook was now clearly perceived. The nitrate business promised a magnificent future and in Magallanes a new field of production had opened up.

[5] Project of issue.

"The reaction commenced gradually but on a quite solid basis. The appearance of the scheme of the government came to hurry the evolution and to convert it into an unbridled speculation. A few years ago, in 1894, the financial policy of the country went to the other extreme; in the midst of a very grave economic crisis and of international difficulties the monetary conversion was effected, producing a high valuation of coin and all the consequent effects of restriction. To-day, in 1904, in the midst of one of the most flourishing movements of prosperity that the country could have, the issue is increased, the government thus contributing in a most efficient way to separate us from the free circulation at par of outstanding notes." In the same article mentioned above, I said the following: "All this comes not from the fact that the paper is in itself a detestable instrument of circulation but from the detestable use that is made of the paper money."

With this policy of increasing the issue, one of the most favorable occasions that could present itself in order to regularize a circulation of our paper money at par was lost, and it contributed to favor the exchange of paper money for coin in its most dangerous form, upsetting the true movement of prosperity that was moving along on a most solid, though less violent basis. During the month of May, 1905, after the speculative fever had reached its height, following the most unheard-of development and abuse of credit, a sort of panic made itself felt, which resulted in the failure of many speculators. The banks restricted credit and speculation was thus paralyzed. It became impossible to form new companies, and many of those already formed commenced to fail. Exchange quotations fell sharply.

The reaction continued in this manner for a few months, but soon new symptoms of improvement were noticed. It is true that on the one hand the speculative fever and the abuse of credit were able to bring very grave consequences to the general condition of business, but it is also true that there was actual and effective wealth in many of the newly formed enterprises, and this wealth manifested itself sufficiently to prevent the appearance of a new crisis. The evidences of revival continued and new companies were created, whose securities underwent an increase in value similar to that of the older securities.

At the end of April, 1906, the banks again began to complain

of the lack of currency. A decrease in deposits was noticed which began to alarm some of our strongest banks. The rumor spread that the banks would even have to close their doors if the issue were not increased. The notes on deposit in all the banks as appears in a report of the Minister of Finance were:

| | |
|---|---|
| January 31, 1906 | $34,335,219.06 |
| February 28, 1906 | 25,735,428.01 |
| May 31, 1906 | 22,228,408.22 |

In the month of April the decrease was much larger.

Some again suggested at this time the establishment of convertible funds, with the power of issuing notes against gold, and the government respectfully presented the plan of a law; but as the gold was now at a greater premium, the normal operation of a scheme for supplying the market with the cash that it lacked was not so easily attainable.

Comparing the situation in 1906 with the one that existed in 1904, we find that in 1906 the speculative fever and the abuse of credit had not gone so far, so that it was much easier to adopt a monetary financial policy of resistance to the increase of the issues because no interests were bound to the depreciation.

This policy would have then, in 1904, tended to impede the development of speculation, which afterwards took a most violent character.

By 1906 circumstances tended unfavorably to the scheme of the convertible fund as a solution of the problem of financial stringency. Besides the depreciation of the notes, which hindered the normal operation of deposits—a new factor presented itself which required an increase in the issues—that created by the unheard-of development given to credit and speculation. To this new situation many interests were related.

Congress after a lively discussion in April, 1906, approved a law for the increase of $40,000,000 of legal tender fiscal notes. This law, as the preceding ones, also provided for the accumulation of a convertible gold fund in European and American banks as a guarantee for the paper money. Together with the former issues the total quantity of notes had now reached the sum of $120,000,000. Following are some quotations of the fluctuations of prices in the bourse of Santiago:

| Name of Compan | Quotations in Jan., 1901 | Jan., 1902 | Jan., 1903 | Jan., 1904 | Dec., 1904 | Feb., 1905 | Feb., 1906 |
|---|---|---|---|---|---|---|---|
| Bank of Chile ..... | 112 | 113 | 135 | 156 | 172 | 182 | 202 |
| Saltpetre of Antofagasta .... | 106 | 190 | 197 | 225 | 334 | 445 | [6] |
| Sugar refinery, Vina del Mar | 113 | 135 | 131 | 127 | 202 | 257 | [6] |
| Commercial exchange ..... | ... | ... | ... | 3,500 | 3,500 | 10,000 | 20,000 |
| Grazing and farming, Chile-Argentine ..... | ... | ... | ... | ... | 48 | 140 | 155 |

In these quotations we refer to a few stocks of very important enterprises. The stock quotations register in this period hundreds of security issues formed over night by speculation.

TABLE OF BANKING MOVEMENTS COMPILED FROM FIGURES FURNISHED BY THE CENTRAL OFFICE OF STATISTICS.

| Year ending Dec. 31. | Capital paid. | Fund in reserve. | Deposits. | Advances in money, values, etc. |
|---|---|---|---|---|
| 1901[7] ..... | 42,120,007 | 4,428,563 | 94,567,415 | 106,700,359 |
| 1902 ..... | 53,360,110 | 5,124,603 | 141,342,115 | 173,101,964 |
| 1903 ..... | 54,739,690 | 5,368,264 | 136,285,501 | 162,860,516 |
| 1904 ..... | 65,352,047[8] | 8,619,629 | 171,085,232 | 201,691,651 |
| 1905[9] ..... | 76,047,683 | 11,134,450 | 294,107,369 | 296,964,488 |

It is well to observe that it is not the entire amount of these security issues showing the formation of new corporations which represents new capital, for often corporations were formed on the basis of existing enterprises that belonged to individual owners or companies, and the corporations which increased their capital are also included in these figures. Thus a mining company that was established in 1900 with $1,500,000 capital, was bought up in 1905 by another corporation having $6,000,000 capital, with only the expense of $1,500,000 more capital. Other corporations only collected part of their capital, but appeared to be authorized to act on the basis of their total. At any rate the table is indicative of the speculative movement and the stock fever.

[6] There was an alteration of their stock in these companies.
[7] In this balance the foreign banks are not represented.
[8] In these figures the funds of future dividends of stockholders are included.
[9] The data for this year are taken from the chart of the Secretary of Treasury.

TABLE OF VARIOUS CORPORATIONS APPROVED BY THE GOVERNMENT.

| Year. | Mines and Metallurgy. | | Farming and Grazing. | | Insurance Companies. | | Transport Companies. | | Various other Enterprises. | | Total Capital. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | £ | $ | £ | $ | £ | $ | £ | $ | £ | $ | £ | $ |
| 1900. ... | 205,000 | 1,810,000 | ..... | ..... | ..... | 18,730,000 | ..... | 2,097,500 | 25,000 | 1,262,900 | 230,000 | 23,900,400 |
| 1901. ... | 400,000 | 3,453,250 | ..... | ..... | ..... | 10,350,000 | ..... | 360,000 | 75,000 | 1,781,000 | 475,000 | 15,944,250 |
| 1902. ... | 40,000 | 3,677,500 | ..... | 600,000 | ..... | 200,000 | ..... | ..... | ..... | 6,508,000 | 40,900 | 10,885,500 |
| 1903. ... | ..... | 6 700,000 | ..... | 6,083,000 | ..... | 4,000,000 | ..... | 500,000 | ..... | 3,136,000 | ..... | 20 419,000 |
| 1904. ... | 815,000 | 9,153,000 | 180,000 | 16,755,000 | ..... | 26,155.000 | ..... | 520,000 | ..... | 6,015,000 | 995,000 | 58,598,000 |
| 1905. ... | 4,272,240 | 21,010,000 | 690,000 | 52,900,000 | ..... | 15,000,000 | 125,000 | 1,029,000 | 654,000 | 23,370,000 | 5,741,240 | 113,309,000 |

This table shows the foreign commerce.[10]

| Year. | Imports. | Exports. |
|---|---|---|
| 1901 | $139,300,766 | $171,844,976 |
| 1902 | 132,428,204 | 185,879,965 |
| 1903 | 142,470,509 | 194,279,672 |
| 1904 | 157,152,080 | 215,997,784 |
| 1905 | 188,596,418 | 265,209,192 |
| 1906 | 225,265,516 | 271,448,216 |

To resume, it may be said that never had Chile, in its different periods of economic prosperity, passed through one that could equal the period that included those years. By coincidence, many facts tending to maintain this movement were united; the good condition of the price of salt, the rise in the price of copper, of tin and also of wool; the splendid markets that the new salt and mining enterprises gave to agriculture and national industries, etc. The prosperous and flourishing condition of business in North America and Europe, which notably contributed to maintain and assist the enterprises that were formed with the easy access to credit and capital, and even to promote these enterprises abroad.

To all these facts was added the policy of increasing the note issues, and the deposit of fiscal funds in the banks, which tended to encourage speculation, responsible later for so many failures.

The increase in prosperity continued in this manner until August 16, 1906, when the earthquake of Valparaiso occurred, giving a terrible blow to the economic vitality of the country and causing enormous damage over a large territory.

The earthquake was the first event that came to interrupt the advance in prosperity, though it is true that neither its effects upon the exchange rate nor upon the quotations of securities upon the bourse were felt at once with any great intensity. The premium of gold, which was around twenty-eight per cent before the earthquake did not exceed thirty-two per cent until two months later.

## III. *The Period of Prosperity Gives Way to One of Panic*

Symptoms of difficulties in economic conditions were felt as early as the end of 1906 in the principal centers of the great business activity of previous years. Valparaiso and Santiago were

[10] The commerce of the province of Tcana and the territories of Magallanes are not included.

the markets where most of the big business enterprises centered and also where the grave consequences of the forthcoming economic difficulties were felt with the greatest violence.

People again began to talk about monetary stringency, business no longer found the former facilities, stock quotations on the bourse began to fall and the sales of stock and bonds met with greater and greater obstacles.

The development of the nitrate business was made very difficult through the steps taken by the government against the incorporation of most of the new enterprises, which served as the basis of the dealings in securities during the period of prosperity, and which were the principal nucleus of those nitrate works which belonged to citizens of the country. The nitrate industry of Chile, the exportation of which exceeds the amount of two hundred millions per year, is the basis of public and national wealth.

In 1907 the economic difficulties increased, always being localized, as heretofore, in the centers of Santiago and Valparaiso, where the difficulties were felt with the greatest intensity. In the remainder of the country the agricultural situation was prosperous and the condition of the nitrate industry was also satisfactory. Copper brought the enormous price of one hundred pounds sterling per ton. In a word the staples of production did not cause any anxiety. The difficulties had their beginning in the lack of capital to form and develop the unlimited number of enterprises which had been created in such a short space of time. It is doubtless true that the foundations of domestic capital were insufficient when compared with the size of the investments. The moment had arrived in which the great funds of capital, to which many had unconsciously contributed, had to be disbursed; the first dividends had been paid without difficulty, but now it was very hard to accumulate enough money for a like purpose. Many business enterprises without a solid foundation, some of those that started at the height of the investment fever, were already dead, and nobody thought of attempting to resuscitate them. They had, nevertheless, left behind the consequences resulting from the loss of great capital and large credits which had been granted them. It was understood that many of the vain hopes entertained about certain enterprises were doomed to destruction, but it was thought that the bases of those left were sufficiently strong to sustain economic prosperity.

In this year of 1907, while Minister of Finance, when the debate on the economic situation was opened in Congress, I said at the session of June 20: "We undertook to build up larger enterprises than domestic capital could support. But as this is not the moment to study what we have done in the past, we must consider only the method by which we may remedy the evil, because together with many enterprises which were formed without any basis whatsoever there are others which rest on a solid foundation, capable of contributing to our national prosperity."

I referred primarily to the nitrate industry in which many millions were invested and in which were felt difficulties due to lack of funds to finish and complete the new and valuable installations created.

There were at this time two dominant opinions among those interested in economic questions. A few considered that the government ought not to intervene in the matter, leaving everything to the initiative of the individuals, and this had been also the opinion of my predecessor in the ministry; the greater part, partisans of governmental intervention, again maintained that it was necessary to increase the note issue. I did not belong to either of these parties, but thought the government could lend its very valuable aid to the amelioration of the economic situation and ought to interest itself in so doing; I did not believe, however, that the government ought to have recourse to a new note issue. I indicated at the time the only remedy which would readjust business. Since the malady consisted in the lack of capital, it was necessary to provide it, and I proposed to bring back to the country the conversion funds which were being accumulated in European banks at three per cent interest, thinking it would be best to buy with them short term national bonds, including nitrate bonds, as is done with the "debentures" in London.

It was impossible to think of conversion, because the paper peso was greatly depreciated; on that account it was necessary to wait for a better opportunity to re-establish exchange at par. Nothing would be lost, therefore, if these funds were invested in bonds. In order not to withdraw these funds from the object for which they were intended, gold bonds would be created, that is to say, debts which the nitrate operators or the farmers would have to make payable in gold and the products of which in interest and

amortization would accumulate in gold, thus re-establishing the fund for the conversion.

The short term nitrate paper bond, say from eight to ten years, for example, lent itself very well to this operation, and as the product of these industries is for exportation it was convenient for those promoting such a business to make their debts payable in gold. To summarize, I thought that the only way to soften the effects of the crisis which presented itself in such alarming aspects was to secure capital for the development of the national enterprises which needed it. As the government had at the time a good sum of money inactive in foreign banks (more than 70,000,000 gold pesos worth 18d.) the intervention of the government could have resolved itself to the restoration of these funds to the country as long as the crisis lasted. If this were not done, the only alternative was that of a loan, but it was more economical to use the funds which were placed abroad at an interest of three per cent for this purpose leaving the question of a loan for the time in which the paper should be exchanged for gold money.

To this way of settling the affair, the opinions of many leading men were opposed. It was generally considered that it was better to increase the issue of paper money guaranteed with gold in Europe instead of touching this conversion fund, and, with this object in view, those that called themselves enemies of paper issues proposed to contract a loan abroad, to increase with it the conversion fund deposited in Europe, and to issue here in the country the corresponding paper notes.

Which was the way that would have carried us easier to the *desideratum* of arriving at a currency of paper money at par with gold, the increasing of a conversion fund, increasing at the same time issues of legal tender, or the avoiding of new issues by placing at a certain rate of interest in the country the funds set aside for the conversion? It is clear that the second way would more nearly avoid a still greater depreciation of the legal tender note, and this is the only way in which we could have carried the currency at par. Our notes were not then depreciated because our government had not funds enough to attend to their conversion. The government had sufficient means to establish either the exchange at any time, or a bank for conversion, like that of the Argentine Republic; but the low international exchange or the high premium of gold was

opposed to this. In other words, the currency at par of the legal bill could not be re-established, because it would have produced an economic panic by thus raising suddenly the monetary unit; but on no account was this due to a lack of funds. Each increase in the premium on gold was a new obstacle to a re-establishment of the normal currency of the legal tender note at par with gold and it was useless to have government funds ready for the conversion if further depreciation of these notes was inevitably coming to prevent such a conversion.

International exchange was already as low as twelve pence per peso, the value at par being eighteen pence, and it was seen that it would still decrease in value, and it can be seen that any new issue, even if guaranteed by gold deposits, made more and more unlikely the prospect of securing in the near future a currency with a rate of par between the peso note and the gold peso. But this was of small moment, as everybody was obstinately in favor of the guaranteed note; just as if the sole factor of the value of the note in relation to gold was the guaranty that it could be converted into specie, forgetting that the depreciation of the legal tender note meant as much as a declaration that although there was a possibility of redeeming it the government would never be able to fulfil this obligation.

One of the characteristics of the situation was the continuous fall of the rate of international exchange or the increase in the premium on gold, a situation which was derived from a constant demand for bills of exchange, which had been created by the new business enterprises, and in part by the earthquake. The nitrate works had to pay for machinery purchased abroad, and this was also true of the numerous new smelting works. Chileans had also bought up valuable foreign property, such as tin mines in Bolivia, and agricultural lands in the Argentine Republic and the necessity of paying for these acquisitions or of working them was naturally shown in constant demands for bills of exchange.

It can be seen consequently that the paper note was an instrument of currency which was insufficient to satisfy international obligations, and the solution suggested of increasing the paper issue could not satisfy the necessities arising from the lack of capital.

If it were thought to solve the problem of the lack of capital by means of a new issue, it is evident that the danger would be

created of increasing the premium on gold, which at the time was already sufficiently high.

I do not wish to give the impression that I believe that every increase of an issue of paper money is always accompanied by its depreciation in relation to gold, but, there are evidently indirect relations, dependent upon circumstances, which may cause a depreciation in relation to gold as a consequence of an increase of paper issues.

In the present instance, it is evident that if paper money were given to those who had to cancel obligations abroad, they would have to purchase bills of exchange, thus producing a fall in the rate of international exchange. On other occasions, as for example in 1898, the announcement of a new issue produced a fall in the rate of exchange through other reasons; the bad state of our foreign relations had filled people with distrust, further depreciation was feared, and naturally a great demand for bills of exchange was felt. These are examples which go to show how an increase of paper issues can, according to circumstances, have a direct effect upon international exchange.

"If we now set aside international exchange and simply look at what we might call the internal value of our monetary unit," I said, as Minister of Finance, to the Chamber of Deputies, "a value which is reflected in prices which have no relation to importation, as rent, salaries, prices of natural products, properties, etc., etc., we can establish, without recurring to voluminous statistics, the fact that there is a great decrease in the purchasing power of our money, in other words, the value of our money has decreased. It is true that in proportion to the increase of prices the prosperity of business has increased and has come to contribute to the demand of merchandise and to the increase of wages. Do not imagine therefore that I believe that the only cause for this phenomenon is the decrease in value of our legal bill."

"What would be the result of a new issue on the internal value of our peso? The old quantitative theory, according to which every increase of the amount of currency would have to be followed by a proportional decrease of its value, is, it is true, no longer held in modern economic science. It cannot be said, for example, as stated by Courcelle Seneuil, that if an issue is increased from 100 to 150 the value of the bill will decrease one-third; but it is

also true that the underlying principle of this theory still has to be taken into consideration, and it is the one which establishes that it is impossible constantly to increase the issues without decreasing the value of the bill or, in other words, that the increase of paper issues always carries with it a tendency to decrease the value of the money."

"It is necessary for us to remember in connection with the scarcity of currency which we note to-day, that as the value of our money decreases, even if we increase the paper issues, the feeling of stringency would continue to increase, because with the decrease of the money the necessities which we could before satisfy with 100 pesos would have to be satisfied with 120. This we have seen has happened during the last few months, for we must remember that a crisis and monetary stringency may be produced even under the régime of a paper currency, because if the increase of paper issues were always the remedy for such situations, this method would possess the valuable property of quenching all these irregularities of economic life. Let us remember, for example, that the Argentine Republic became involved in 1890 in a great economic crisis, although it was under the regimen of legal tender bills, and although the value of the bills was considerably decreased a great many cases of bankruptcy and business liquidation occurred, the prices of properties increased, interest on loans, etc., went up, and in a word, all the characteristics of a great panic were present."

Although I insisted that the ideas proposed by me should be followed, the resistance was so great, on the part of the executive against the bringing into the country of the funds deposited in Europe, and on the part of Congress against the same plan and in favor of the increase of the paper issue, that I convinced myself of the impossibility of putting through my plans. I attempted to retire from the cabinet, but the desire to serve my country with a program which I thought was convenient and sane, made me continue in the cabinet, on condition that a plan based on those same ideas be adopted, even if the funds deposited in Europe should be left untouched. The plan on which the government came to an agreement consisted in the following: In accordance with the dominant idea, it was declared that the government considered it expedient to intervene in the economic question, and that it would adopt all necessary measures to remedy the situation.

As the one remedy which is indispensable in such disorders of the economic organism is capital, money of international value, and not issues of paper money, it was decided to discontinue the remittance of the funds which were sent every month to Europe to be immobilized. The proceeds of these funds, which were not to be sent to Europe, and of a foreign loan, would be placed on the market together with some other gold certificates which were at the disposal of the government; and in order to adopt a just and appropriate method for handling these loans, there being no state bank and it being impossible to deposit more funds in the national banks, it was decided to buy bonds upon a territorial mortgage and nitrate bonds.

Though in former years of prosperity, and especially in 1904, as I have proved already, the economic evolution could have been brought about without the intervention of government capital, to-day things were changed. A new and terrible panic was menacing us and we could not abandon the prosperity offered by the nitrate enterprises and the new agricultural enterprises and others which possessed a real and positive basis of wealth. Then also through the initiative of the government a bank or rather a mortgage-loan institute, to facilitate the loans of the nitrate enterprises, was created, with bonds or debentures of short term. The mortgage-loan institute had been used for many years with great success as a governmental institution, and this new step was taken in favor of the national nitrate industry.

Once this plan had been agreed upon, the discussion of it began in Congress. The great majority in Congress were partisans of an increase of the paper issue, and it was soon seen that it was impossible to resist this majority without making the country endure the heavy consequences of a conflict between the executive and Congress. The legislative measures adopted after long discussions in parliament were the following:

1. The payment of importation duties in gold was suppressed. This measure stopped anomalous circulation of specie within the circulation of depreciated paper money.

2. It was arranged that notes be issued in exchange for gold, that is to say, that a note be given in exchange for each gold peso of eighteen pence deposited.

This measure had no importance at this time, because of the depreciation of the paper peso in relation to gold, but it was adopted

as an inoffensive measure to be applied when exchange should improve.[11]

3. The nitrate mortgage-loan institute was created for the issue of special bonds or debentures for this industry.

4. The accumulation of funds for the conversion of legal tender notes in Europe was suspended; the government was authorized to complete this fund by means of a loan when the conversion of the notes should be made.

5. An increase of the legal tender notes was made to the amount of $30,000,000, even against the opposition of the executive. This sum was created for the purchase of mortgage bonds.

6. The executive was authorized to contract a loan of three million pounds sterling to be devoted later to the construction of public works, to be invested meanwhile in bonds.

The purpose of this loan was to avoid a still greater depreciation of the paper money, by placing in the country a great amount of bills of exchange and placing these funds for some time in the country through the purchase of bonds. It was understood by many that with the issuance of only paper money, international exchange would continue to fall, because great sums of money had constantly to be sent abroad. As it can be seen, the legislative measures adopted by Congress did not correspond to the plan or project approved by the government. Nevertheless we did all we could to obtain the object which we had in view as a remedy for the panic, even without going beyond the legislative measures adopted, there being in the law sufficient material from which a solution of the situation could be worked out.

In this I met with serious opposition in the government and after my resignation from the ministry, the program proposed by me was completely abandoned. The foreign loan was not contracted for the whole amount, and it may be said that the issue of $30,000,000 was the only means adopted for the creation of money-capital.

At the end of 1907 it was seen that the general economic situation was getting worse and worse, and the panic was approaching with disastrous outward manifestations. The panic in the United

[11] The reason for choosing this occasion, which was so inopportune, to provide for the issuance of notes against gold was that a group in Congress tried to create a Bank of Issue against mortgage bonds, so that everybody who deposited bonds could obtain bills. The government then declared that it would permit issue only against gold and not against bonds.

States and its echo in Europe helped to complicate the situation in Chile. Strong foreign houses and banks, which had capital in the country, began to demand the payment of their credits. This and the numerous debts contracted here in previous years, as a result of the many new enterprises which had recently been undertaken, made the question a very serious one.

Following the panic in the United States and Europe the situation in Chile became alarming. International exchange fell rapidly, and numerous business houses went into bankruptcy and insolvency, and these produced the consequent business panic. The effects of the panic were felt principally in Valparaiso and Santiago, which have been the great business centers of late years. Few of the numerous securities quoted on the bourse in previous years now found buyers. The risky enterprises which had been formed for the sole purpose of speculation had disappeared some time before, and the shares of the stable enterprises began to suffer heavy losses in their prices. Happily the panic did not yet extend to agriculture, but agriculture was not sufficient to heal the gaping wounds left by the new situation.

The force of circumstances had compelled the government to recognize, although somewhat too late, the gravity of the situation, of the nitrate enterprises, and especially of recently discovered nitrate in Atacama. With the funds at its disposal and through our principal bank it had tried to make loans to these enterprises, and keep them from stopping their works. But this method, had not only come too late, but had also had all the disadvantages of a measure which was poorly studied and applied, and which had not been carried out with a general spirit of justice and equity. To-day it is being recognized that the policy of placing national funds in nitrate bonds would not only have been efficacious, but would have been more just as a protection to this important branch of the national industries, which from a financial point of view produces more than fifty per cent of the public income of the nation, while of the total amount of our exportation it produces eighty per cent. As far as the nationalization of this industry is concerned our policy could not have been worse.

What, it may now be asked, ought to be our financial policy in the future? In the year 1910,[12] the term fixed for the redemption of

[12] This paper was written at the close of 1909.

the legal tender bills by gold pesos of eighteen pence will cease. Since the legal tender note is now considerably depreciated in relation to the gold peso, and considering the long time in which the contracts have been adapting themselves to this situation, it is easy to understand that it would not be possible to redeem the currency in 1910 without greatly endangering the development of business. If, as far as the means at the disposal of the government are concerned, the operation were possible, considering the effects it would have on the development of business, on credit, on the fulfilment of contracts and on the stability of banks, it can be said with certainty that grave dangers would arise which ought to be avoided. For the re-establishment of the metallic currency an occasion must be selected which ought to correspond to a period of actual economic prosperity, as was for example that of 1904. It is known with what distrust the public would, after a complete failure in the year 1898, receive the conversion of the legal tender notes. It is therefore necessary to carry out such an operation in times of prosperity, when the wounds of the present crisis are healed, and when new vigor and life animates the financial situation of the country.

It can be seen therefore that a conversion at par or at eighteen pence is not likely to be carried out, and therefore the authorities ought to begin to think of setting a lower rate of exchange for the gold which would replace the notes; this rate could be fixed for example at twelve pence. But this operation would have the disadvantage of reducing still more the value of our peso, and for this public opinion with us does not as yet seem to be prepared. If the depreciation lasts for some years longer a unanimous opinion on this point could perhaps be secured. It might be urged in favor of this measure that it would be better to have a fixed value for the peso at twelve pence instead of a nominal value of eighteen pence, which in reality changes continually in its relation to gold and costs to-day only nine pence. It was in this manner that the Argentine Republic settled its financial difficulties through the bank of conversion. But even in this case better times would have to be selected for the operation, as was done in the Argentine Republic. The exchange of the day of the conversion was selected for the permanent one and consequently no harm was done to debtors, the operation being received without distrust, as would happen if the exchange selected were higher than the actual international exchange. Our exchange to-day being as low as nine pence, it would cause

panic and unnecessary trouble to raise it to twelve pence. Our financial policy then must confine itself now to leaving things as they are. Let us wait for better times without increasing the paper issues, and I do not doubt that a day will come in which it will be sufficient for the government to establish the exchange of the gold and legal tender note at par. The circulation of the note and gold at par can be arrived at by establishing the exchange at sight and to the bearer; and here where the people are accustomed to the notes it would be sufficient to leave to the government the power of making issues. In this case we would have gold money, supplemented by paper bills which would circulate at par with the gold.

The solution of the financial difficulties in the Argentine Republic with the bank of conversion depends upon a mixed circulation of gold and paper, the latter being exchangeable at sight and to the bearer. The gold does not circulate as it does in Europe or the United States, that is to say as in those countries which have a gold unit, but it circulates in the form of paper, the gold being left on deposit in the bank of conversion and its coinage being thus avoided. Both solutions are similar, but both must be established in prosperous times and when the wounds of the present situation are healed—that is to say, when they would not produce fluctuations dangerous to business.

Let us devote ourselves at present to effacing the difficulties of the present situation, and let us work for the development of those enterprises which constitute the basis of our national wealth. Let us take those measures which are necessary to bring about this evolution, and when the wounds are healed, the solution of the financial crisis will come about without friction.

AMOUNT OF PAPER MONEY IN CIRCULATION.

| Year. | Issue. | Total in circulation. | |
|---|---|---|---|
| 1898 | $50,000,000 | $50,000,000 | |
| 1899 | 50,000,000 | 50,000,000 | |
| 1900 | 50,000,000 | 50,000,000 | |
| 1901 | 50,000,000 | 50,000,000 | |
| 1902 | 50,000,000 | 50,000,000 | |
| 1903 | 50,000,000 | 50,000,000 | |
| 1904 | 30,000,000 | 80,000,000 | (Law of Dec. 29) |
| 1905 | 30,000,000 | 80,000,000 | |
| 1906 | 40,000,000 | 120,000,000 | |
| 1907 | 30,000,000 | 150,000,000 | |

PREMIUM ON GOLD.

(Table taken from the quotations of the bourse as published in *El Mercurio* and *El Ferrocarril.*)

| Year. | Month. | | Premium on gold in %. | Year. | Month. | | Premium on gold in %. |
|---|---|---|---|---|---|---|---|
| 1898 | August | 14 | 30 | 1900 | Jan. | 30 | 11 |
| 1898 | August | 15 | 46 | 1900 | Feb. | 14 | 10¼ |
| 1898 | August | 17 | 37 | 1900 | Feb. | 28 | 11.20 |
| 1898 | Sept. | 10 | 25 | 1900 | Mar. | 14 | 9½ |
| 1898 | Sept. | 14 | 40 | 1900 | Mar. | 31 | 9½ |
| 1898 | Oct. | 10 | 26½ | 1900 | Apr. | 15 | 9¼ |
| 1898 | Oct. | 14 | 32½ | 1900 | Apr. | 30 | 8⅞ |
| 1898 | Oct. | 31 | 34 | 1900 | May | 14 | 8 |
| 1898 | Nov. | 14 | 35½ | 1900 | May | 31 | 5½ |
| 1898 | Nov. | 30 | 38 | 1900 | June | 15 | 3¾ |
| 1898 | Dec. | 14 | 39 | 1900 | June | 30 | 3 |
| 1898 | Dec. | 31[13] | 44 | 1900 | July | 14 | 3¾ |
| 1899 | Jan. | 14 | 49 | 1900 | July | 31 | 3½ |
| 1899 | Jan. | 30 | 39½ | 1900 | August | 14 | 3¾ |
| 1899 | Feb. | 14 | 38.80 | 1900 | August | 31 | 3¼ |
| 1899 | Feb. | 28 | 35 | 1900 | Sept. | 14 | 3¾ |
| 1899 | March | 14 | 32 | 1900 | Sept. | 29 | 2½ |
| 1899 | March | 31 | 29½ | 1900 | Oct. | 15 | 5 |
| 1899 | April | 10 | 32 | 1900 | Oct. | 31 | 5½ |
| 1899 | April | 14 | 24¼ | 1900 | Nov. | 15 | 5¼ |
| 1899 | May | 14 | 22¼ | 1900 | Nov. | 30 | 5¾ |
| 1899 | May | 31 | 24 | 1900 | Dec. | 15 | 5¼ |
| 1899 | June | 14 | 18 | 1900 | Dec. | 30 | 2½ |
| 1899 | June | 30 | 19 | 1901 | Jan. | 14 | 2 |
| 1899 | July | 14 | 18 | 1901 | Jan. | 31 | 4 |
| 1899 | July | 31 | 15½ | 1901 | Feb. | 15 | 8 |
| 1899 | August | 14 | 15½ | 1901 | Feb. | 28 | 5⅞ |
| 1899 | August | 30 | 16½ | 1901 | Mar. | 15 | 4½ |
| 1899 | Sept. | 14 | 16½ | 1901 | Mar. | 30 | 5 |
| 1899 | Sept. | 30 | 17½ | 1901 | Apr. | 15 | 5½ |
| 1899 | Oct. | 14 | 19 | 1901 | Apr. | 30[14] | 9 |
| 1899 | Oct. | 31 | 23¼ | 1901 | May | 17 | 9¾ |
| 1899 | Nov. | 14 | 20¼ | 1901 | May | 31 | 14 |
| 1899 | Nov. | 30 | 16 | 1901 | June | 15 | 12¾ |
| 1899 | Dec. | 14 | 14 | 1901 | June | 30 | 13 |
| 1900 | Jan. | 2 | 9 | 1901 | July | 15 | 13¾ |
| 1900 | Jan. | 15 | 10½ | 1901 | July | 31 | 14½ |

[13] A project presented for the increase of the legal tender notes was presented by 15 Senators, but was not approved.

[14] The President of the Republic turned over the public affairs to the Minister of the Interior on account of severe illness.

| Year. | Month. | | Premium on gold in % |
|---|---|---|---|
| 1901 | August | 14 | 10¾ |
| 1901 | August | 30 | 8½ |
| 1901 | Sept. | 13 | 10 |
| 1901 | Sept. | 30 | 13 |
| 1901 | Oct. | 15 | 12¾ |
| 1901 | Oct. | 31 | 15½ |
| 1901 | Nov. | 14 | 15 |
| 1901 | Dec. | 22 | 17½ |
| 1901 | Dec. | 14 | 23 |
| 1901 | Dec. | 30[15] | 26 |
| 1902 | Jan. | 15 | 24 |
| 1902 | Jan. | 30 | 26½ |
| 1902 | Feb. | 14 | 27.80 |
| 1902 | Feb. | 28 | 27¼ |
| 1902 | Mar. | 15 | 31¾ |
| 1902 | Mar. | 31 | 29 |
| 1902 | Apr. | 15 | 29½ |
| 1902 | Apr. | 30 | 25 |
| 1902 | May | 15 | 23 |
| 1902 | May | 30[16] | 13.40 |
| 1902 | June | 14 | 14 |
| 1902 | June | 30 | 14¼ |
| 1902 | July | 15 | 11½ |
| 1902 | July | 31 | 14 |
| 1902 | August | 14 | 12 |
| 1902 | August | 29 | 11 |
| 1902 | Sept. | 14 | 11½ |
| 1902 | Sept. | 30 | 11.30 |
| 1902 | Oct. | 15 | 11.60 |
| 1902 | Oct. | 30 | 11½ |
| 1902 | Nov. | 14 | 11¼ |
| 1902 | Nov. | 29 | 10 |
| 1902 | Dec. | 15 | 7 |
| 1903 | Jan. | 10 | 7½ |
| 1903 | Jan. | 15 | 8 |
| 1903 | Feb. | 2 | 9¼ |
| 1903 | Feb. | 16 | 8.90 |
| 1903 | Mar. | 2 | 7¼ |
| 1903 | Mar. | 14 | 8¾ |
| 1903 | Apr. | 10 | 7 |
| 1903 | Apr. | 15 | 8.20 |
| 1903 | May | 1 | 7.80 |
| 1903 | May | 16 | 8 |
| 1903 | June | 1 | 10 |
| 1903 | June | 15 | 7.80 |
| 1903 | July | 2 | 7½ |
| 1903 | July | 16 | 7¼ |
| 1903 | August | 1 | 8 |
| 1903 | August | 16 | 9½ |
| 1903 | Sept. | 2 | 9.20 |
| 1903 | Sept. | 16 | 8.80 |
| 1903 | Oct. | 1 | 8 |
| 1903 | Oct. | 15 | 9¼ |
| 1903 | Nov. | 2 | 8.40 |
| 1903 | Nov. | 16 | 8 |
| 1903 | Dec. | 1 | 6½ |
| 1903 | Dec. | 26 | 6½ |
| 1904 | Jan. | 15 | 7.30 |
| 1904 | Jan. | 30 | 8 |
| 1904 | Feb. | 18 | 8.20 |
| 1904 | Feb. | 28 | 7½ |
| 1904 | Mar. | 14 | 7¼ |
| 1904 | Mar. | 30 | 7¾ |
| 1904 | Apr. | 16 | 7½ |
| 1904 | Apr. | 30 | 7¼ |
| 1904 | May | 14 | 6½ |
| 1904 | May | 30 | 6 |
| 1904 | June | 16 | 6 |
| 1904 | June | 27 | 5.70 |
| 1904 | July | 14 | 6.80 |

[15] The state of international relations with the Argentine Republic inspired new distrust.

[16] The Argentine conflict was arranged finally.

# THE SOCIAL EVOLUTION OF THE ARGENTINE REPUBLIC[1]

By The Hon. Ernesto Quesada,
Attorney-General of the Argentine Republic; Professor in the Universities of Buenos Ayres and La Plata.

To condense into a few pages several centuries of the history of a nation like the Argentine Republic, to give some idea of the nature of the forces that have determined the development of this country from the end of the sixteenth century, the period of its discovery, to this the second decade of the twentieth, when it is celebrating the first centennial of its independence, is a task at once delicate and arduous. For, aside from these natural difficulties, it will be necessary to avoid all details, to shun statistics, and even to lay aside historical evidence, in order to crystallize into seemingly dogmatic statements, the complicated social evolution of a people in process of transformation, a people still in a formative period. It is a venture bordering upon the impossible.

A century after the commencement of the conquest of the American continent and after the scattering over the land of the invading race, at once warlike and religious, an expedition which was purely Andalusian discovered the River Plate in the southern extremity of the continent. Instead of penetrating to the south, the expedition fixed its gaze northward, searching for a route by which to renew relations with the rich district of the old empire of the Incas. This was in obedience to that thirst after wealth which characterized the taking possession of America. Two centuries later, these remote provinces had been converted into the very important viceroyship of the River Plate. In one direction it extended from the tropical viceroyship of Peru and the torrid lands of Portuguese Brazil, to Cape Horn, lashed by the raging Antarctic seas, and in the other direction it stretched from the chain of the Andes, which runs like a solid wall the length of one of its flanks, to the Atlantic Ocean,

[1]The Academy wishes to express its appreciation to Layton D. Register, Esq., of the Law Department of the University of Pennsylvania, and to Mr. Enrique Gil, of the National University of La Plata, of the Argentine Republic, for the translation of this article.

which bathes its extensive coasts. This enormous territory thus embraced every sort of climate, and was inhabited by a heterogeneous collection of aboriginal races. Its conquest and colonization had been effected upon two convergent lines, that by water, by the River Plate, that by land, from the north. This impressed upon the civilization of these regions different characteristics which must be defined since, even after a century of political independence, their mark is still stamped upon the ideals, aspirations and conduct of the inhabitants.

The "Leyes de Indias,"[2] faithful reflections of the purposes of Spanish colonization in America, show how extraordinary was the importance of the native races, how relatively few were the Spanish conquerors and how closely the two races became mingled, through the régime of the *encomiendas*[3] the *mitas*[4] and the *yanaconazgos.*[5] The Spanish colonies were founded and developed in the midst of a mass of people, who, because of their enormous superiority in point of numbers, necessarily reacted in turn upon the small number of the invaders, either by interbreeding with the latter, or by the contact of daily life, or by their superior adaptability to their natural environment. The conquerors themselves presented different traits, according to the region of Spain from which they came, and naturally they sought to group and to settle themselves in obedience to the ethnic affinities of their origin. Biscayans, Basques, Castillians, Aragonese, Andalusians, etc., gave typical characteristics to every American region where they established themselves. They transplanted their social prejudices, their spirit of communal independence, their concentrated energy and their buoyant temperament. From this it resulted that in whatever corner of America a particular Spanish strain of blood was found, there were reflected the traits of the corresponding district of Spain.

As the native races varied according to the region, from those

[2]Old Spanish legislation for the Spanish-American colonies.

[3]*Encomienda* is the Spanish name for the concession, granted by the crown during the Spanish Colonial period, of a certain number of native Indians, to a Spanish conqueror for purposes of service. The *Encomendero* was the recipient of such a concession from the crown.

[4]*Mita.* Spanish term for the distribution by lot of the native Indians for purposes of public work.

[5]*Yanaconazgo.* Spanish term for that peculiar kind of land tenantship by which the tenant has no title to the land, but receives a proportion of the product of his labors upon the land.

of a peaceful and civilized character to those of an untamable and warlike nature, and even to ferocious savages, the Spanish settlements existed without any common plan. They made a republic with the tribes, and they were the beginning of a creole type which was quite distinct in each locality. In the viceroyship of Buenos Ayres the ethnic geography of the aborigines shows a kaleidoscopic variety of races. In the north and in the regions which formerly had been subject to the rule of the Incas, the population—both servient and dominant classes—was peaceful, attached to the soil, resigned and passive.

In those regions lying between the two great rivers the population was of a gentle and peace-loving nature and, therefore, was easily molded by missionary civilization. Along the slopes of the Andes the people were daring, excitable and independent. The south or Patagonian extremity was overrun by brave and unconquerable tribes, closely related to that Araucanian race which the Spanish conquest never entirely succeeded in subduing. The Spanish settlements on the other hand presented different characteristics. In the north they came from Lima, and were Biscayan and Castillian, aristocratic, very proud of their ancestry, holding aloof, enriched by the mines of Potosi and the commerce of the fleet of Portobello. Southward were Andalusians and Spanish common folk, little given to titles and conventionalities. They were condemned to pursue the smuggler's trade, because the mother country, following an economic error of the time and perhaps owing to deficient geographic knowledge, permitted them only an overland commerce, by mule back, from the Panama fleet which unloaded its cargoes in Callao. Hence in the provinces of the north, called High Peru, and in the present provinces of Jujuy and Tucuman, the Spanish population held up Lima as their ideal, and exhibited both its vices and its virtues. Out of it was formed the aristocratic, commercial and luxurious city of Salta. On the other hand, in the river provinces, the existence of the cities was precarious and fraught with the dangers of a smuggling trade carried on with the Portugese neighbors—the source of the centuries-old controversy of Sacramento colony. These settlements were not unacquainted with the fear of pirates, of daring navigators and of roving slave dealers, who on their arrival at the River Plate unloaded the "products of their country," with the toleration and secret complicity of the government officials and with

the connivance of the inhabitants. These inhabitants were true outlaws. They scoffed at the administration and fiscal measures and trusted more to their fists than they feared being caught in the complicated meshes of the uneconomic laws.

The interbreeding of these different classes of population resulted in creole types, characteristic of each region. In the central cities of the north, they were always aristocratic and devoted to learning, while in the vast stretches of country they lived the semi-feudal life of *encomenderos*. The interbreeding with the Indians formed an inferior class of half breed which approached the type of the mother more than that of the father and which was certainly not a robust or handsome race. In the river region, the population lived on a democratic plane of equality in the cities, while in the rural districts they became that creole type known as the *gaucho*.[6] Found amidst a scattered population and inheriting the far from sedentary habits of the Spanish mother race, the *gaucho* preferred the free and roving existence of the pampas. He lived by the herds of semi-wild animals, which had multiplied amazingly since Mendoza's expedition had introduced the very limited stock, destined later to be converted into the stupendous riches of this country. In the central, more mountainous region also, the interbreeding of the races produced very definite results and the creole population of the rural districts acquired traits as though living closely associated with the *gauchos* of the pampas. In the south the aboriginal races remained pure, except for the insignificant mixing which came from the Spanish captive women, victims of the attacks of the Tehuelches of the north, from Santiago del Estero to the Bolivian frontier. populations. Wherever the native population was dense and attached to the soil the creoles living in the country and about the cities show a closer affinity with it, than with the Spanish blood. They adopt native habits and conform to native peculiarities, even to the extent of adopting the melancholy rhythm of the music and songs, those unique *tristes* which are heard even to-day in the Argentine provinces of the north, from Santiago del Estero to the Bolivian frontier. There the creole laborers of the land and the half breeds of the districts about the cities tenderly preserve the *quichua,* or native language of their ancestors, by intermixing it with the Spanish. The same close affinity with the native element is found in the river

[6]The cowboy of the Argentine Pampas.

provinces, and especially in Corrientes, where in the rural and semi-rural districts the dregs of the missionary population have preserved as their most precious possession the *guarani* dialect. But, where the native population was more scattered and nomadic, the creole population became transformed and converted into the *gaucho* or cowboy of the pampas, a very handsome half breed, full of energy, of noble instincts, accustomed to the freest sort of life over boundless plains, where each one depended solely upon himself and recognized no superior. Here we have the explanation of the great hold which this type (*gaucho*) has upon the imagination.

In spite of these differences, however, the colonial life was stamped with a certain uniformity which served as a background for these local peculiarities. Spanish-American society was zealously preserved from contact with other European nations. Only inhabitants of Spain were free to go and come, so that this triple characteristic—that they were Spanish, monarchical and orthodox Catholic—was the salient feature common to all South America. The person of the monarch and the supreme authority of the colonial office were very distant and the tribunals of the viceroys and governors holding actual sessions there upon the territory, were the real and tangible personifications of the monarchy. The Pope himself was also very distant and had given over the superintendence of ecclesiastical affairs to the crown, which had in turn confided it to the respective viceroys. The bishops and religious orders were, strictly speaking, the visible representatives of religion. In this way throne and altar came in touch with the colonial populations, who took heated sides in the formidable conflicts which used to arise between the representatives of each. But they retained respect for them; they recognized their high merits and prerogatives and obeyed them as representing that which could neither be questioned nor altered. Public officials of all grades were drafted from Spain and remained for definite periods. The laws forbade them to mix with the populations and they kept themselves aloof, with the ostensible purpose of assuring their complete impartiality. But the result was that they tried to take advantage of their period in office to swell their personal fortunes, without allowing themselves to be deterred by any scruples or drawing rein to their appetites. The priests even, both secular and those regularly ordained, allowed themselves to

be carried away by that spirit of self-seeking which led them to look upon America as a mine to be exploited.

Doubtless there were zealous officials both civil and religious who performed the best type of service. The Spaniards were established amidst a native population, who devoted themselves to commerce or to mining in the north, and to the raising of cattle and lesser trades in the river and central districts, and they always looked upon their residence in this part of American territory as a temporary sojourn, during which to acquire riches. The creoles, of every class, both of the city and of the country, perhaps because they seemed to be looked down upon by the Spaniards, were unconsciously trying to enlarge their hold upon affairs of all kinds. They felt themselves, as it were, rooted to the soil, and far from proceeding only from selfish motives of money making, they took an interest in local affairs, which, for them, were of greater importance than those of a crown, only vaguely known to them by report. The city creoles, thanks to an advanced communal spirit, aroused by the establishment of the *cabildos* or Spanish town council, were diligently at work on their own municipal problems. They thus became accustomed to limit their horizon to the limits of their own city and of the immediately surrounding country district, because communication between the cities was slow, difficult and dangerous, a condition which resulted in their virtual isolation from each other. The city might almost be regarded as the center of their universe. From the rest of the world news arrived months and years later, tempered or misrepresented. It awakened not the faintest echo. It might as well have been the news of far away ages and peoples.

The mass of the natives, with whose women the military and civil population cohabited, since relatively few Spanish women came to America, took no interest whatsoever in the affairs of a monarchy which was not that of their ancestors but of a race different from themselves. They showed, rather, such a passive indifference that each community seemed a world unto itself, occupied and pre-occupied only with its own matters. The religious and civil officials, in their turn, were soon contaminated by this environment. They gave to local affairs so excessive an importance that it also appeared to their eyes, as if the boundary of the Indian city was the *ultima Thule* of civilization. In the northern provinces, which had reached the final stage of perfection under the old Inca conquest, the native

population preserved and protected its pre-Columbian traditions by the use of their dialect, the *quichua* tongue. The régime of the *encomienda,* the *mitas* and the *yanaconazgo* had produced only a formal subjection of the natives. In the depths of their souls the natives preserved and fostered traditions of bygone centuries. In this way the creoles, the product of interbreeding, were recast into the dense mass of the Indian population and became more conversant with American traditions than Spanish.

Amongst the missionary converts, the Jesuits had erected cities that flourished artificially under their care. They were inhabited only by Indian races, and the Jesuits zealously guarded them from contact with the Spaniards whom they removed far from their admirable theocratic empire as though they were the very incarnation of evil. An unreal civilization was thus created, governed patriarchally by the priests and without any vitality of its own. Hence, the expulsion of the priests by the *coup d' état* of Charles III brought about the destruction of these populations, which had realized during the century of their existence, the ideal of the most exacting of Utopian civilization. But the results were not such as had been desired. These Indians, on being distributed over the colonies, did not coalesce with the rest of the inhabitants, but returned to the depths of barbarism or, as in the present province of Corrientes, constituted the mass of the population, an element indifferent to national interests just as the old missionaries had been to those of the crown and sensible only to the recollection of their ancient and traditional life, that is to say, to their own local affairs.

In the central and river provinces, the marvelous increase of animals capable of domestication but still in a wild state brought about a profound transformation. The native tribes, sparser than in the north, without losing any of their savage customs, soon possessed themselves of the horse and overran the boundless pampas. The creoles of the country districts and the *gauchos* in their turn vied for the possession of the horse. No longer able to remold their life to that of the savage tribes, they checked their bold and ferocious habits and became keen and cautious, forming a race of special type, midway between the Indian and the Spaniard. They were extreme individualists, for in the immense pampas, authority, both civil and religious could obtain but a weak hold. The *gaucho*

made so complete a face-about from his former self as to devote his life solely to cattle raising. He evolved a special fitness or adaptability to his new life and created the most curious types, from the *zumbon compadrito* with his peculiar cloak and *chiripa,* who flashed his sarcastic jests with such grace and elegance, to the poet troubador and famous animal tracker who was but little less keen than the hound in scenting and following the trail of man or beast. As the *gauchos* came in contact with not a few of the city population, upon whom they were dependent for obtaining the things they needed in exchange for pelts and the products of the country, they formed with such of the latter as came most closely in touch with them, a community of ideas and aims. Thus by busying themselves only with their own special lives, they became independent and without attachment for any but their respective municipal centers. Each region possessed its local feature, each was separated from the rest and all were but nominally linked and united with their remote and common monarch.

In the River Plate region, leaving aside the factor of geographic interest, to which I have just made allusion, the racial history was limited to the Spanish population and its creole interbreeding with the native races, because the negro population had no importance whatsoever, in this part of America. The quantity of negro slaves introduced by the "dealers" was reduced to a minimum, and even these, upon the breaking out of the war of independence, were killed off, for now that their masters were freeing them, they formed the great body of the troops. In this way they helped the American cause. The mulattoes, consequently, were also reduced in number. This process was carried to such a point that the singular scarcity of pure negroes or even of mulattoes was a real characteristic of this country.

Foreign influence could only penetrate by way of the Atlantic, and even then only covertly, unless it were by crossing the rocky barrier of the Andes. The Portuguese influence was limited to the profitable commercial relations with the smugglers. That of other nations only made itself felt through the occasional visits of ships forced to take shelter in the La Plata from time to time, or dropping anchor upon various pretexts, but always with the intention of smuggling. This was an open secret to the then few inhabitants of Buenos Ayres, the possibilities of which as a port,

although gainsayed by the crown, had been ordained by nature. When, during the last days of colonial domination, commerce was permitted to the port of Buenos Ayres, there was no longer time for foreign influence to penetrate to the heart of the country. The English invasions left a greater residue of influence through the distribution of the English prisoners, who in great part established homes in the midland regions to which they were sent. There, in the midst of the Spanish families, with whom they were left, they disseminated ideas of liberty and standards of independence, unknown among the rest of the population, the best classes of which in those days of unrest, were a turbulent and irrepressible element.

The revolution of May, 1810, wrought a fundamental change in the social situation. Distinguished officers of the Napoleonic wars came to the country to offer their military services. English merchants, attracted by the reports of the English invasions of the Argentine Republic in 1806 and 1807, hurried over in increasing numbers. Soon they were influencing the society of Buenos Ayres which adopted London fashions, many of its customs, and became accustomed to the English character. Foreign commerce was concentrated in the hands of the English and many of these merchants finally married in the country. During the colonial epoch only books expurgated by the Inquisition had been admitted, but now the revolutionary movement unmuzzled these mysteries and flung wide the doors through which penetrated a flood of French and English works. The doctrines of the French revolution were at that time the passion of the majority of our public men, and its influence, even its Jacobin and terrorist phases, is traceable from the first instant. This is revealed in the "plan of government" of Moreno. On the other hand, the constitutional doctrines of the Anglo-Saxons were embraced only by the few. Dorrego went to the United States and there absorbed them. During the first decade after the revolution, the educational system scarcely advanced at all but followed closely to the traditional path of teaching taught by the University of Codoba. The University of Buenos Ayres was founded in the second decade, and made an effort to reform public education. But the war of independence was not yet over and the internal situation of the country at the end of the anarchical dissolution which took place in 1820, was such that a multitude of affairs

demanded attention, and as yet it was hardly possible, outside of the large cities, to turn to such questions of reform.

The winning of independence was the cause of the sad dismemberment of the viceroyship of the River Plate and the statesmen of the period could not have prevented it. From what was once a single historic province there have gradually been detached the province of High Peru, to-day the Republic of Bolivia; the province of Paraguay, to-day the Republic of the same name; the eastern missions which now constitute the present Brazilian provinces of Rio Grande do Sul, Santa Catalina and Sao Paulo. The Banda Oriental has since become the Republic of Uruguay; the Falkland Islands were snatched by England; the territory about the Straits of Magellan was ceded later to Chile, under color of regulating the boundary line. The Argentine Republic, during the first century of its existence as an independent nation, far from acquiring a single square mile of territory, has continued to lose territory at every point of the compass. Her international policy, from that point of view, has been lamentable and the memory of it is still a bitter lesson.

Within the enormous territorial expanse which now constitutes the Argentine Republic political integration was effected slowly. The different populations settled at intervals along the routes which connected Buenos Ayres with Lima on the one side, with the Andes on another and with Asuncion on still another. Each settlement was an oasis of Spanish population set in the midst of a savage country. In order to establish something approaching unity within each section, the people organized themselves after the pattern of the urban centers of Spain with their *Cabildo* or town council as the communal authority, which controlled and regulated the extremes of opinion and conditions and brought the whole municipal life to a focus. Each settlement lived a life apart, separated from the others. In fact they were cast in the mold of the ancient Spanish village society, and the central authority only made itself felt at infrequent intervals.

The inhabitants of each village thus developed an aptitude for municipal life and for self-government, and a concentration upon local interests which became the basis of their political development. They fostered a local character which was the very foundation and essence of their later federal tendency. To

the interests and pretensions of the crown as formulated by the "Council of the Indies," they preferred the authority of the viceroy and of the intendants, but their main preference was the municipality itself, whose frank and loyal mouthpiece was the traditional Cabildo. For this reason, when the movement for independence commenced, each village and each city was led by its own Cabildo, and it was the Cabildo which gave vigor and form to the revolution. Around the Cabildo the inhabitants of the vicinity grouped themselves in the different organic or anarchic revolts which followed. It was for this reason, too, since the present republic possessed no basis of political division, that each one of the cities formed a nucleus in its respective province of the same name, and that the whole territory was subdivided according to the radius of authority exercised by the principal cities of colonial times, without any account being taken of economic autonomy or of demography.

Federal sentiment made its appearance profoundly rooted in tradition and blood, and the tendency towards centralization only emanated from certain groups of dreamers at the metropolis who with their eyes closed to the past believed along with such deluded men as Rivadavia that, by destroying the traditional Cabildo, they would wipe the state clean of such precedents, just as the Jacobins of the French Revolution did with the institutions of the ancient régime. Argentine society issued from the seventeenth and eighteenth centuries already shaped toward local self-government and local loyalty. It already appeared a federation in fact which was easily transformed into a federation in law, because the federal idea was at bottom the very heart and soul of things.

The development of our colonization also indicated that of our civilization. As we approach the north, the brilliant center of civilization of Lima society becomes more aristocratic, infatuated with its learning, luxurious and fastidious. The youth of the Plate Valley were attracted to the University of Chuquisaca, where, amidst its cloisters, they acquired a grave and disputacious manner. Later the University of Cordoba, like a pale reflection of the former, drew upon a part of these youths and, if they left its lecture halls also practiced in the art of sophistry, they did not imbibe in return that atmosphere of aristocratic aloofness, pomp and presumption. Buenos Ayres and the river country were without a university and without an aristocracy. At the periodic auctions of titles of nobility,

the receipts of which were added to the colonial contributions and were intended to meet a certain deficit in the Spanish treasury, not a purchaser appeared and there was not a single herder of the pampas nor a single rich smuggler who would bid. The titles which were thus put up to sale remained unpurchased, for the people held them in no esteem.

With no resources other than its commerce and industry which were both of a contraband nature, Buenos Ayres developed more rapidly than other cities and with a greater freedom from "red tape" and formalism, in spite of its being the seat of the general government, with its Spanish officials, its civil, military and religious authorities and an administrative machinery identical with that of the other capitals of the viceroyship. For here there was not the same atmosphere, the life was simple and democratic, the officials had no stage from which to display their importance, and within the narrow walls of the modest home of the government, the few inhabitants of this metropolis used to mingle in its marshy, unpaved streets, or in their unpretentious and simple adobe houses. They treated each other with a certain equality, which was due precisely to those conditions of intense individualism developed of necessity in a cattle raising community.

In the northern and central districts society was cast in the Peruvian mold, a reproduction of Spanish civilization, aristocrats adopting primogeniture and, in modified form, the feudal régime of the *encomenderos*. In the river and mountain region, the urban was a reflection of the rural population, independent, haughty, brave, accustomed to making forays upon horseback over the endless pampas, trusting to its own decision and in the end to the knife, which was a symbol of the worship of personal courage, inherited from Spanish ancestors who had developed it during the centuries of the struggle against the Moors. In the river district the commerce, which in the main was carried on illegally by doggedly persevering merchants who plied their trade fearlessly with pirates and foreign smugglers, caused a certain spirit of self-confidence to grow. This spirit made itself felt in the popular movement of the reconquest of 1806, and in the impulse of the revolution of May, 1810.

From Buenos Ayres started the movement for independence, and the Cabildos of the interior cities fell in with the movement with more or less alacrity. Hence the further inland these

cities were, the less enthusiastic. The Paraguayan region isolated itself and followed the conservative policy of the Cabildo of Asuncion. The province of High Peru, in spite of its efforts, was the last to revolt and never followed with any ardor the movement initiated by the metropolis. Indeed, the revolution of May, which had spread to the banks of the Paraguay river and over the plateau of Bolivia, might not, perhaps, have succeeded in so closely cementing, in spite of the righteousness of its cause, the independence proclaimed in Tucuman in 1816, had not the inspiration of San Martin added that powerful impulse which flung armies across the Andes, liberated Chile from Spanish dominion and brought independence to Peru. He might have pursued this glorious course toward the independence of the whole continent, if the colossal egotism of Bolivar in that tragic conference of Guayaquil had not placed our national hero in the dilemma of either eliminating himself and leaving his selfish rival to wear the laurels planted and nurtured by Argentine blood or of sacrificing the fruits of the campaign for independence, by not being able to obtain from him the military assistance he was in need of. He placed his country before his own glory and yielded the field to one to whom personal renown was preferable to all else.

For the social evolution of Argentine the sacrifice of San Martin was of incalculable importance. Upon eliminating himself, he left to his rival the army which he had himself led until then and this country was deprived of its one organizing force. Disintegrating tendencies manifested themselves without counter-check. In the second decade of the century, various little republics were defiantly established in the interior. They were constructed upon the plan of the old settlements which had risen to something greater. They were governed by Cabildos, and these in turn obeyed the local leader, who was raised to dictatorship over the districts. Each province was sufficient unto itself. It barely communicated with the others and retrograded towards barbarism without regularly organized government or other will than that of its respective tyrant and the free-lances who were his immediate followers. Schools closed; families took refuge within the walls of their dwellings; terror pervaded; life was everywhere insecure; those who could, emigrated, leaving behind them on the land the sick, the women and the children. Men were bedfellows in misery; there was no industry, no commerce; sin flourished and virtue was trampled under foot. These thirty

years of bloody and merciless civil strife made prominent the idea of the rule of force. People were taken from peaceful work, efficient teaching languished, every social bond was weakened and in the end a society evolved in which not education, ancestry or fortune exercised the least influence, but audacity, the impulse of the local leader, the mob instincts of the city population and of the rural *gaucho*. The local leaders and their followers alone wielded any real power. They dominated without possibility of counter-check and an entire generation tolerated this condition during that terrible period.

The local leadership, like the legendary tyranny of ancient Rome, demolished everything which tried to rise above the obedient, passive, resigned and common level. It brutally choked it or forced it to emigrate, and Argentine society had to develop in these anaemic surroundings. There was no possibility of foreign immigration, or of establishing industry and commerce.

The idea of nationality was observed by party passion and the factions were ready to launch out upon some fight upon the slightest pretext. Social classes were divided into irreconcilable parties, the reds or federalists, and the blues or centralists, those who believed in the local leader, and those who detested him. The former were called federalists, because they believed that each locality ought to adopt the kind of government which best suited it; the latter were called the centralists, because in their weakness they leaned upon the influence of the national government in order to give to the whole country a common unified administration of which the local government would be the agent.

Rosas met this situation and put an end to it. After the dismemberment of the ephemeral republic of 1825, and the national convention, and following upon the Brazilian war, the centralist party, deceived in its principles and in its men, closed its doors to counsel and committed the error of executing Dorrego at Navarro. The mass of the rural population resisted the straight jacket proposed by the doctrinaires of the centralist party and in this they showed themselves unrelenting. Then Rosas came into power in the government of Buenos Ayres and also secured control of the situation in the provinces. He succeeded in bringing about the organization of each province with a view to forming the Argentine Confederation. He was entrusted by the federation with the management of foreign relations. He left the interior provinces to

organize themselves after the pattern of the government of Buenos Ayres. Doubtless, during the long quarter of a century while he was dictator, real security and peace were never enjoyed, for the centralist party was ambitious, arrogant and factious, plotting within itself, and when it was not exciting to rebellion, or leading an invasion it was provoking foreign intervention. Finally the terrible and merciless war between the centralists and the federalists developed a state of terror which culminated in the excesses of the year 1840. The dictator treated his adversaries without mercy and they in their turn had none for him. To be strictly truthful, neither party can be absolved from wicked and culpable action. Nor can I shut my eyes to the fact that the great power bred pride, and that pride bred hatred of the subject class. But this prolonged dictatorship saved the country from the anarchy of the petty republics of 1820, it solidified the country into a sovereign entity and it gave to the different parts the cohesion of a nation capable of victoriously resisting the French and Anglo-French interventions. This much is owed definitely to the centralist party, who in this way solved the difficulty traditional to our national organization and so guided along the right road the severest crisis of Argentine history, not only from a political but also from a sociological point of view. The chasm that separated the social classes of the capital city from those of the provincial districts was bridged; the prejudices of blood, of caste and fortune were destroyed and there was established complete equality, where every man was the heir of his own labor and depended only upon his own hands.

After the battle of Caseros, in 1852, the government which had so used and abused oppression and patronage fell, leaving the country, however, in such a condition of stability and internal organization that the different provinces grouped themselves logically under the Convention of San Nicolas. The Argentine Federation was maintained and Urquiza was placed at the head of the government. Despite the local character of the revolution of Buenos Ayres, on the eleventh of September the country at large adopted the fundamental constitution of 1853, at the Congress of Santa Fé. The government of the recalcitrant province of Paraná realized but slowly the new organization, with which it finally incorporated itself, while the nation continued developing in the path established by its constitution. Without losing sight, therefore, of the bitter lessons of this

phase of our evolution, it is but fair to show an appreciation of its benefits.

The characteristic of this intermediate epoch is the very slight introduction of the foreign element. To-day this element is scattered over the land, but at that time such as were firmly rooted in the country, principally in Buenos Ayres, were very few. Of these the English formed the greater part, for the infusion of German blood, which resulted from the distribution of prisoners taken from the German regiments at Ituzaingo, though they included some estimable families constituted a very subordinate factor. English commerce was always respected and in spite of the bitterness produced by the naval interventions, it was left to develop peacefully. But as it did not increase in volume and was never reinforced by that of other nations, it did not become great. The path of social evolution was in the direction of the commingling of the city and rural population, and of the participation of the *gauchos* in public life, either by forming a large and worthy element in the army or by becoming the active nucleus of the popular civic movements. The democratization of the country was complete, for in general, the upper classes of society in the cities affiliated themselves with the centralist party, while the populace supported the federal party. Hence the bloody triumph of the latter brought about its complete predominance and from this period the social and political problems remained more enduring in nature, while differences of blood and tradition were put aside.

Since the constitution of 1853, the social evolution of Argentine has been guided and carried forward by two factors, immigration and foreign capital. Under their influence, the characteristics of the prior period were gradually modified to a certain extent. The administration of Mitre struggled against the difficulties of inadequate means of communication between the distant cities and against traditional custom of guerilla warfare. Force was employed in order to remain master of the field and to break up the resistance which the men of the interior set up against the prominence of those of Buenos Ayres, and a cruel war against Paraguay was undertaken. The ability and consistency of this Argentine statesman was great.

When the passions of his contemporaries had been assuaged, he became the "grand old man" of the nation, growing in stature as

posterity forms its judgment on his policy. That administration, like the following one of Sarmiento, had to cope with two factors, the great uninhabited tracts of land and the survival of ancient custom. On the one hand the different Argentine regions lived in isolation from one another, communication between them being difficult; on the other hand there still survived the custom of local chieftainship and of the constant and armed movements of different political factions, who would set out upon guerilla forays on any pretext whatsoever, raising their banners on high as though their behavior was patriotic and praiseworthy, whereas it was but the vicious habit of a barbaric and backward age.

The administration of Avellaneda continued the task of combating such tendencies by the establishment of the telegraph which would unite all these centers to each other; by the construction of railroads to facilitate communication; and by the encouragement of European immigration for purposes of settlement and in order to mix other races with that of Argentine and so modify its political idiosyncracies by more conservative standards and interests. The conquest of the Patagonian wilds, with the final subjugation of the warlike native tribes of the south, opened and ushered in an era in the Argentine evolution. This occurred contemporaneously with the historic solution of the problem of federalism versus centralism, which silenced forever the old antagonism between the inhabitants of the metropolis and those of the provinces.

From 1880 till the present, the work of multiplying the telegraphs and railway routes has gone on, as has also the increase of foreign immigration. These have produced the desired effect in the social transformation of the country. The telegraph and the railroad have definitely killed the seditious germs of guerilla warfare and of local chieftainship. Local uprisings are no longer possible. The city and rural populations have become convinced of this, and the popular mind is at peace since the generation has disappeared which saw the last revolts of the *gauchos,* and other forms of popular uprising. Foreign capital commenced and encouraged the exploitation of our natural resources. The sugar industry of the northern provinces, the wine culture of the Andes provinces, even the stock raising and agriculture of the river districts have been the combined work of these three progressive elements. Immigration has helped immensely toward this same end, but the settlement of

new lands does not advance by leaps and bounds, but spreads gradually.

Starting from the port of arrival, the stream of immigration continues to spread clinging closely to the land and little by little it mixes with the existing population, inter-breeds with it, fuses with it, and gives a great surging impulse to agriculture, industry and commerce. The social transformation of the river provinces is due to this junction of the two currents as a result of which the *gaucho* of the metropolis of Santa Fé or of Entre Rios, who, formerly famous for his bold and lawless tendencies, has to-day been so fused with the different foreign elements that all but the memory of this ancient type has disappeared, and the country is covered over with populous settlements, laborious, prosperous and progressive. The great fertility of the soil has returned with interest the foreign capital which first watered it, and has enriched marvelously all who have engaged in its cultivation. The development of the national recources, in turn, has given birth to such conservative interests that it is incomprehensible to the new generation that the former generation could, at the signal of a semi-barbarous chief jump on their horses and, rushing over the fields, kill, pillage and destroy. It is true that the transition has been effected at the cost of producing a certain political indifference in the new generations, which no doubt, will be overcome in time.

The social evolution of the Argentine Republic has finally found its true channel and to-day is in full course of development. In proportion as the foreign immigration continues bringing therewith its happy complement of foreign capital, the country will continue to develop industrially. The astonishing increase in industries, with a total production out of all proportion to the growing population, is only explained by the use on a large scale of the most advanced machinery. But such a metamorphosis spreads from the river districts toward the interior of the country. It does not jump from one point to another without connecting links between them, but always preserves a channel through which a relation is maintained between the different zones already transformed or in process of transformation. The first effect of each infusion of foreign blood into creole veins is to appease the hot political passions of other times, abolish the old institution of the local chieftainship, even blot him from memory and replace it

by an absorption in our growing material interests. These material interests appear to have conspired to bring about that indifference towards the state, as such, which makes men look mistakenly at a political career as a profession which thrives off the real working classes. For, our government both municipal, provincial and national appears to be the heritage of a well-defined minority—the politicians—who devote themselves to politics just as other social classes devote themselves to agriculture, stock raising, industry, commerce, etc.

Public life with its complex machinery of elections and governing bodies has been, so to say, delivered into the hands of a small group of men who at present are not productive of anything new in the general social situation of former times; that is to say, these men form a definite class, moved by the influence of this or that personality. Though it has suppressed the bloody characteristics of the previous period it has not relapsed into their heresies.

Little by little this shadow of the old system changes into that of the "boss" of the settlement and ward. The boss makes his business that of the mass of the voters, he stirs them up from their indifference, makes them go to the polls, deliberately falsifies public opinion, and so wins for himself a political managership, which gives him a marked influence in the back offices of officials and in the lobbies of legislatures. From such methods there spring no little censurable legislation of privilege and a great loss of contentment on the part of the people. When public spirit strengthens and shakes from itself the dust of inertia, and when the laboring classes have passed beyond that first stage of money grabbing, all the inhabitants of the nation will commence to busy themselves about the common weal. The thorn of the "boss" will prick them and they will then be able to form into political parties with unselfish programs and platforms. Every voter will cast his ballot to send to the legislature candidates who uphold the principles of his particular platform. As yet the people have not even reached the gateway to this goal. The past is still seen in full process of evolution and it is not easy to foresee the end.

This does not mean that the present moment of transition is valueless. On the contrary, it is of very great importance, because the social situation in the Argentine Republic is in process of making.

The politicians, now that they look upon themselves as called to stand forth above the heads of the rest of the people, have to be real statesmen. In this historic period, such statesmen, have the personality of the chauffeur who directs one of those swift engines of our century upon its dizzy course, the mechanism of which is so sensitive to the controlling pressure of the hand that it can deftly avoid all accident or cause a catastrophe of fatal consequences. There is required in such a man extraordinary coolness, clearness of vision as to responsibility, perfect knowledge of the course to be run, besides ceaseless vigilance, iron nerve when the time of trial arrives and a complete concentration upon the task. The legitimate tasks of government, in this very grave period of Argentine evolution, require a special training on the part of public leaders. They must study thoroughly the problems of our social evolution, and they must form a clear idea of the necessary solutions. Towards this they must steer with undiverted eye. The necessity of further exploitation of our national resources, the successive expansion of enterprise over zone after zone of our territory, the assimilation of the foreign immigrants by the creole population, the slow formation of a national spirit in the new generation, all these monopolize for the present the national energies and prevent them from turning to other problems. The country is converted, as it were, into a giant boa constrictor. It is entirely given over to the task of converting its food into nourishment, of abstracting the juices from the hard and resisting substances, of passing a multitude of different elements through its living organs so that they may later form a new tissue, adapted to the present and future needs of the country.

From this point of view the present moment in the evolution of Argentine is of immense sociological interest. We are permitted to be present at the visible transmutation of a society, too weak even to direct itself, and absorbed in the fusion of different influences. The direction of this process has been handed over without counter-check to public men who are obliged to dictate and put into practice legislation and administrative rules of every kind, as though they enjoyed absolute power. Furthermore, by the very nature of things, the administrative functions in such periods have to discount the future and effect in the present a series of public works or social regulations which will weigh upon future generations not only

from the point of view of the general finances but even from the point of view of national character. The national transformation of the land with ports, canals, railroads, telegraphs and every sort of means of communication, indeed, with every kind of public work, cannot be accomplished with present resources. A call must be made upon those of the future, by means of loans which will be a burden upon coming generations. If such a governmental policy is not accompanied by a skillful and prudent financial management, the burdens of our descendants will be considerably increased. They may even be committed to a policy that will cause eventual bankruptcy and an inevitable retrogression in the national development. The intellectual metamorphosis of the nation by a proper system of primary, secondary and higher education and by special schools of technical training, in order to form the national spirit of the future type of Argentine citizen, is certainly our most difficult governmental problem, because it is a question of molding the very soul of the nation. To teach different and contradictory systems, to do and then undo, each day changing the courses of study to successively adopt antagonistic standards and show a real lack of fixity in pedagogic methods, is to commit the greatest of all crimes, because it is not a crime against the exchequer of posterity but against its very soul. To accomplish a fusion of the currents of foreign immigration, to sort out the best from them, and to direct the formation of the new type which is being evolved, melting it in the crucible of the school, of the army, and of public life, is perhaps, to-day our task of transcendent difficulty. Such a problem is greater than that of directing the stream of foreign capital which, while fructifying the national soil, clings to it like the countless tentacles of a gigantic octopus and absorbs a great part—sometimes too great a part—of the riches produced only to transmit them through the arteries of the Republic, to foreign nations who employ it to their exclusive profit.

Perhaps no moment in the history of our nation requires a greater combination of qualifications in its public men. The student may contemplate this most interesting transformation, displayed before his eyes like the moving film of a gigantic cinematograph which permits him to grasp at once the different phases of the social problem which it presents. Rarely in the history of humanity has it been possible to contemplate a like spectacle. The United States

presented it a half century ago, to the astonished gaze of men of that day who were but little familiar with social problems. The Argentine Republic is repeating now the same phenomenon, with this difference that it can observe itself and be guided by the experience acquired elsewhere. Other countries of the world, in the future will, no doubt, in their turn repeat a similar evolution, though perhaps in a different environment. But the interesting part of the present moment is that the Argentine Republic is sailing upon the same course in the twentieth century that the United States did in the nineteenth. Our evolution is proceeding with greater care because it is being worked out amid better conditions. We can now take advantage of the costly experience gained by our brothers of the north and so by avoiding many of their errors, seek to escape the shoals upon which they stranded and the mistakes which they involuntarily committed, even though we have in our turn special problems which they did not have. Thus the tremendous politico-social crisis of the North American War of Secession will not be repeated in the southern hemisphere and the Argentine social evolution will not have to solve the profound anthropological problem of the rivalry of races, which, in the United States, arises from the white, black and yellow races, living together side by side.

In Argentine there are no ethnic problems. The social antagonism raised by an arrogant plutocracy on the one hand and povery stricken proletariat on the other, is not presented as an Argentine problem, because riches are still in process of formation there, and easily pass from one hand to another. A monopoly of riches cannot be prolonged beyond a single generation because with the system of compulsory divison of descendants' estates, it soon returns to the common mass of the population. Social conditions in our evolution, present distinct problems from those which characterize other nations and demand, therefore, a direct study on the ground and must not be viewed through the doctrines developed in other nations and amid other conditions. The molding of the national spirit by uniform and compulsory schools and the slow adaptation of the mass of the immigrants to historical traditions and to future national aims, demand much time and they are now in the full process of being worked out. The celebration of the Centenary of our independence has made prominent the fact that such an evolution is much more advanced than one would think. There still

remains, nevertheless, not a little to be done in this direction, though the national compulsory school system and the army conscription are factors of great importance which are working for fusion. But, in the country districts and in those places where the error has been committed of permitting the formation of settlements, homogeneous in race and religion, which regard themselves as autonomous offshoots of their mother country, resisting the Argentine school or any intermingling with the mass of neighboring population—in such districts, the fusion, though inevitable, will be necessarily slower.

All these sociological problems might and should have been exhaustively studied in the history of the United States during the nineteenth century, a history which, as I have said, the Argentine Republic is repeating in the twentieth. Foreign immigration at this time has no outlet more profitable than the River Plate. The doors of North America are gradually being closed, and the other regions do not yet present the same advantages as those offered by our country. The same thing that happens with the excess of population of other nations also occurs with its surplus capital; no other quarter of the globe offers better prospects for the investment of capital and for a greater rate of return. The "manifest destiny" of Argentine depends for the present entirely upon the development of its commercial relations with the rest of the world. It must convert itself into the granary and the meat market of Europe.

The closest bonds of mutual interest unite Argentina with Europe, because being producers of unlike commodities, the European markets consume our exportation and our markets consume theirs. With the rest of America our interchange of trade must be upon a smaller scale, because for more than a century to come we shall be countries producing similar commodities. Therefore, our respective markets will not reciprocally serve to buy the excess of production, but only that which by reason of climate or industrial development is to be found or manufactured in any other country than our own. This has happened to us notably in the case of the United States with its tremendous industrial expansion. In order to fulfill this "manifest destiny," we need *pax multa* with the whole world. We need to give attention exclusively to our development without intermeddling in that of others. In this is summed up everything. Hence our inter-

national policy has to be pacific and neutral; we must be every man's friend, and shun imperialistic fancies. The "splendid isolation" of England fits her condition and her inclination. We must work and we must be allowed to work. Our social evolution still requires a century to acquire a definite contour. Though results may be foreseen from their beginnings, it is not possible to foretell what will be the future Argentine type, physically, mentally or materially.

For the present, the only proper thing for us to do is to devote ourselves exclusively to the exploitation of our resources for we have seen how much effort will be required to assimulate our population, to form a national spirit, to build up a great future nation, to develop an administration which shall be a model of honesty and scientific preparation, and to adapt the republic to its future needs by public works and institutions, and by showing ourselves firm in faith and effective in works.

The present social tendencies in Argentine evolution give promise of a great future for the country. The nation is not hesitating or vacillating before the realization of its manifest destiny. It follows with profound interest the new and colossal social experiment, which is unfolding to the view of the world the different phases of the formation of a nation in whose development the shoals are being avoided where others were wrecked, and which is putting into practice the improvements suggested by the experience of the other nations in order to realize the new evolution easily, prudently, and successfully.

# COMMERCIAL RELATIONS OF CHILE[1]

By Hon. Henry L. Janes,
Division of Latin-American Affairs, Department of State, Washington.

The invitation to say a few words to you to-day on the subject of the commercial relations of the republic of Chile has given me genuine pleasure, which is no doubt to be ascribed in great part to the agreeable recollection of the years that it was my good fortune to serve in the American diplomatic service at the capital of this most interesting, sturdy country. I almost despair of being able to present to you any thing beyond a few general facts in the effort to acquaint you in outline with the Chilean environment of trade, and with the purpose of suggesting possible questions which an interest in this part of the country may indicate, and which I will be happy to endeavor to answer.

I have been greatly impressed with the significance of a statement made to the conference a few days ago to the effect that "trade follows the loan." The course of west coast commercial development lends confirmation to this statement, and I am encouraged to pursue the idea a step further and to add that trade follows the loan and the investment. On the west coast of South America both Englishmen and Germans have preceded us with the loan, the investment of capital, and the early cultivation of that enormously extensive field which has hardly been broken by the ploughshare of American enterprise. The South American republics occupying the narrow Andean region along the Pacific coast, constituting about one-sixth of the total area of the South American continent, with about fourteen millions of people, possess a foreign trade of over three hundred millions of dollars, of which the United States has not more than a tenth portion. The English merchant now enjoys the numerous advantages accruing from his early arrival here, and the German, in South America as in other parts of the world, has shrewdly grasped the opportunities presented with the vigor and tenacity characteristic of the the nation. And now, with the proxi-

[1]Address delivered at the Pan-American Commercial Conference, Washington, D. C., February 17, 1911.

mate completion of the Panama Canal, our competitors who have preceded us thither turn to the north and labor industriously to strengthen themselves behind the ramparts of trade, the loan and the investment, to meet the inevitable incursion of American commercial undertakings. Everyone who has faith in the sterling intelligence and resourcefulness of our people, and who has seen the superior quality of the American article, cannot fear the ultimate result in the coming struggle; but it should not be forgotten that we must learn the lesson taught by the experience of those who have preceded us in this field, and devote ourselves to a careful, scientific study of the peculiar conditions while in search of the means and ways that will enable us to fulfil the requirements that constitute success in an environment so different from that in which we live.

One of the first things that a traveler passing down the Pacific coast notes is the lack of harbor facilities. There are only one or two natural ports. The ship rides at anchor usually some distance from shore in the open roadstead. Enormous sums of money are yet to be expended to provide the facilities which modern commerce demands. Callao and Valparaiso are to-day the only west coast cities provided with wharves permitting the discharge of vessels under the most favorable conditions. In the other ports, the cargo is unloaded at an anchorage many yards from the shore by lighters brought alongside. To one who has had some experience with the most unpacific Pacific ocean, the importance of this fact in its bearing upon the matter of packing, loss and incidental expense, is at once apparent. But both Chile and Peru are keenly alive to the needs of the present situation, and are making every effort to be prepared to handle the great increase in the volume of trade that will soon flow to their shores through the Panama canal. At Valparaiso, San Antonio, Talcahuano, Corral, Mejillones, and along the Peruvian coast plans of harbor improvements are being consummated and executed with this purpose in view.

Just a word upon a matter that has several times been brought up in the form of questions from delegates—the element of population and language. Some persons manifest considerable surprise when the term *Spanish* as applied so generally and loosely to South America is objected to as inapplicable, just as we might properly resent being called Englishmen. Of course, Brazil is composed of a population for the most part of Portuguese origin. On the west

coast the Spanish language is universally spoken in all the civilized centers, but, although the ethnic origin of this part of the world is essentially Iberian, any one who takes this fact without many qualifications exposes himself on the ground to a multitude of surprises. Thirty-four per cent of the Chilean population is composed of a non-Spanish, European stock which has been assimilated and welded into one homogeneous mass possessed of the sturdy, enterprising qualities that distinguish that admirable race. The South American properly regards himself as possessing as many distinctive marks of nationality that distinguish him from the citizen of the mother country as does the American.

One who returns from South America is often asked in the most matter-of-fact tone: "Tell me something about revolutions you observed when stationed at your last post." During a residence of almost five years in the southern hemisphere, I am then obliged to say, I have never seen the specter so decked out with the paraphernalia of melodramatic exaggeration by the facile pen of our well-informed press, nor, what appears to give cause for even greater astonishment, do I possess the cynicism of those who have acquired the pessimism of Hamlet while brooding over the so-called spirit of mañana because they have not been able to delve deeper than superficial appearances. For eighty years Chile has been living under a constitution, the terms of which have been modified only by constitutional means; and during a period of fifty years she has known but one revolution, which, like our own civil war, came to life in violent assertion of constitutional principles of which modern political science takes practical and serious account. Both Chile and Peru are making rapid advance in the most modern directions under their stable and enlightened form of governmental administration.

Chilean foreign trade during the past year amounted to over $200,000,000, which is only slightly less than Mexico's total commerce with foreign countries, and places Chile in the third rank as to South American total trade figures. The United States sells only about ten per cent of the total amount purchased abroad by Chile; and buys about fourteen per cent of what Chile has to sell. Computing Chile's population at three and one half millions, each person sells to us, according to the last statistical reports available, $4.60 worth of goods, and buys from us about $2.75 of commodities. The figures of Chile's foreign trade show a favorable balance of

more than twenty-three millions of dollars. Saltpeter takes about one-third of the total exportation and provides about 65 per cent of Chile's national income. The United Kingdom comes in for the largest share of Chilean trade, Germany following closely and greatly out-distances the United States.

It will be of interest to you to note that Chile admits free of duty the important elements of industrial development—machinery, fuel, tools, and materials. Her chief exports are nitrate, copper, hides, furs (chinchilla), wines, silver, and iron. She also exports considerable quantities of grain, bran, peas, rye, and middlings. Some American agricultural machinery is to be found in the Chilean market, and the trade in threshers, seeders, mowers, and reapers, although greatly limited naturally by the reduced agricultural area in Chile, is good.

In common with other South American countries, Chile's manufacturing industry has not yet reached a point of development which makes it probable that the foreign trade in manufactured articles will be threatened for many years in the future. The Government has made strenuous efforts, and with some success, to establish branches of the manufacturing industry upon national soil; but the greatest difficulties encountered still remain—the lack of capital and the reduced number of competent workmen available. In the meantime, the market is there to be developed almost without restraint. Manufactures of brick, floor tile, cement, clothes, hats, shirts, collars, print goods, different kinds of iron work, leather, carriages and wagons, cigars and cigarettes, matches, etc., are doing a profitable business in the country. The raw material furnished by the country is fully adequate to supply all domestic needs. Industrial Chile has now fully recovered from the terrible results of the wild speculation of 1905-6 and the great earthquake of August 1906, when the hand of death and destruction fell heavy on the rich central zone. This general improvement speaks eloquently for the recuperative powers of the Chilean. Good crops have come to help him and the acreage of cultivated land has increased almost one and one-half million acres in the past twelve months. The more general use of nitrate and other fertilizers and the introduction of improved machinery and up-to-date methods have given splendid results on every hand. Chile exports about 5,000,000 bushels of wheat, produced at an acreage of fourteen bushels per acre on

approximately 2,500,000 acres. In the south of Chile there are abundant forests of excellent timber. Owing to the lack of facilities of transportation and the unquestionable speculative character of many of the companies organized to exploit the timber wealth of this region which disappeared before the great crisis of a few years ago like the dry blade before the prairie fire, little has really been done to bring this wealth within reach of the great centers of population. But much is certainly to be done in the future. It may surprise many to be told that Chile has more forests to its area than any other country in the world.

I have always found the northern provinces of Chile, from the Peruvian frontier to the southern limits of the Antofagasta Province, which came to Chile as the fruit of her victories in the war of 1879 with Peru and Bolivia, to be the most interesting part of the Republic. There lie the most extensive nitrate beds in the world. In all the great stretch of country from the Andes to the Pacific Ocean rain never falls. Not a blade of green is to be seen except in depressions where the saline waters have seeped through from the great cordillera or along a few streams like the river Loa, whose brackish waters flow between the bare hills and over the sandy plains furrowed by the rush of torrents of far-distant geologic ages.

The chief ports of this region are Iquique, with forty thousand inhabitants, the present center of the nitrate industry; Antofagasta, with almost thirty-three thousand inhabitants; Taltal, a port of about eleven thousand, from which copper and silver and nitrate of Cachinal are shipped. These nitrate provinces have a population of about three hundred thousand, distributed mostly in the larger cities of the coast, in the nitrate plants, and in the mines of copper and silver in the interior. The entire population is dependent upon the nitrate industry, in which fifty thousand men are employed, belonging mostly to the rugged lower Chilean class, the so-called "Roto," with a great many Bolivian Indians and a considerable proportion of Peruvians. In 1909 over eighty-four million hundredweight of nitrate were produced and the industry is doing at present well with an improvement in the market quotations and the great increase in the world consumption of the product. The nitrate combination which since the war of the Pacific has controlled the exportation of nitrate from Chile, and which

was under the special protection of the Chilean Government for the purpose of controlling prices, came to an end about a year ago and has not since been renewed, and conditions have remained very satisfactory. Indications are to the effect that a good profit has been realized in spite of augmented production. About forty per cent of the total number of firms engaged in this business are English, followed closely by the Chileans with a quota of production almost equal to that of the British. Germany has lately entered the field with great strength and now claims eleven per cent of the total saltpeter output. American capital has within the last two or three years purchased some valuable properties and it is hoped others may enter the field, as the opening is a good one. The use of nitrate for agricultural purposes in the world at large is being more thoroughly appreciated and in the United States the importations have almost quadrupled in the last four years.

Certainly one of the great obstacles encountered in the past to the healthy development of trade with Chile has been the instability of the Chilean circulating medium. The Chilean merchant pays for the foreign commodity on a gold basis, but his customers buy the goods in the irredeemable paper currency. During the short time in which I was in Chile I saw the value of the paper currency fall from about thirteen and a half pence to eight pence when the crisis following the great earthquake and the effects of universal and unrestrained speculation had brought anarchy into the Chilean market. You will be interested to know that for some years the value of the Chilean peso has remained between the extremes of ten and eleven pence and that the future of the Chilean currency is a bright one, making for that stability which affords every encouragement to the proper normal improvement of commercial relations.

Chile has a parcels post convention with the United States and the amount of business transacted under the terms of this agreement is steadily increasing, with the special advantages such an arrangement presents to the exporter. The customs regulations of Chile are ably administered and the officials are unusually obliging and accommodating toward shippers, but a shipment following the usual course requires the attention of a customs broker and may sometimes be held up many weeks in the congestion of traffic in the warehouses at the port. The advantage of the parcels

post lies in the fact that the consignment goes directly to the consignee without the intervention of the custom house broker and may be opened with a small charge of a few cents for the making out of papers and inspection on the basis of details furnished to the postmaster here covering the weight in kilos., value and kind of goods. The trade by the parcels post shows a steady and considerable increase. During 1909 merchandise to the value of about $950,000 American currency entered Chile through this channel, of which the United States has not yet taken more than ten per cent.

As regards trade representation along pioneer commercial lines, there are only a few manufacturers' representatives active in Chile, and there are several commission houses doing business on the basis of two and a half to five per cent. Undoubtedly the facilities for the extension of trade offered by the firms already established in the field are great, but the sphere for the development of trade through the medium of commercial travelers is one that should be carefully examined. Before sending a representative to Chile the most conservative and safest way undoubtedly is to go down to the country and look over the field of possible opportunity and then, if the results of this investigation are favorable, to send a representative down to make a personal canvass.

Here something ought to be said regarding the qualities that make for the efficiency of the representative. The South American has susceptibilities which are as strong as our own, but which sometimes manifest themselves in a rather unexpected way, and along quite different lines from those we instinctively anticipate in the United States. Except in Valparaiso, English is little spoken in the trade centers of Chile, and no one should go to South America with the idea of covering the entire situation without possessing a knowledge of Spanish, and without a clearly marked disposition to take serious account of differences of habit which are as rational and well founded to the South American mind as they appear unjustified and even absurd through the spectacles of American training.

# CLOSER COMMERCIAL RELATIONS WITH LATIN-AMERICA

By Bernard N. Baker,
Baltimore, Md.

The following suggestions for the development of our relations with the countries of Latin-America might be offered:

The first and most important question of policy for our country to pursue is the securing of the confidence of our sister republics in the south by carrying out in spirit as well as in letter any agreements or treaties we may make with them or with other nations. In this connection it may be said that the action of our government in acquiring from the Republic of Panama the right to build the Panama Canal was not above reproach. At the time we took over through purchase from the French company the rights that belonged to them, there can be no question but that we encouraged the citizens of the Republic of Panama to secede from the United States of Colombia so that we might secure through treaty with the new Republic the rights necessary to enable us to carry forward the great work of building the Panama Canal. Although the undertaking and putting through of the canal was of prime importance, the way in which the transaction was accomplished is not an episode of which we should be too proud. Looked at from the broadest aspect of our international obligations, our action was not above criticism. Colombia was unjust and unreasonable and expected to secure from the United States undue advantages and compensation, but this did not justify us in acquiring, practically by force through our superior resources, what should have been acquired by treaty agreement. We should now seek to establish closer commercial relations with the Republic of Colombia, even to the extent of conceding to it some advantages in the use of the Panama Canal, such as including its coastwise commerce as we do that of the Republic of Panama in the free use of the canal. For Colombia likewise has a large coast line on both the Pacific and Atlantic oceans.

By treating Colombia in this magnanimous spirit we would lead the other Latin-American republics to believe that they can always depend on the fairness and justness of our country.

Second: We entered into a treaty with Great Britain in good

faith that no concessions would be made in the use of the Panama Canal to the ships of any nation that were not equally extended to the ships of all nations. This implied, certainly on our part, a moral obligation that in the foreign commerce of the world, and our own included, we would take no undue advantage of our rights in the Panama Canal. This clause in our treaty was a mistake. The United States in spending the millions necessary to build this canal should have, as regards its foreign commerce, some advantages because of this enormous expenditure. It is very doubtful whether the canal will ever be profitable directly from tolls, or pay anything like a fair per cent upon this enormous cost—at least for a great many years to come.

A number of bills have been introduced in Congress to give free tolls to ships under our own flag engaged in foreign commerce. We have a perfect right to give free tolls to ships engaged in our coastwise commerce. But everyone must concede that Congress should do nothing which might in any way be construed as a violation of this treaty agreement. We should therefore discuss the matter frankly with England before we take any action of that kind. It is possible that by so doing, we might secure a modification of an unfortunate agreement and thus obtain relief without any arbitrary action. The confidence which our sister republics have in our integrity would be strengthened by such action and they would be willing in the future to trust us more extensively.

Third: A most important feature to encourage the development of closer commercial relations will be the establishment of such regular lines of communication in steamships, under our own flag, as will carry to the ports of South America some evidence upon which to base a belief that we are a maritime and exporting nation. I know in some of the countries of South America they do not believe we can build and run ships; they think that we are not a maritime nation. Other nations, such as Japan, come to them and show them by actual demonstration, in the ports of their country, ships built, owned and manned by the Japanese under the Japanese flag. I allude now particularly to ports on the west coast. The same would be true of all ports on the eastern coast, where seldom, if ever, is the American flag seen on a ship of our country. Consequently it is hard for the nations of South America to realize that the United States can build ships.

Fourth: The establishment, by citizens of the United States, of banking facilities throughout our Latin-American republics will be of inestimable benefit. This is not a question, of course, for the United States Government to take up, but it is a question that I think will be very largely influenced by the establishment by the government, on whatever lines are fair and just, of regular steamship communication under the flag of our country.

Fifth: To-day the conditions existing in Mexico afford us a striking example of the evils that may arise from a lack of proper understanding of all the conditions that go to make up closer relations between the two countries. The Republic of Mexico for many years has offered opportunities and complete protection to citizens of the United States wishing to make investments for the development of its country, and a large amount of capital has been invested in Mexico, in many cases with very beneficial results to the citizens of both countries. At the same time we have entirely neglected means of communication by regular lines of steamers under our own flag, and the result has been that we find another nation, Japan, studying out how she may wisely and efficiently develop closer commercial relations with the Republic of Mexico by establishing lines of steamers under her own flag.

A great deal of the present discussion in the press has been brought about by the establishment of lines of steamers under the Japanese flag at Salina Cruz and a concession by the Mexican Government to this line of $5,000 a voyage. Mexico has given to an American steamship line, The American-Hawaiian Steamship Company, a special guarantee against loss for a line across the Isthmus of Tehuantepec.

Thus we see the remarkable situation of an American line of steamers receiving aid from the Mexican Government, and also a Japanese line whose interests are so directly opposed to our own, particularly in the development of the Pacific coast trade. The United States should so encourage our merchant marine as to obviate the need of establishing these close relations with Japan. Were there facilities under the American flag, the Republic of Mexico would be glad to extend to us, instead of extending to Japan, such assistance, and thus draw closer our commercial relations.

There is justification for the belief that regular lines of communication with Latin-America by steamers under our own flag

would develop closer relations. In this connection the President of the United States in his message of December, 1909, spoke as follows:

"I earnestly recommend to Congress the consideration and passage of a ship subsidy bill looking to the establishment of lines between our Atlantic seaports and the east and west coast of South America as well as lines from the west coast of the United States to South America."

Presidents McKinley and Roosevelt both recommended such legislation; as did also Postmasters General Cortelyou, Meyer and Hitchcock; Secretaries of Commerce and Labor Cortelyou, Straus, Metcalf and Nagel; also Admiral Dewey, President of the General Board of the Navy Department. Of the organizations: The National Board of Trade, National Association of Manufacturers, The American Bankers' Association, The American Cotton Manufacturers' Association, and the boards of trade and chambers of commerce of the principal cities of the United States. By adopting resolutions they endeavored to encourage the establishment of regular American lines of mail steamers to South America. As to foreign countries, and especially via the Panama Canal, Spain has provided by law for compensation of $1.90 a mile for steamers of thirteen knots from Barcelona to the west coast of South America and to San Francisco through the canal when completed. A bill is pending in the Italian Parliament for a similar compensation. Japan has already established a line to the west coast of South America. I should like to quote the following report of Mr. C. J. Arnell:

"A subsidy of 690,511 yen annually for five years is provided for a Japanese line to South America. There are to be six voyages a year, so the subsidy amounts to $57,000 a round voyage of 25,000 miles, or as near as may be $4.60 per nautical mile outward bound. This is the rate paid to twenty knot mail steamships of 8,000 tons or over under our ocean mail act of 1891. The Japanese ships, however, are to be only thirteen knots and range from 5,200 to 9,300 tons." In his admirable report on the Japanese legislation of 1909 (S. Doc. 152, 61st Cong., 1st sess.) Mr. C. J. Arnell, of our embassy at Tokyo, says of this South American line: "The government's proposal to open a regular line to South America met with severe opposition in the Diet and considerable criticism from the press on the general grounds that it was contrary to the new policy of finan-

cial retrenchment to subsidize an enterprise whose immediate undertaking was not essential, and which did not promise to be profitable for some years to come. As already reported, however, the government seemed to attribute more than ordinary importance to the line and, after vigorous action, succeeded in effecting a compromise with the Diet whereby the subsidy for the present year (about 500,000 yen) was retained in the budget. There is no evidence, however, to show that the motive for the establishment of the line is more than purely commercial, and the general opinion seems to be that it is the outcome of investigations recently made in South America by Mr. Uchida, director of the commercial marine bureau. The immediate subsidizing of the line was evidently desired in order to participate in what is believed to be a promising field—the proposed establishment of regular steamship services by the Hamburg-American, Norddeutscher-Lloyd, and a certain Chinese company. The new Japanese line will make regular calls at Hongkong, Moji, Kobe, Yokohama, Honolulu, Salina Cruz and Mazanillo (Mexico), Callao (Peru), and Iquique and Valparaiso (Chile)."

"On October 25, 1909, a bill was passed in the Mexican Congress to grant from the Mexican treasury to this Japanese line a subsidy of 10,000 pesos ($5,000) a voyage, or $60,000 annually.

"For fourteen knot steamers to Argentina, once a month, Spain is willing to appropriate at the rate of $4.60 a nautical mile outward, the same rate as for sixteen knot American steamships defeated in the House of Representatives last March. The recent subsidy legislation of other countries in fact shows that various shipping propositions which have passed the Senate of the United States during the past ten years, and failed in the House, have been studied elsewhere and that some of their features, adapted to varying national conditions, have been incorporated in the laws of other countries. Spain has already provided for a subsidized line through the Panama Canal."

So important does this question of the establishment of lines of steamers, under the flags of their own countries, appear to foreign nations that to-day they are spending over $49,000,000 per annum for this purpose. We are doing little or nothing with the Latin-American countries, where the greatest opportunity to-day exists for the development of our export business.

# IMMIGRATION—A CENTRAL AMERICAN PROBLEM

By Ernst B. Filsinger,
Consul of Costa Rica and Ecuador, St. Louis, Mo.

No problem confronting the five Central American Republics is of more vital import than that of immigration. In its consideration the student of international economy must quickly realize that the future of those nations will be materially shaped by its correct solution.

This conclusion is borne home to the earnest observer of political affairs of Central America in remembering their experiences with problems which have been brought about entirely by immigrants. Indeed, their political entity has not infrequently been threatened by developments which directly resulted from complications caused by the immigrants from Europe or America. Fear of intervention, the "bugaboo" of every patriotic Latin-American, is omnipresent and is a factor to be seriously reckoned with in the consideration of the subject of this article.

In connection with the growing interest in Latin-American affairs throughout the United States, North Americans have an interest in the proper working out of the general subject hardly second to that of the people of the Central American Republics. This is attributable not only to the growth of international commerce, but more particularly in view of its relation to the general American policy towards Latin-America. The development of great American industrial corporations which have extended their operations to Central America is another factor. This is due to the fact that innumerable employees of such corporations have found it necessary to establish their homes in the Central American Republics. It will be observed that the character of these men, their relations with the local and national officials of the various republics and their recognition of the local customs will tend greatly to shape the destiny of those countries. The solution of the problems arising out of the concessions to such enterprises, the treatment of foreign investments generally and the immigration of their employees will engage the thought of all earnest and serious gov-

ernment officials of Central America. Not infrequently has it happened that serious international disputes have arisen with foreign corporations and their representatives regarding the interpretation of the laws relative to concessions, and disinterested observers have often attributed the blame to the local representatives who by their antipathy to the customs, laws and ideals of the nation provoked disputes which might otherwise easily have been avoided by the show of a little tact or judgment on the part of the foreigners. In this connection it is interesting to note that to Americans has been attributed the greatest criticism for such abuses. It can be readily seen, therefore, why the statesmen of Central America should be concerned with the coming into their midst of an element which may prove on the one hand a most potent factor in the development of their resources, in the administration of their laws and in the general enlightenment of the people, while on the other hand it may prove a most serious and disturbing factor.

Another phase of this question is represented in the agitation relative to the exclusion of the oriental races. In the light of recent developments the attitude of the Central American Republics towards that issue is as vital to North Americans as it would be to the citizens of the various republics themselves. The want of an understanding between the Chancellories of Central America and our own State Department on this question might lead to the gravest consequences. Fortunately there appears to be no danger of this at the present time in view of the present attitude of the governments of the various countries toward this matter.

The great necessity for immigration into the Central American Republics is recognized where the matter has been seriously investigated. It is desirable for a variety of reasons, but particularly so because of the lack of inhabitants. Save in one republic, that of Salvador, the number of people is far out of proportion to the extraordinary area of these countries. Especially so is this true of the Republic of Honduras. In its vast territory of 120,000 kilometers it has only 400,000 inhabitants, although capable of supporting several millions. Equally true is this of Nicaragua which has but 500,000 within its confines, covering an area of 128,000 kilometers. The population of Costa Rica is but 400,000—insignificant in comparison with its territory of 59,600 kilometers. The Republic of Guatemala is the only exception to this general

rule, having about 2,000,000 inhabitants compared to its territory of 150,000 kilometers.

The wonderful natural advantages possessed by the Central American Republics afford extraordinary possibilities. Nature is so provident that but slight human effort is required to make her yield many fold. With the single exception of the Republic of Costa Rica, which is on a strong financial basis, and also possibly Salvador, the economic situation in the other republics leaves much to be desired. For this condition certain foreigners are in a large measure responsible, notably in the case of Honduras which is still suffering from the effects of financial operations that were perpetrated by a number of unscrupulous English financiers.

In discussing the general character of the immigration desired, it is necessary to consider the kind and number of immigrants that have already established themselves in Central America. This is rather difficult, owing to the lack of a recent census. The following statement, based on official reports is believed to be approximately correct:

| | German. | French. | American. | English. | Spanish. | Italian. |
|---|---|---|---|---|---|---|
| Guatemala .... | 7,500 | 1,100 | 1,850 | 1,200 | 1,100 | 1,300 |
| Honduras .... | 450 | 300 | 1,975 | 1,500 | 450 | 200 |
| Nicaragua .... | 250 | 100 | 525 | 750 | 200 | 150 |
| Salvador ..... | 475 | 1,250 | 250 | 1,200 | 600 | 450 |
| Costa Rica .... | 525 | 300 | 1,140 | 350 | 500 | 200 |

Analyzing them it will be noted that of the foreigners resident in Central America certain nationalities predominate. Thus in Honduras there are more Americans than those of any other nationality. In Guatemala the Germans are exceedingly numerous, while in Salvador the French predominate. A further consideration of these figures will lead to an inquiry as to the pursuits or means of livelihood of these immigrants. The following is an outline of the industries and pursuits in which the various nationalities are engaged:

Mining .....English, Americans
Railways .....English, Americans
Plantations .....Germans, Americans
Banks .....English and French
Dry Goods and Similar Lines .....French

| | |
|---|---|
| Hardware, Agriculture and Machinery | Germans |
| Groceries, Liquors, Hotels | Spanish |
| Professions | Germans, Americans, French |

It will be readily understood that the foreigners resident in Central America have a most vital effect on national problems, particularly on that of finance. It must be apparent that the intelligent co-operation of foreigners in the solution of local problems is of vital importance.

The physical condition of the countries must be considered in discussing immigration, as it has an immediate and vital bearing on the subject in hand. In reality this factor probably exceeds in importance all others, although the kind of inhabitant with whom the immigrant will have to associate, the commercial opportunities and means of livelihood generally are likewise very serious considerations. In Central America is found practically every variety of climate from the hot lowlands on the coast to the temperate zone of the uplands or plateau regions, the vegetation of which never fails to delight the stranger. It is quite natural, therefore, that the foreigners who have thus far established themselves in Central America have sought residence in the uplands which are not only more healthful but where life is much more agreeable than in the hot coast towns. Rare, indeed, is the traveler who fails to praise the climate of Guatemala City, Tegucigalpa, Honduras or San Jose, Costa Rica. Innumerable other towns of similar type are found scattered throughout the hills and mountains, and as the journey to the warmer regions is such a short one, the foreigner finds the highlands the most logical place for his home.

In the consideration of conditions effecting immigration to Central America it will be noted that these differ materially from those of other countries, particularly the United States. At the ports of this country arrive annually more than a million people, the great majority of whom are illiterate and unskilled. Even in the United States opinion is divided as to our ability to assimilate this vast influx of foreigners. The reason for its mention in this connection is that conditions may be contrasted with those prevailing in Central America.

It is safe to say that an immigration of a similar character to that now coming into the United States to the Central American

Republics would menace, not only the republics themselves, but serious danger would in turn threaten the United States, paradoxical as this may seem. Its evil effects would be quickly recognized in its effect on the governments themselves, as the conditions that prevail in Central America would not permit of such assimilation. If an immigration of that character were turned in the direction of Central America for any length of time, there would be serious danger of the population of these republics being outnumbered and the establishment of large colonies of illiterate people would be a serious menace to each of the republics as well as to all America. The problems confronting our own immigration officers, such as the exclusion of diseased, infirm and pauper immigrants, would become even greater ones for the statesmen of Central America.

Happily the danger from this source is comparatively small. This is due in a measure to the fact that such immigrants would find it exceedingly difficult to compete with the native peasant type classes who up to the present time have represented the element which has performed the labor of the country. As soon as economic conditions in Central America warrant an immigration of the character which has had such a marked effect on the republics of Argentine, Brazil and Uruguay in South America, the question will be a far simpler one. The earnest student of this matter is forced to the conclusion that sooner or later the Central American governments will be compelled to adopt methods similar to those now in vogue in South American countries in order to insure a proper development of their own countries. In the solution of this matter lie to a great extent the possibilities of the future, since it is logical that the economic prosperity of the countries will reflect great credit upon its statesmen and the incentive to bring this condition about is thus greater.

However, it must not be overlooked that the conditions under which the peasant or native classes of Central America live are far from attractive to the foreigner. Their ability to earn a reasonable wage is also greatly affected by the distressing economic situation, since wages are very small and it has been necessary for the native to sustain himself and his family on the merest pittance. Although their requirements are comparatively limited, due to the prodigality of nature, education and better environment would exercise a very material effect on this great class now forming such

an important part of the population of all Central American countries.

The development of immigration is to be greatly desired, since the indirect effect which that influence would exert cannot be overestimated. Consequent to the development of the natural resources and industries of the countries will come an increasing scarcity of labor. The employment of coolie labor which may then be attempted, as it has been in other countries, is fraught with danger to all concerned and is of equal concern to the people of Central America as to the residents of the United States. It is to be supposed, of course, that any contracts with the oriental employers of labor, will be drawn in such terms that there can be no evasion of the conditions stipulated therein. Unless this were done there might result the establishment of oriental colonies in America with the consequent problems which would unquestionably arise with reference to sanitation, government, etc. It is not unreasonable to believe, however, that the difficulties of such a situation will be obviated by careful administration and will doubtless be altogether avoided.

The immigration which has been encouraged, even under present conditions, to some extent has been that of a certain type of workmen, the skilled mechanic, small capitalist or individual with large means. As in practically all Latin-American Republics the individual without means of support during the first six months or year's residence is exposed to risk of non-employment, hence the immigrant should not fail to provide himself with sufficient funds to maintain himself during that period. While up to the present time the individuals who have established themselves in Central America have been largely of the investing classes, they were in many instances upon their arrival but indifferently provided with means. The most successful, generally speaking, are those who have been sufficiently well provided with funds with which to invest in mercantile, agricultural or mining ventures. In this connection a sketch of the immigrant, his purposes, etc., is quite pertinent. The Spaniard, of which nationality many have established themselves in Central America, is generally quite poor upon arrival. The business in which he is most frequently found is that of breadstuffs. By dint of energy, perseverance and economy he frequently rises to positions of importance in the community.

The Italian is of a similar type and he too is an important factor in the branch of food supplies, restaurant businesses and similar vocations. The Frenchman usually engages in the dry goods line, and of this class there are many examples in every large city of Central America. The German may be said to dominate the hardware trade, and with more frequency than any other nationality engages in the plantation business. The development of the mineral resources, the organization of banks and railroads has been to a considerable extent controlled by the British. The Americans have to a great extent been interested in all the vocations mentioned, but especially in mines, railroads and plantations, while the obtaining of concessions for the taking out of timber and valuable dyestuffs generally has been almost exclusively monopolized by them.

The truism that trade follows the flag is another vital reason for American interest in the immigration to Central America. The great business of Germany with Guatemala, the commerce of which is almost exclusively in the hands of Germans, is an instance of this fact. Reference may also be made to the trade which France enjoys with the Republic of Salvador, the merchants of whose capital, San Salvador, are largely French. Notwithstanding the proximity of Central America to the southern boundaries of the United States, it behooves the merchants of this country to bestir themselves if they are to enjoy a proportionate share of the business of Central America; and the encouragement of American immigration to those republics will result in an increased demand for the products of the home country.

Another phase of the problem of immigration is that of the social side, for the natural characteristics of foreigners frequently find expression in their relations with those around them. The German in Central America as in other lands where he takes up his residence, adapts himself perfectly to the native customs and conditions of the people. He is invariably a strong factor in the social economy of his adopted home and the ties are frequently strengthened by his intermarriage with natives. This is to a lesser extent true of the French, while the English and Americans are noted for maintaining their racial and national unity.

Reference has already been made to the misunderstandings and difficulties which are likely to arise by reason of the failure of Americans to recognize the nice social distinctions so clearly

drawn by Latin-American people. The foreign resident, no matter of what nation, by a thorough understanding of the people, a recognition of their customs, and an acquaintance with the language of the people, will accomplish for his country far more than any expression of friendship through diplomacy or treaty. This phase of the subject is one with which the people of the United States are particularly concerned, since by the encouragement of citizens of their own country to recognize this basic principle they will do more to allay the antipathy on the part of Central Americans towards the United States than by any other means which might be taken.

This article is by no means an attempt to offer a solution for the vexing subject of immigration into Central America. It is merely an effort to point out certain facts which are of the greatest weight in dealing with the topic. The problem is one of tremendous import. Indeed, too much importance cannot be placed upon this question. The intelligent consideration by Americans of the local issues involved, of its general principles and of its relation to the United States will do much towards contributing to a better understanding between the people of Central America and those of the United States.

# BOOK DEPARTMENT

## NOTES

*American Labor Legislation Review.* Pp. 143. Price, $1.00. New York: American Association for Labor Legislation, 1911.

The first issue of a new quarterly publication, the "American Labor Legislation Review," has just been issued by the American Association for Labor Legislation. It contains a series of articles invaluable to everyone interested in the social problems that agitate society to-day. Among the contributors to this first issue are Henry W. Farnam, Charles R. Henderson, Mrs. Florence Kelley and others of prominence in the field.

**Baikie, J.** *The Sea Kings of Crete.* Pp. xvi, 274. Price, $2.00. New York: Macmillan Company, 1910.

A popular book on Crete which would give a connected account of the discoveries of the last fifteen years has been much desired, and that need is here met. The writer is not an archæologist, and he is apparently unacquainted with the literature of his subject written in any other language than English. Thus the work of the Italians, Halbters and Pernier is known only from notices of it in English; and the important articles of the Germans, Dörpfeld and Kors not at all. But the writer has, nevertheless, compiled a very readable book. After describing the work of Schliemann, he takes up the excavations in Crete at Cuossus, Phæstus, Hagia Triada, and lesser sights; discusses the relations of Crete with Egypt; the destruction of the Cretan cities; the periods of Minoan culture; Minoan writing, etc. The last half of the book is by far the best; the account of Minoan pottery is especially good. The chief criticism is that the writer often follows the first reports of an excavation, instead of the latter corrected reports, and this leads him to make occasional mistakes. The writer, too, should revise his spelling of proper names, and not give us Knossos at the same time with Mycenæ; and Aithra along with Ægeus. Nor should we have such hybrids as Phæstos and Amyklæ. Yet, in spite of these defects, the book serves a useful purpose and will no doubt be much read.

**Brindley, John E.** *History of Taxation in Iowa.* Two vols. Pp. xxvi, 969. Iowa City: State Historical Society, 1911.

In this era of state and local tax reform, the assiduous and sincere seeker after truth about fiscal machinery is often disappointed in works on taxation; because while the books cover the field they make no practical addition to a constructive program for the renovation of state and local revenue machinery. It is a great satisfaction to find in this voluminous but clear and interesting monograph on Iowa fiscal conditions a real program for the reconstruction of the antiquated system of taxation which prevails throughout the United States within the local divisions of the state.

This two-volume work has been written from an historical point of view. Its great value, however, lies in its forceful and illuminating exposition of the faults and difficulties of the present system. This is followed by a clear-cut argument for the improvement of the fiscal machinery through certain well-defined and concrete changes.

Beginning with an exhaustive account of the general property tax, the author reviews the various special forms of taxation in Iowa's fiscal system, and shows in the case of each the phases of evolution through which they passed. The second volume begins with a survey of railroad taxation—a scholarly and illuminating monograph in itself. Following this is the most interesting and valuable part of the whole work, namely, the general conclusions of the writer in regard to the whole system of taxation, based upon a wide range of experience and study. The revenue system in his own state is analyzed in a way that clearly reveals its defects and advantages. By a comparison with other state systems, the reader is permitted to judge for himself of its merits or demerits.

Aside from the clearly outlined picture of actual conditions, an extremely valuable contribution is made in a well-arranged set of reforms which the author presents as being applicable everywhere. He gets near to the heart of the whole trouble with fiscal conditions by declaring that what is most needed is a synthetic program of legislation and administration, based on the fundamental idea of centralization of state and local revenues. In other words, decentralization is a hodge-podge scheme—almost worse than no scheme at all, since little regard is paid to co-ordinating different sources of revenue in relation to the economic conditions of the particular commonwealth. As an added argument for this program, the advantages are shown of an expert permanent tax commission which looks to the regular readjustment of the fiscal machinery with the constantly changing economic conditions—a status that should always be desired and may be attained if the problem is properly met. The work, which is distinctly sane in both argument and treatment, sheds new light on many fiscal and economic fallacies that still vex the average American commonwealth.

**Brown, D. W.** *The Commercial Power of Congress.* Pp. ix, 284. Price, $2.00. New York: G. P. Putnam's Sons, 1910.

**Bruce, C.** *The Broad Stone of Empire.* Two vols. Pp. xlii, 1066. Price, $9.00. New York: Macmillan Company, 1910.

**Bull, C. L.** *Under the Roof of the Jungle.* Pp. xiv, 271. Boston: L. C. Page & Co., 1911.

In this book the author has combined his skill as an artist with the charm of a story teller and the knowledge of a naturalist. It is a delightful account of some of the animals and plants in the wilds of British Guiana. With sketch-book and color box, the author spent hours in the jungle and on the rivers studying the life about him. Although the habits and lives of the animals are given in the popular story form, there is no attempt at "nature-faking." With him we study the wonderful plants, watch the monkeys

racing through the tree-tops and listen to the roar of the jaguar at nightfall. All through the stories runs the sinister thread of the struggle for existence, each animal mercilessly preying and being preyed upon. The descriptions are made vivid by many excellent illustrations.

**Calvert, A. F.** *Catalonia and the Balearic Isles.* Pp. xv, 363. Price, $1.50. New York: John Lane Company, 1910.

Like the other volumes of this detailed series descriptive of the lions of Spanish architecture, over half of this volume is given to excellent pictures of the buildings described. Barcelona itself is shown as a great modern industrial city rapidly outgrowing its mediæval character, though wise enough to preserve its legacy of fine old buildings. For the traveler, however, the greatest charm of Catalonia lies in the too often slighted provincial towns. Gerona, Tarragona, and especially the Balearic Isles and the monastery of Montserrat are still in the period when the mediæval and ancient dominates the modern. Anyone who wishes to appreciate Catalonia either at home or with this book as a traveling companion will have cause to be thankful to the author.

**Chambers, J.** *The Mississippi River and its Wonderful Valley.* Pp. xvi, 308. Price, $3.50. New York: G. P. Putnam's Sons, 1910.

**Chittenden, H. M.** *War or Peace.* Pp. 273. Price, $1.00. Chicago: A. C. McClurg & Co., 1911.

General Chittenden has given the arguments for peace as well by dissecting and replying to arguments for war as by marshalling the evidence against armed conflicts. Particularly happy is the use of statistics which have been woven into the discussion in such a manner as to stand out strikingly, without at any time, wearying the reader. Many of the ideas are similar to those contained in Europe's Optical Illusion, to which the author makes a laudatory allusion (p. 204). World federation is proposed as the solution of the problem of disarmament. In the meantime, the author would have us increase our naval strength to be prepared for possible conflicts which lower on the horizon, and so as to be in a position to aid more effectively the cause of peace. Although it can lay claim to little originality, the book is interesting and readable. General Chittenden may be considered to speak with authority upon military matters as he is a graduate of West Point and served as Chief Engineer of the Fourth Army Corps during the Spanish-American War.

**Choate, J. H.** *Abraham Lincoln and Other Addresses in England.* Pp. xii, 293. Price, $2.00. New York: Century Company, 1910.

Mr. Choate's services as Ambassador to Great Britain were brilliant. The instructions given him by President McKinley "to promote the welfare of both countries" caused Mr. Choate to prepare with special care a series of addresses upon distinguished Americans—Lincoln, Franklin, Hamilton, and Emerson—and upon our two most notable institutions, the Supreme Court and our public educational system. These essays together with five other less formal addresses are brought together for publication. Mr.

Choate's learning, his rich life experience, his mastery of English and of the art of public speaking, and, most of all, his dignified patriotism combine to give charm and force to these addresses. These qualities of Mr. Choate were, possibly, put to the severest test and were shown in their strongest light in some of his responses at notable dinners given in his honor. The address at the dinner given Mr. Choate by the Bench and Bar of England at Lincoln Inn, and the response made at the farewell banquet given him by the Lord Mayor of London may well be studied as models of grace and dignity.

**Davenport, E.** *Domesticated Animals and Plants.* Pp. xiv, 321. Price, $1.25. Boston: Ginn & Co., 1910.

The title of this book does not adequately express the trend of its substance, for Dean Davenport has here presented the problem of character transmission and evolutionary development in a most lucid and attractive fashion.

The materials dealt with are primarily domesticated animals and plants, but this is made the pedagogical basis for interpretation, in terms of common experience, of the philosophical phases of heredity. Even that somewhat recent departure in evolutionary study, the statistical treatment of heredity—yet but imperfectly understood by many biologists, is presented in intelligible fashion to secondary school pupils.

Davenport has drawn freely both from Mendel's and from Pearson's school and unhesitatingly combines data expedient to his ends from either of these schools. He has given the whole matter a marked humanitarian "twist," thus conveying knowledge and impressions applicable to man which, from the nature of the case, could not be taught directly. Five chapters on the origin of domesticated races of plants and animals close the volume.

**Diefendorf, Mary Riggs.** *The Historic Mohawk.* Pp. xiv, 331. Price, $2.00. New York: G. P. Putnam's Sons, 1910.

The Mohawk Valley as an example of a "gateway" to the interior of a continent has become almost a classic in America, and its significance to the development of the country and of the State of New York is well known. A satisfactory account, however, of the settlement and political and economic development of this interesting valley has not been at hand. This volume gives a connected account of the history of the valley from the days of the Iroquois to the building of the Erie Canal. Written from the point of view of the local historian and with local readers in mind, there are many omissions that the general reader regrets, especially in regard to the economic activities of the people. Yet, on the whole, the life of the early settlers is well depicted, and many facts of interest can be found concerning early trade and commerce and social customs as well as the more striking events of the history of settlement and warfare and early struggle. It is to be regretted that the author has not more often cited her authorities, as some of her statements are open to question.

*Documentary History of American Industrial Society.* Vols. VII, VIII and IX. Pp. 1078. Cleveland: A. H. Clarke Company, 1910.

**Domville-Fife, C. W.** *The Great States of South America.* Pp. 235. London: G. Bell & Sons, 1910.

This hand-book covers the leading states of South America, Argentine, Brazil, Bolivia, Chile, Peru, Paraguay and Uruguay. To these is added a chapter on Guatemala, because of the importance of that state in the affairs of Central America.

Much information in brief form is given concerning each country, but its conciseness makes it none the less readable for one interested in South America. The main topics covered are a general description of the country and its climate, chief towns and cities, resources, industries, means of communication and transportation, commercial development and relations, and a discussion of the conditions surrounding government concessions. The point of view in treating these topics is, first, to give an idea of the state of progress in each country, and second, to indicate the chances for the profitable investment of capital and the extension of commercial activities in South American fields. The fact that these items are considered from the British standpoint makes the book no less valuable for the American capitalist or exporter. Many American business men would find this volume well worth consulting.

There is a welcome absence of statistical data such as is readily obtainable from any one of several sources. By this wise omission much valuable space is saved for the plain statement of less easily secured and more valuable information. The book is a concise account of resources and conditions and is greatly enhanced in usefulness by the good maps accompanying the different chapters. Nearly fourscore well-chosen illustrations add attractiveness to this very successful volume.

**Dugdale, R. L.** *The Jukes.* (4th edition.) Pp. v, 120. Price, $1.50. New York: G. P. Putnam's Sons, 1910.

Again this well-known scientific study is republished with an introduction by Franklin H. Giddings, calling attention to the importance of this and similar studies. It is now generally accepted that there are in the United States, as in various countries, a number of racial stocks perpetuating inherent defects. No more complete study has ever been made than that of the Jukes—a New York family—yet it is unfortunate that in this latest edition statistics and conclusions were not prepared along more modern lines. While they already insure satisfactory results, they might, nevertheless, be made much more effective by a thorough revision.

**Eastman, C. A.** *The Soul of the Indian.* Pp. xv, 170. Price, $1.00. Boston: Houghton Mifflin Company, 1911.

For many years a Sioux Indian (Ohiyesa) the author of this volume has, by essays and speeches, attempted to interpret the life of the Indian to the white man. This little volume will, therefore, be found of great interest, for, in it the author seeks to describe the inner motives of the Indian's life. The attempt is worth while and the result is valuable, even though one wonders at times how much of it is really so and how much of it is the

reflection of the man upon boyhood conditions, of a man, moreover, the civilization of whose people has been largely destroyed and who naturally idealizes much of the old life and attitude.

**Elderton, W. P. and E. M.** *Primer of Statistics.* Pp. vii, 86. Price, 60 cents. New York: Macmillan Company, 1910.

To those who wish to become familiar with the simple principles and methods involved in the study of statistics, with only a minimum of the mathematics of the science, this little volume will be welcome. The authors believe, and rightly, that a study of averages or types, with the variations from type and a method of measuring these variations, together with a study of the subject of correlation, form the fundamental subject-matter in statistical science. The discussion of principles is based on concrete illustrations which are carried from chapter to chapter in a clear and logical manner. The book suggests the best method of approach to teachers of statistics.

**Fairlie, J. A.** *A Report On the Taxation and Revenue System of Illinois.* Pp. xv, 255. Danville, Ill.: Illinois Printing Company, 1910.

This very carefully worked out report of the Tax System of Illinois was prepared for the benefit of a special Tax Commission called to investigate the frequent complaints as to inequalities, and to consider the efficiency of the state systems. In comparison with the reports of the various permanent state tax commissions, this volume is noteworthy for its excellent presentation of facts, its paragraphing of subjects and its illustrative use of tables. While the Illinois system is the center of discussion, the comparisons drawn with other systems are illuminating. In probably no other way can a tax system be shown to be deficient than by comparison with the systems of neighboring states with practically the same economic and political conditions. This method of comparison is carried to the length of showing the actual workings of practically every state system, notably in regard to corporation taxation. Probably the most valuable contribution is the forceful summary of Illinois conditions, an indication of the defects of the system, and recommendations of concrete changes. The most novel portion of the volume is a comparative review of State boards of equalization and tax commissions. It is rare that one finds so much practical information and discussion in so small a volume.

**Fernow, B. E.** *A Brief History of Forestry in Europe, the United States and Other Countries.* Pp. x, 374. Price, $2.50. Toronto, Canada: By the author.

**Hackett, F. W.** *Reminiscences of the Geneva Tribunal of Arbitration, 1872.* Pp. xi, 450. Price, $2.00. Boston: Houghton Mifflin Company, 1911.

**Haddon, A. C.** *History of Anthropology.* Pp. xix, 206. Price, 75 cents. New York: G. P. Putnam's Sons, 1910.

To condense into a few pages that shall be anything more than a mere synopsis of names and dates, a sketch of so great a field of human knowledge is no small achievement. Dr. Haddon has done well, and this little

volume will give the general reader a good glimpse of the work of the various men who have developed our knowledge of man's evolution. His descriptions and valuations of the men are very fair, though the American reader may perchance feel a bit surprised that Professor Ripley, whose book on the "Races of Europe" is one of the best, is only once mentioned, and that, as it were, incidently. A very convenient and useful manual.

**Henderson, C. R.** (Ed.). *Correction and Prevention.* Four vols. Pp. cxvii, 1490. Price, $10.00. New York: Charities Publication Committee, 1910.

**Hollander, J. H.** *David Ricardo—A Centenary Estimate.* Pp. 137. Baltimore: Johns Hopkins Press, 1910.

**Jackson, C.** *Unemployed and Trade Unions.* Pp. xii, 92. Price 50 cents. New York: Longmans, Green & Co., 1910.

Writing from a wide personal experience with the administration of unemployed relief, the author suggests that the administration of such relief be entrusted largely to the trade unions. A brief discussion of the problem of unemployment is followed by a thorough analysis of relief works, labor exchanges, unemployment insurance, and an education for higher efficiency. The author is convinced that only through the co-operation of the trade unions can any of the theoretical remedies for unemployment be effectively applied, and he is as firmly convinced that the labor unions are not only worthy of confidence but sufficiently competent to administer unemployment relief.

**Johnson, R.** *A History of the War of Secession.* Pp. xiv, 574. Price, $2.00. New York: Wessels and Bissell Company, 1910.

**Johnston, R. M.** (Ed.). *Napoleon Bonaparte, The Corsican.* Pp. vi, 526. Price, $1.25. Boston: Houghton Mifflin Company, 1910.

A unique contribution to Napoleon literature has been made by Professor Johnston in the above work—nothing less than an attempt to create an autobiography by putting together in the form of a diary, extracts from his speeches and writings, arranged chronologically under the appropriate dates. The result is not only intensely interesting but also instructive. The absence of all notes and explanatory material, the mere juxtaposition of this great variety of opinions, comments and reflections in Napoleon's own words, uttered for the most part contemporaneously with the events they treat of, gives a vivid impression of his genius and versatility, and throws a strong light on his character and development. The work of selecting this material has evidently been laborious and certainly skilfully performed. Contradictions, deliberate misrepresentations and self-deceptions are found side by side with intimate glimpses of motives and self-revelations that give the intelligent reader a clear insight of the real man. It must be said, however, that a considerable knowledge of the history of the times and of the attitude of the other actors on the scene is necessary before the full significance of this "autobiography" can be appreciated. The items are

fragmentary; there is, of course, no thread of narrative. The English translation is excellent and it is only occasionally that Gallicisms slip in as in the extract under date February 5, 1799.

**Jordan, D. S.** *The Call of the Nation.* Pp. 90. Price, $1.00. Boston: American Unitarian Association, 1910.

An attempt which President Jordan is making to popularize scientific discussions is ably furthered by "The Call of the Nation," a call to the conservation of resources of human life and efficiency. Beginning with the proposition that politics (graft) must be taken out of politics, the author shows that there is no civic right without civic duty, and that the right which the present generation enjoys in the use of resources is correlated with a duty to transmit resources wisely used, not wantonly destroyed. One of the most interesting descriptions in the book consists in a contrast between the plague in England and in the United States and the varying methods of dealing with it in each case. The present volume should go far toward persuading the American people to see the imperativeness of the concept described by Irving Fisher as "posteritism."

**Judson, H. P.** *The Higher Education As a Training For Business.* Pp. 54. Price, 55 cents. Chicago: University of Chicago Press, 1911.

In this suggestive little volume Dr. Judson points out that the wide and varied training of the higher education enables the business man to adjust himself more readily to new economic and social conditions, and to approach business problems from above rather than from below. The higher education "supplies both knowledge and power. . . . . It broadens the circle of existence. It makes one a man of the world, at home anywhere and among any class of men."

Dr. Judson shows, further, that the higher education trains a man for the proper use of wealth as well as for its acquisition. To the highly educated man "wealth is a key which unlocks many doors, and he knows where the doors are and to what they lead." But he wisely adds that not all boys are of the right sort to go to college, and that, as a rule, boys should be *allowed* to go, and not *sent.*

**Kaye, P. L.** *Readings in Civil Government.* Pp. xvi, 535. Price, $1.20. New York: Century Company, 1910.

Many of the collections of readings which have appeared in recent years have borne no relation to any standard text, and hence have necessitated an effort of adjustment on the part of both teacher and pupil for their successful use. Often, too, the selections are made from material too advanced for the class of students for whose use they were intended.

Mr. Kaye has apparently had these two defects in mind. His book follows the arrangement of Forman's Advanced Civics. The material is drawn largely from the more popular discussions in the standard political and scientific journals. Documents are quoted sparingly—in fact, this is in no sense a "source book." Many of the discussions have been cut to eliminate technical portions, but this is done skillfully and in but few cases does the

material become fragmentary. In a few instances, however, notably the quotations from the Federalist, one feels that the abbreviation has made the material lifeless.

**Loch, C. S.** *Charity and Social Life.* Pp. xii, 496. Price, $2.00. New York: Macmillan Company, 1910.

**Martin, Mrs. John.** *Is Mankind Advancing?* Pp. xv, 302. Price, $2.00. New York: Baker and Taylor Company, 1910.

Mrs. Martin answers the question suggested in the title in the negative. The author chooses as the measure of progress the proportion of geniuses to the entire population. Incidentally, she states that the average inhabitant of Athens, whether freeman or slave, was probably better cared for than the average inhabitant of the United States to-day. Her main contention rests on the relatively higher proportion of genius produced by the Athenians There is, however, a difficulty in such comparisons. How are we to measure genius? How compare, for example, Washington and Alexander the Great? The method adopted must, of course, be purely arbitrary and dependent largely upon personal judgment. If, however, the simple measure suggested above be accepted, the conclusion logically follows that the Athenian civilization existed on a far higher plane than that of present-day American. To be sure, we have more things than they had, but the author considers this irrelevant to the main argument. The work is at least suggestive, if not conclusive.

**Matienzo, J. N.** *El Gobierno Representativo Federal en la Republica Argentina.* Pp. 469. Buenos Aires: Coni Hermanos, 1910.

In this volume Professor Matienzo has given us the best account at present available of the development of representative government in the Argentine Republic. He shows clearly how Argentine federalism developed logically from its Spanish antecedents. The strong sectional feeling which characterized Spanish political development of the eighteenth century is reflected in the growth of Argentine sectionalism of the nineteenth century.

Prof. Matienzo's monograph reflects great credit on Argentine scholarship, and it is sincerely to be hoped that a series of similar monographs presenting the course of the political development in the other Latin-American countries will be made available to American students.

**Mills, J. C.** *Our Inland Seas.* Pp. xii, 380. Price, $1.75. Chicago: A. C. McClurg & Co., 1910.

**Murray, W. S.** *The Making of the Balkan States.* Pp. 199. Price, $1.50. New York: Longmans, Green & Co., 1910.

There are on the face of the globe certain spots where the conflicting interest of the great powers focus. In the Far East, China, and more particularly Manchuria have recently become such. The Balkans, in the Near East, have been for centuries such a point. Dr. Murray has carefully studied the historical situation in this territory since the treaty of Kainardji up to the present time. He has been able to preserve the relative importance of the

principal international events which have taken place, and has presented the main points necessary to a clear understanding of the development of the situation in a readable form. The study, above all, impresses one as clear, interesting and scholarly. It is, perhaps, to be regretted that so little space relatively is devoted to the more recent events for the consideration of which the way is so well paved.

**Nychara, G. E.** *The Political Development of Japan, 1867-1909.* Pp. xxiv, 296. Price, $3.00. New York: E. P. Dutton & Co., 1910.

**Patten, S. N.** *The Social Basis of Religion.* Pp. xvii. Price, $1.25. New York: Macmillan Company, 1911.

**Pease, C. S.** *Freight Transportation On Trolley Lines.* Pp. 62. Price, $1.00. New York: McGraw-Hill Book Company, 1909.

This admirable little volume of sixty pages deals in a concise and authoritative manner with the problems involved in freight transportation on trolley lines. Within a small space the author has crowded a large amount of information useful not only to street railway managers, but to investors and others interested in electric railway properties. The chapters of the book deal successively with the canvass of the territory; preparation of maps and statistics; determination of routes and time schedules; location, arrangement and construction of stations and depots; relative advantages of various types of cars; the location of side tracks; the training of employees; fixing of classifications and rates; relations with the Interstate Commerce and Public Service commissions; the development of a system of accounts and stationery; relations with connecting lines; the package system, and the attitude of the company towards the public as regards freight traffic. The volume is well worth careful study by anyone interested in the subject.

**Phillips, J. B.** *Freight Rates and Manufactures in Colorado.* Pp. 62. Price, 75 cents. Boulder: University of Colorado, 1909.

The cities of the Rocky Mountain district have for many years complained that the railways have discriminated against them to the advantage of Pacific Coast points and points in the Middle West and East. In this monograph Professor Phillips presents a concise history of the relation between freight rates and the manufactures of Denver. The testimony of manufacturers and merchants is given to show the policy of rate discrimination in the paper, saddlery, match, soap, iron, powder, glass, carriage, building material, furniture, cement and terra cotta, grocery and coal mining industries. The policy of the carriers is further shown in the testimony of railroad freight agents.

The work is strictly historical and does not go beyond 1896. Professor Phillips, however, says that "since 1896 there has been much improvement in the attitude of the transportation companies toward the development of Denver as a manufacturing and distributing center, but as yet the freight rates are far from satisfactory and the evil effect of the old rates on the city's growth has not been obliterated."

**Reid, G. A.** *The Laws of Heredity.* Pp. xi, 548. Price, $5.00. New York: Macmillan Company, 1910.

**Ries, H.** *Economic Geology.* Pp. xxxi, 589. Price, $3.50. New York: Macmillan Company, 1910.

The appearance of a third edition of this leading text-book on Economic Geology is sufficient evidence of its merit. Though materially different from the earlier editions, its plan remains the same. Every useful mineral is allotted space in proportion to its importance. The non-metallic minerals are discussed first, partly because of greater importance, partly because the explanation of their occurrence is simpler than in the case of the ores. The advantages of this order of treatment amply justify its retention.

The revision of the book consists mainly in the addition of new material, in accordance with the rapid advances made in the knowledge of the subject. This new material deals mainly with the general principles of economic geology, as on the side of the origin of minerals deposited, but it also includes some new accounts of individual deposits. The statistics, of course, have also been brought up to date, and important recent contributions to the literature of the subject have been added to the extensive bibliographies accompanying each chapter. It is quite impossible to discover any germane question concerning mineral deposits which is not adequately treated.

The detailed table of contents and elaborate index add not a little to the usefulness of this always valuable book which careful revision has made more valuable than ever.

**Robinson, E. V.** *Commercial Geography.* Pp. lix, 455. Chicago: Rand, McNally & Co., 1910.

**Seligman, E. R. A.** *The Income Tax.* Pp. xi, 711. Price, $3.00. New York: Macmillan Company, 1911.

**Shaw, R.** *Spain from Within.* Pp. 327. Price, $2.50. New York: F. A. Stokes Company, 1910.

Though an anti-clerical tone pervades this interesting book it is valuable because it gives facts which no other author has presented. The viewpoint of the peasant predominates, especially his spite against the church which by becoming a large tax-free land owner has made the burdens he must bear the greater. Not against the Catholic Church, but against the "clerics" is the feeling most bitter, in fact the great majority of the Spaniards are still loyal followers of Rome. The farce of elections under the Caciques or boss system, the eternation of ministries by agreement, the tremendous burdens of the consumption taxes, the government monopolies and the helplessness of the struggle for better conditions so long as the present illiteracy continues are pictured in vivid but rather sketchy style. Though not a thoroughgoing study of Spanish conditions, it presents instructive glimpses of Spanish national life unsurpassed in either English or Spanish. At the end of the book is an appendix which summarizes the chief facts concerning the leaders and parties of Spain.

**Silburn, P. A.** *The Governance of Empire.* Pp. xi, 347. Price, $3.00. New York: Longmans, Green & Co., 1910.

**Snedden, D.** *The Problems of Vocational Education.* Pp. vi, 85. Price, 35 cents. Boston: Houghton Mifflin Company, 1910.

**Thompson, S.** (Ed.) *The Railway Library, 1909.* Pp. 403. Price, 75 cents. Chicago: Gunthorp-Warren Printing Company, 1910.

This annual volume issued by the manager of the Bureau of Railway News and Statistics, contains a number of papers and addresses on railway matters mostly of the year 1909, and a lengthy section dealing with current railway statistics. The papers include a chapter on the "Pre-Railway Era in America," by F. A. Cleveland and F. W. Powell, and the First Annual Report of the Chief Engineer of the Pennsylvania Railroad, as an historical background. They also include a paper on the "Diminished Purchasing Power of Railway Earnings," by C. C. McCain, and on "Railway Mail Pay," by Julius Kruttschnitt. The addresses include a speech on the Railways of the Northwest, by J. J. Hill; Southern Railways and Their Needs by J. E. Wallace; Problems Confronting American Railways by Daniel Willard; The Railroad Situation of To-day by Frank Trumbell, and other addresses by A. H. Smith, E. P. Ripley, J. C. Spooner, J. B. Thayer, W. M. Acworth and Sir George S. Gibb.

**Trine, R. W.** *The Land of Living Men.* Pp. xxii, 288. Price, $1.25. New York: Thomas Y. Crowell & Co., 1910.

"In the Fire of the Heart," by the same author, is here re-written and renamed. The scope of both books is the same, and the material largely similar, although in the present volume it is brought up to date.

**Van Wagenen, A.** *Government Ownership of Railways.* Pp. ix, 256. Price, $1.25. New York: G. P. Putnam's Sons, 1910.

This book is an earnest expression of the convictions of one who believes unreservedly in the government ownership and operation of the railroads in the United States. It was written to convince its readers that government ownership is now an accomplished fact in most countries of the world, that the movement for complete nationalization was never so active as at present, that the sentiment in favor of nationalization of the railways is stronger in this country than it is generally supposed to be, and that when government ownership comes in the United States it will be brought about suddenly. In defence of this position the author presents a brief history of nationalization and then sets forth the weakness of private management and the advantages of government ownership and operation of the railroads.

It is to be regretted that the author's scholarship was inadequate to the task undertaken. Whatever position one may hold upon the general question of nationalization of railroads, it is important that the subject should be discussed affirmatively and negatively by those whose statements of fact are beyond question. Moreover, the author's treatment of history is defective in places. An advocate of railroads whose knowledge of history is superficial, whose tendency is to disregard the political problems of state administration of railroads, who assumes that state management will be more economical and

more efficient, and who has no doubt about the financial success of the nationalization of railroads in the United States is one whose arguments will make but slight appeal to those who have given careful study to the difficult problems of railroad regulation and nationalization as they present themselves in the United States.

**Vrooman, C. S.** *American Railway Problems in the Light of European Experience, or Government Regulation vs. Government Operation of Railways.* Pp. viii, 376. Price, 6s. London: Oxford University Press, 1910.

This is a journalistic, but very readable, account of state and federal regulation of railroads in the United States and an argument in favor of working towards ultimate federal ownership and operation of all the railroads within the country. The author has a general but not profound knowledge of his subject. For the most part, his statements of facts are accurate; although, at times, especially in discussing the work of the Interstate Commerce Commission and in explaining how nationalization came about in Prussia (pp. 66-72) his superficial information leads to a misconception of events.

Mr. Vrooman believes that we should hasten to enact "those preparatory measures which are necessary, if the future transfer of our railways from private to public hands" is to be accomplished without "upsetting our entire business and industrial equilibrium." He believes a commission of experts should be created to study the problem. The author realizes that the government "cannot raise wages, shorten hours of labor, improve the service it renders, and decrease the remuneration it demands for that service without noticeably increasing the percentage of its earnings which must go for working expenses." This, however, is not a "conclusive argument in favor of private ownership;" at best it only goes "to show that private roads *could* give lower rates, better service, shorter hours of labor, and higher wages than government roads, but that they *will not.*" "The *supreme* advantage of government roads, therefore, would seem to consist . . . in the emancipation of the people, rich and poor, from their present economic subjection to the irresponsible power of railway magnates."

The book was written just before the passage of the Mann-Elkins Act of 1910. Possibly, the provisions of that law and the decisions of the Interstate Commerce Commission in rate advance cases might have given Mr. Vrooman some hope of the ultimate success of government regulation in the United States; but it is more than probable that he would still have considered "government control of private railways an experiment which never yet has proved permanently satisfactory in any country of the world."

**Walker, A. H.** *History of the Sherman Law of the United States of America.* Pp. 320. Price, $2.00. New York: The Equity Press, 1910.

The author, a member of the New York bar, has rendered all students of the trust problem a real service. The book is a detailed history of the Sherman anti-trust law, including an account of its antecedents, its passage through Congress, an analysis of its provisions and a discussion of the numerous cases that have been decided under it during the administrations succeeding its passage. The volume concludes with a forecast as to the probable out-

come of the Standard Oil and American Tobacco cases now pending in the Supreme Court. His opinion, based on the personnel of the present court, is that the government's position is likely to be upheld.

The Sherman law has never been amended and it is the author's belief that it "is not likely to be repealed or altered. It has been adjudicated in nearly a hundred judicial decisions and has been held by the Supreme Court to be clearly constitutional and broadly comprehensive." In his opinion the law represented the national will at the time of its passage and is still "clearly concordant with the national will of the twentieth century." The book is timely, comprehensive and illuminating. Its style is suitable for both layman and lawyer.

**Ward, H. D.** *A Voice from the Congo.* Pp. xvi, 330. Price, $2.50. New York: Charles Scribner's Sons, 1910.

Beyond question this is one of the most readable and interesting volumes dealing with the Negroes of Africa. It consists of a series of sketches, now a paragraph, then a chapter in length. The stories are well told. Perchance the great acomplishment of the author is that he portrays to us human beings with whom we gain sympathy even though we laugh at absurd mental attitudes or shudder at their cruelties. We seem to feel that the "Savages are but shades of ourselves," to borrow the quotation from Ovid cited by the author.

Wandering into Africa as a young man in search of adventure, he remained as hunter, traveler, official for five years. "Commencing in this casual manner, I found myself gradually drawn into serious reflections, and I became imbued with a profound sympathy for African human nature." Village scenes, elephant hunts, forest dramas, animal stories, follow in no special order, yet each gains and holds the reader's attention.

The volume contains many attractive illustrations of native life and art, including a number of photogravures of bronze pieces executed by the author which indicate decided artistic ability.

**Waring, L. H.** *The Political Theories of Martin Luther.* Pp. vi, 293. New York: G. P. Putnam's Sons, 1910.

"We must recognize in Luther not merely a prophet or a forerunner, but the founder of the modern theory of the state." "Luther is the founder of modern liberty." This is not underestimating the political influence of the great Saxon reformer. Mr. Waring's work includes in the discussion of every element of Luther's political thought, a gleaning of the thought of previous writers on the same subjects. In itself this is conclusive of what generally is the accepted estimate—that Luther contributed comparatively few ideas to political philosophy, that his work on these lines was chiefly that of an agitator and that he used to support his contentions with the writings of political thinkers from Aristotle to Marsiglio. But Mr. Waring, like many of Luther's commentators, becomes so enthusiastic over his subject that he overlooks the fact that Luther's theories were the product of an historical development and that especially those that refer to politics were adapted by him to fit the con-

ditions confronting him and were not the enunciation of a previously thought-out philosophy. Luther's attitude toward the peasant revolt and the Anabaptists which the author seeks to excuse is only an extreme illustration of this fact. In political philosophy Luther was at most an interpreter, to a very small degree a creator.

This defect of emphasis is the chief criticism of the author's discussion. Each chapter brings out from the secondary authorities the best opinions on the subjects under consideration. Often the discussion bears rather remotely on Luther. In the first fifth of the book there is little which bears directly on the reformer or his work. The chapter on the Nature and Origin of the State, for example, cites Luther in but two paragraphs. There are throughout copious quotations, including several from Washington's address, the bearing of which is uncertain.

**Zueblin, Charles.** *Democracy and the Overman.* Pp. 217. Price, $1.00. New York: B. W. Huebsch, 1910.

This volume consists of eight popular essays with the following wide range of titles: "The Overspecialized Business Man," "The Overestimated Anglo-Saxon," "The Overcomplacent American," "The Overthrown Superstition of Sex," "The Overdue Wages of the Overman's Wife," "The Overtaxed Credulity of Newspaper Readers," "The Overworked Political Platitude," and "The Overlooked Charters of Cities."

In these essays the author decries in turn: the frequent lack of courage, culture and character in the typical man of business, the characteristic conceit of the Anglo-Saxon who does not realize that it has been opportunity alone that has given his race its present favorable position; the snug complacency of many Americans who believe that whatever is, is right; the superstition that woman was made for man; the economic dependence of woman on man due to the fact that woman's work in the home is seldom put on a wage basis; the low morality of a press controlled by its advertisers; the hollow mockery of the recent Republican and Democratic platforms which side-stepped every issue of fundamental importance to the American people and finally, the lamentable conditions of municipal government due among other causes to the traditional separation of executive and legislative functions in city government. (The author is an advocate of the commission plan of government.)

Each subject is handled in the author's characteristic style which is popular and virile. The Overman is described as "an aggressive, self-satisfied megalomaniac, the offspring of business and finance, but he is the best we have. He only needs the discipline of democracy. He is the boss of *hoi Polloi;* he must be made the servant of *Demos.*" . . . "The curse of the overman is mastery without service." A spirit of optimism and idealism pervades the book. The author believes that if intelligent Americans but abandon their overcomplacency long enough to reason independently of purse or superstition, they will find that "the final outcome and consummation of all wealth is in the producing of as many as possible full-breathed, bright-eyed and happy-hearted human creatures."

REVIEWS

**Angell, Norman.** *The Great Illusion.* Pp. xvi, 388. Price, $1.50. New York: G. P. Putnam's Sons, 1910.

The great problem of disarmament, looked at from the point of view of the economic futility of war, is the motive of this most delightfully written and well constructed book. The author is as logical as he is interesting, selecting with consummate skill his material so as to show that even the victorious nation will find it has grasped a phantom instead of economic advantages. In this day and generation, the invader cannot dispossess the landowner, but, no richer than before, will merely collect the taxes to carry on the government as heretofore. The nation covetous of colonies will find they cannot be used to the advantage of the holding state, but are and must remain in reality self-governing. Even an indemnity upon closer analysis proves to be a bane by raising prices at home and curtailing exports, at the very moment the prostrate nation feels the stimulus of a great trade revival. Our present misconceptions are shown to be due in part to our reliance upon the false analogy between the state and the individual. It is admitted that all advancement comes from the survival of the fittest, but the struggle is with the forces of nature and not man with man; for man must co-operate with man in the struggle against the forces of nature. The nation no longer represents the true alignment of world forces, for important interests such as finance and labor have become worldwide in their action.

All this and much besides which the book has to tell is worthy of consideration and will help every open-minded person to reach his conclusions upon this vital question. Let us hope that we may have an equally able presentation of the other side of the question. Not everyone will agree with certain of the statements made—as, for example, that the citizen of a small country receives the same consideration as one from a great empire. The mere fact of being a citizen of a great world power, like being well dressed, is one of the most powerful aids to success and consideration wherever one may go. Again, the great advantage which the world powers are struggling for is a part control in the direction of the different lines of industrial activity. They feel that such control brings opportunities for the employment to advantage of the resources of the nation, in brains, men, and capital.

At the same time that various interests are organizing without regard to national frontiers, the nations are slowly coalescing into groups and working out ever larger and larger systems of administration. Were these groups to be formed peaceably, and without dread of war, ultimately to be joined in one world administration, much inherent weakness would be cloaked, and an internecine strife, vastly more destructive than our own Civil War, would be the penalty; but building as they now do with the fear of war always present, every state knows that the efficiency of its system must be ready to stand the severest of tests—armed conflict. Perhaps, still, some wars may be necessary to demonstrate the rottenness of a system, like that

of Napoleon the Third's, which imposes upon the multitude. The administrative system capable of providing an adequate civil and military organization for a vast empire may serve to point the way to a world government.

In line with the characteristic sobriety which presides over his treatment of the subject, the author declares that "so long as current political philosophy in Europe remains what it is, I would not urge the reduction of our war budget by a single sovereign or a single dollar." In other words, being still under the dominion of false ideas which govern the minds of those about us, we must be prepared to defend ourselves from the action to which these fallacies may lead. Let us keep up a high degree of efficient armament; study this great question; and try to help others to reach a better understanding.

ELLERY CORY STOWELL.

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*The Cambridge Modern History.* Vol. VI, *The Eighteenth Century.* Pp. xxxiii, 1019. Vol. XII, *The Latest Age.* Pp. xxxiv, 1033. Price, $4.00 each. New York: Macmillan Company, 1909 and 1910.

With the appearance of the twelfth volume, the now well-known Cambridge Modern History is complete, so far as the narrative history is concerned. "The Latest Age," in the words of the prospectus, bringing "the history down to the last syllable of recorded time" to the point where history passes into action. Two supplementary volumes are still to appear; the first, an elaborate, historical atlas for the period; the second, composed of genealogical and other tables and the general index. But the historical writing for the work is before us, and it is appropriate in considering the last volumes to examine the work as a whole.

The plan to publish a comprehensive History of Modern Times in a series of volumes was decided upon by the Syndics of Cambridge University in 1896. At the time there was one man who by his position as regius professor of history at Cambridge University, by his broad culture and his careful training in the methods of the scientific historian was pre-eminently the man to direct the work. Lord Acton became the editor-in-chief, and at once threw himself into the task with much enthusiasm. Unfortunately he had time only to get his project well started when he died. But the plan had been sketched and it has been faithfully adhered to even though the unifying force of his master mind has been sadly missed.

This plan, it will be remembered, was to give to the world a co-operative history in which each important topic of a period would be treated by a foremost specialist, so that there would be a score or more of contributors for each volume. In this way it was hoped the work would be "history . . . as each of several parts is known to the man who knows it best." The period treated is the last four hundred years, an era, "which is marked off by an evident and intelligible line from the time immediately preceding, and displays in its course specific and distinctive characteristics of its own." We may or may not agree with the idea of an interruption to the law of historic progress in the fifteenth century, and we may believe that co-operative histories are

better done when more extended periods are assigned to the individual writers, but our present purpose is rather to point out the particular characteristics, the strong and the weak points of this monumental work in twelve large volumes of about one thousand pages each.

The subjects of the different volumes are as follows: Vol. I, "The Renaissance;" Vol. II, "The Reformation;" Vol. III, "The Wars of Religion;" Vol. IV, "The Thirty Years' War;" Vol. V, "The Age of Louis XIV;" Vol. VI, "The Eighteenth Century;" Vol. VII, "The United States;" Vol. VIII, "The French Revolution;" Vol. IX, "Napoleon;" Vol. X, "The Restoration;" Vol. XI, "The Growth of Nationalities;" Vol. XII, "The Latest Age." That there is anything original or suggestive either in the names or the periodization, even the most ardent enthusiast for the work would hardly claim. One sees the familiar divisions, the familiar nomenclature of the "Periods of European History," and one wonders if there has been no progress, nothing new, in the last two decades of historical study to justify at least an occasional deviation from the conventional outline. A treatment based more upon the evolutionary process of human progress might have furnished the unifying idea which is so conspicuously absent, not only in the work as a whole, but also in the individual volumes themselves.

The volumes of the Cambridge Modern History are not suited to giving one a connected or progressive survey of the particular field of history with which they deal. And herein lies perhaps the one great departure from Lord Acton's plan. That the idea of unity and of historic evolution was strong in his mind, we know, but the execution of the plan had to be effected without the fusing power of his master mind. On the other hand, it is very questionable whether he could, had he lived, have welded the diversified contributions of the sixty or more contributors into a well knit and united whole.

Details such as errors in statement of facts which occur occasionally, though considering the magnitude of the work infrequently; a displeasing unevenness between chapters which are necessarily side by side; an over-emphasis of political history as against the social and economic, certain unscholarly features in many of the otherwise remarkably fine bibliographies; all these have been pointed out as the individual volumes have appeared, and the last two volumes show no deviation from the earlier ones in these respects. They are "true to type." There is no point of view consistently held throughout the volumes, and in spite of Lord Acton's idea to "keep to the main line, attending to the byways at the junction only," we again have a great deal of matter that cannot but be classed as superfluous detail and unrelated facts. The broad comprehensive survey is again absent, particularly in the volume on the eighteenth century. In the last volume, "The Latest Age," however, the spirit of the contemporary era is manifest in a striking degree in many of the contributions and the work possesses an exceptional degree of unity. If the great dynamic forces are not defined and outlined for us, we are at least obliged to see and feel them in operation in an unusually vivid and intense manner, in every phase of recent development. Indeed the editors are to be congratulated on the exceptionally high standard of excellence of the bulk

of the chapters of this volume. Of especial merit is the chapter on the *French Empire* by Emile Bourgeois, Thomas Okey's study of *United Italy*, the survey of the *German Empire* by Hermann Oncken, Pollock on the *Modern Law of Nations* and Sidney Webb's study of *Social Movements*. For American readers, Mr. Westlake's account of the *Foreign Relations of the United States During the Civil War* is of particular interest, while the specialist in history will find the chapter by Mr. Gooch on the *Growth of Historical Science* suggestive and valuable. While the bibliographies are similar to those of the rest of the work, that of "The Latest Age," though remarkably suggestive and helpful, is of less permanent value because archives were in the main not available for this period, and critical studies have as yet not been made of even the most essential printed documents.

But when all has been said against the Cambridge Modern History it remains to acknowledge that it is a monumental work, supplying a much felt need. The manner of its making prevents it from being easily read consecutively because of the lack of continuity. Indeed very many of the individual contributions are too dry and detailed to be read. But by the side of these there are other monographs—for such the best of the contributions are—that are not only entertaining, but which afford the most thorough treatment of the topic upon the basis of the latest historical study of the period available.

W. E. Lingelbach.

*University of Pennsylvania.*

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**Davis, W. S.** *The Influence of Wealth in Imperial Rome.* Pp. xi, 340. Price, $2.00. New York: Macmillan Company, 1910.

**Tucker, T. G.** *Life in the Roman World of Nero and St. Paul.* Pp. xix, 453. Price, $2.50. New York: Macmillan Company, 1910.

That there has been a great revival in interest in Roman history in the past few years is attested not only by the establishment of chairs in ancient history in most of our leading universities but by the enthusiastic reception on the part of the public of the translation of Ferrero's works and the appearance of a considerable number of books in English dealing with various aspects of the Roman world. The notable monograph of Botsford on the Roman Assemblies is a constitutional study addressed only to scholars, while Heitland's three-volume work on the Roman Republic and Henderson's study of the civil wars following the death of Nero deal with political and military history; but the chief interest at present is naturally in the economic, social, and religious field, as may be seen by such books as Fowler's Roman Life In the Age of Cicero, Dill's Social Life From Nero to Marcus Aurelius, and Glover's Conflict of Religions in the Roman Empire.

To this latter class belong the books of Davis and Tucker. Neither one is an original contribution to our stock of knowledge. Both are addressed to the educated public and admirably fulfil their purpose of pre-

senting in an interesting and ordered manner information that lies buried for the average reader in such works as Schiller's, Seeck's, Boissier's and Friedlænder's, although the last named is being made accessible in a rather unsatisfactory English translation. Davis and Tucker followed different plans so that their books supplement each other. Professor Davis has confined himself to a presentation of economic conditions and their effects, especially in the period of the early empire. His introductory chapter on the business panic of 33 A. D. is a brief description of that event expressed in the language of the modern financial world and serves admirably to impress on the reader the similarity of the business and credit systems of that and our own day. This is followed by a study of the relations of politics and high finance during the later Republic, the extent and character of commerce and trade under the Empire, the accumulation and expenditure of great fortunes, the condition and occupations of the lower classes and the slaves, private munificence and the relations of the rich and poor, and marriage, divorce, and childlessness as affected by economic ideals and conditions. On all these topics constant comparisons with modern conditions add vividness and reality and redeem the book from any charge of aridity.

In his *Life In the Roman World,* Tucker takes his stand at the year 64 A. D. and surveys the various institutions of the Roman World at that particular moment, thus giving a certain concreteness to the picture. The first six chapters deal briefly with the political and administrative organization, while the remainder of the book is devoted to the social life of the different classes, the Roman house, daily life and amusements, education, religion, and the state of science, religion, and art. While there is little new in the book to one acquainted with Friedlænder's *Sittengeschichte,* it is written in an easy, colloquial style and excellently illustrated. The author appears to make a deliberate effort to write down to the understanding of his readers, but nevertheless a vivid picture is given of the pagan world in which St. Paul and his associates carried on the propaganda of a new religion.

A. C. Howland.

*University of Pennsylvania.*

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**Eliot, Charles W.** *The Conflict Between Individualism and Collectivism in a Democracy.* Pp. vi, 135. Price, 90 cents. New York: Charles Scribner's Sons, 1910.

This book comprises three lectures delivered at the University of Virginia under the Barbour-Page Foundation. The author uses the term collectivism to connote social control (not socialism) and contrasts it with individualism (*laissez faire*). The lectures trace in turn the rapid development of collectivism at the expense of individualism in three great departments of personal and social activity—industry, education and government.

The lectures show a great breadth of view as well as a depth of scholarship. Much of their value lies in their keen appreciation of live issues. This

is notably true of the lecture on education. His suggestions in this field are timely and authoritative. "The demands of democratic collectivism being in many respects novel and being also very various, and American schools and colleges having been built, like the English, on sixteenth century plans and models, it is obvious that profound modifications of the American educational system are necessary in order to meet these needs. . . . The idea that useful knowledge cannot be cultural must be dismissed. . . . Two of the most important educational movements of the last twenty-five years in the United States have had to do with young people who have passed the common school age, and with their parents and older friends. One of these is the movement for the use of public school houses as social centers, that is, as places where the youth and grown people of a neighborhood may find, without cost, or at trivial cost, pleasant, interesting and instructive occupations in the evenings. . . . This is not paternalism, or socialism, or an imitation of the 'Roman bread and games' for the populace. It is just intelligent and sympathetic educational collectivism, fighting evil and degradation with good. . . . The second movement toward continuous education and the provision of means of public enjoyment, intended to combat the evils accompanying concentration of population, is the movement in favor of playgrounds, open-air parlors, bathing places, boulevards, gardens, and parks. It is only by collective action through the use of public resources that this movement can be carried on."

In each of the lectures the author views the development of collectivism as constructive, not destructive, inevitable in consequence of other profound social and industrial changes, beneficial in the present, and hopeful in the future. He maintains that collectivism tends neither to anarchy nor to despotism. Its theory is accurately stated in such accepted sayings as "Thou shalt love thy neighbor as thyself" and "We do hold ourselves straightly tied to all care of each other's good, and of the whole by every one, and so mutually."

Written in a popular style, the book will prove of interest to the general reader, but particularly to all students of the social sciences and to social workers.

FRANK D. WATSON.

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*Encyclopædia Britannica.* A Dictionary of Arts, Sciences, Literature and General Information. Eleventh Edition. Twenty-nine vols. Price, $4.00 to $7.50 per volume. Cambridge, England, and New York: University Press, 1910-1911.

The appearance of the eleventh edition of the *Encyclopædia Britannica* is the most important literary event of the past year. The mere size of the work—twenty-nine volumes, each containing 1,500,000 words—makes the successful and prompt completion of the task of publication a notable achievement; while an examination of the *Encyclopædia* as to its general structure and with reference to the scope, conciseness, clarity and literary treatment

of the articles upon any particular branch of learning gives convincing proof that the highest editorial standards have been adhered to, and that neither time nor cost has been spared in the effort to make the *Encyclopædia* an "authoritative exposition" of human knowledge.

The discussion of a work of this scope in a brief review article must needs be very partial, and it will be best to limit this estimate to a statement of the relation of this edition to the preceding ones, to a brief description of the general structure and substance of the *Encyclopædia,* and to a reference to the articles and contributors in the fields of government, social science, and economics.

Few books have been so fortunate as is the eleventh edition of the *Britannica* in its editorial introduction, which describes the way in which the *Encyclopædia* was created, explains the scientific standards that controlled editors and contributors, and presents a very illuminating discussion of the place of an encyclopædia in the general field of literature. The editor states in the prefatory note that:

"The Eleventh Edition, which supersedes both Ninth and Tenth, and represents in an entirely new and original form a fresh survey of the whole field of human thought and achievement, written by some 1,500 eminent specialists drawn from nearly every country of the civilized world, incorporating the results of research and the progress of events up to the middle of 1910, is now published by the University of Cambridge, where it is hoped that the *Encyclopædia Britannica* has at length found a permanent home. . . . . ."

The work is not merely a revision of previous editions, it is essentially a new literary creation.

"These twenty-eight volumes and index aim at achieving the high ambition of bringing all extant knowledge within the reach of every class of readers. While the work, in its present form, is to some extent based on the preceding edition, the whole field has been resurveyed with the guidance of the most eminent specialists. The editors early decided that the new edition should be planned and written as a whole, and refused to content themselves with the old-fashioned plan of regarding each volume as a separate unit, to be compiled and published by itself. They were thus able to arrange their material so as to give an organic unity to the whole work and to place all the various subjects under their natural headings, in the form which experience has shown to be the most convenient for a work of universal reference. An important consequence of this method of editing is that the twenty-eight volumes are now ready for publication at the same time, and that the complete work can be offered to the public in its entirety."

The dictionary method of presenting the topics discussed reduces the length of the articles, greatly increases their number, and makes it necessary for the student of any large question to consult the final index volume in order to locate all the papers upon any large subject.

This way may be illustrated by reference to the treatment of ***political science.*** There is a general article on Government which discusses briefly

the forms and sphere of government; there is also a short article upon Constitution and Constitutional Law; but most of the information concerning governmental and legal institutions will be found under such titles as Sovereignty, Cabinet, Prerogative, Legal Systems, International Law, and Comparative Jurisprudence. In the articles upon the several countries, there is a section upon Government and Political Institutions. The paper upon Comparative Jurisprudence is written by Professor P. Vinogradoff, of the University of Oxford. The History of English Law is treated by the late Professor F. W. Maitland; the article on Greek Law, by Dr. J. E. Sandys; on Roman Law, by Professor Goudy; on International Law, by Sir Thomas Barclay, and on Private International Law, by Professor Westlake. Numerous other topics are treated by authors of equally high standing.

In the field of *sociology and social institutions,* there is an article on Charities and Charity, by Dr. Loch. On Housing and the Temperance Question, the papers are by Dr. Arthur Shadwell; Building Societies and Friendly Societies are discussed by Sir E. W. Brabrook, late Chief Registrar of Friendly Societies of England. The articles upon the law relating to children were prepared by W. F. Craies and T. A. Ingram; Labor Legislation is discussed by Miss A. M. Anderson, the Principal Lady Inspector of Factories for the Home Office, London, and by the late Carroll D. Wright. Colonel Wright also wrote upon Arbitration and Conciliation in Labor Disputes, and on Strikes and Lock-Outs.. These few references to sociological topics will indicate the scope and character of the treatment of these subjects.

*Economics and economic institutions* naturally receive much emphasis in an encyclopædia appearing at the present time. Most of the contributions upon topics in this department naturally are by British and American scholars, and, of course, more has been contributed by English economists than by American. The brief general paper upon Economics, prepared by W. S. A. Hewins, defines economic science, points out its relation to other sciences, and discusses the methods of economic investigation. The various departments of economics are ably discussed. A few references will indicate the high character of the papers. Professor Bastable discusses Finance, Money, and Bi-Metallism; Sir Robert Giffen deals with Taxation, and his paper is supplemented by others on Customs Duties, Excise, Income Tax, etc. Wages are dealt with by Professor J. S. Nicholson; Protection, by President E. J. James, of the University of Illinois; Tariff, by Professor F. W. Taussig, of Harvard; and Trusts, by Professor J. W. Jenks, of Cornell. Upon the subject of Railways there is an introductory historical sketch by H. M. Ross, an English writer; a discussion of the general statistics of railways of the world by Mr. Ray Morris, formerly managing editor of the *Railway Age Gazette,* of New York; of Railway Accidents, by Mr. B. B. Adams, of the same journal, and of Railway Economics, by President A. T. Hadley, of Yale. President Hadley's article is reproduced from the 10th edition of the *Encyclopædia.* There is a paper upon Canals by Sir E. Leader Williams, and articles upon the Manchester Ship Canal, Suez, Panama and Caledonia Canals. Persons interested in the technical aspects

of industry and transportation will find a long list of papers written by well-equipped engineers.

In connection with this reference to the treatment of economics in the *Encyclopædia,* attention may well be called to the position taken by the editor as to the place that should be given statistics in historical and economic articles. The editor says:

"While the most recent statistics have been incorporated when they really represented conditions of historic value, the notion that economic development can be truly shown merely by giving statistics for the last year available is entirely false, and for this reason in many cases there has been no attempt merely to be 'up-to-date' by inserting them. Statistics are used here as an illustration of the substantial existing conditions and of real progress. . . . . In such a work statistics are only one useful method of expressing historical evolution; their value varies considerably according to the nature of the subject dealt with. . . . . In general, far less tabular matter has been included in the Eleventh Edition than in the Ninth. Where it is used, it is not as a substitute for descriptive accounts, which can put the facts in readable form much better, but more appropriately as showing concisely and clearly the differences between the conditions at different periods."

It is, indeed, gratifying that in this great work, which will be read the world over by the general public for information upon economic questions, the presentation is, for the most part, textual rather than statistical. This edition of the *Britannica* is much more interesting than previous editions have been and its educational influence will be consequently greater.

Taken as a whole, the Eleventh Edition of the *Encyclopædia* must be highly appreciated by all students of history, literature and science. This edition does not contain the long and discouraging monographs characteristic of previous editions; the papers are generally short, are phrased in excellent English, and are accompanied by appropriate but not excessive illustration. A long step forward was taken in adopting India paper. The volumes may be secured either in the ordinary thick paper, which makes each volume weigh eight pounds, or in the India paper edition, the average weight of each India-paper volume being about three pounds. It was, indeed, a triumph of the printer's art to manufacture a volume less than one inch in thickness, containing 1,000 pages of clear, readable type. It seems doubtful whether any large encyclopædia will be published in the future except upon India paper.

EMORY R. JOHNSON.

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**Fishberg, M.** *The Jews, a Study of Race and Environment.* Pp. viii, 578. Price, $1.50. New York: Macmillan Company, 1911.

This volume is a thorough-going treatise on environmental causation of race differences. It is especially interesting in view of the fact that the

peculiar race traits of the Jews, perhaps more than those of any other people, have been considered biologically inherent.

The common supposition that the Jews have maintained a racial purity for three or four thousand years he shows to be a fiction. Intermarriages with other races have continued from the days of the patriarchs and kings of Israel down to the present time.

That the Jews are non-assimilable is shown to be erroneous by an appeal to history and experience. The race is not a unity in color, stature, head formation nor physiognomy. Modifications of type under changed environment are apparent everywhere. Cultural, not physiological differences separate Semite and Aryan.

Again, the mental and social characteristics are shown to be modified under changed conditions. The Ghetto, originating as a privilege through preference and convenience on account of dietary and other customs, has been perpetuated as a disability through the external pressure of religious and political persecution. Released from this condition of life many marked changes result. Inter-racial marriages become increasingly frequent, reaching a rate of 96.5 to each 100 pure Jewish marriages in Berlin, 1901-1905. The birth rate diminishes more rapidly than among native Americans. Absorption of foreign cultures increases enormously. These and other factors threaten group extinction in many localities.

Other "Jewish characteristics," as "commercialism" and the "greater thirst for knowledge," are not so much "Jewish" as they are the characteristics of the "middleman" group. English and American merchants in the last fifty years have outdone Jewish merchants, while from an equal numerical group of Americans of the same mercantile and professional class, an equally large number of young men go to college.

Whether or not all these generalizations will be substantiated by further observation and research remains to be seen. The significance of the work lies in its method of interpretation on the environmental basis of race differences as applied to the Jews.

J. P. Lichtenberger.

*University of Pennsylvania.*

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**Gettell, R. G.** *Introduction to Political Science.* Pp. xx, 421. Price, $2.00. Boston: Ginn & Co., 1910.

This book is "intended for use as an introductory text in the general field of political science" in colleges and universities. Its aim is to "trace the origin, development, organization, and functions of the state." It is divided into three parts on "The Nature of the State," "The Organization of the State," and "The Ends of the State." To anyone at all familiar with the equipment and capacity of the average freshman or sophomore, it must be evident that a book, such as the one under review, presumes altogether too much for an introductory text-book. Such difficult and disputed subjects as the origin and nature of the state, the theory of sovereignty, the nature of

law, subjective rights of the individual, and the functions of government can only be profitably studied at a comparatively advanced stage in the student's curriculum. Only after he has accumulated a considerable fund of knowledge concerning the concrete institutions of his own and foreign governments can he delve with any success into the mazes of *Staatslehre*.

The author makes no pretense at originality, and his work is based almost exclusively upon readily accessible treatises in English. In a field in which French, and particularly German scholarship has been so prolific of works of the first importance, it is remarkable that so good a book could be written without making more use of them. The author is an Austinian and follows his master altogether too closely in his theory of sovereignty, and the nature of law, to find ready acceptance to-day. Not only are the commonwealths of the American Union, and protectorates like Cuba, not states, because they lack the essential of sovereignty, but he frankly admits that no such thing as a state existed in the Middle Ages. He also maintains that revolutions destroy the state and not merely the government. International law, it is maintained, is not law, and even the unwritten portions of constitutional law are denied the legal quality.

The general scheme of the book and the method of treatment employed are excellent; the presentation is often suggestive and forceful. The style is clear and readable. There is, however, an unduly large number of loose and inaccurate statements, of which we can mention but a few. The author asserts (p. 265) that the French "chief of the council of ministers . . . is usually minister of foreign affairs." This has been the case only once since 1886. The proposition (p. 274) that "civil and criminal cases are distinguished and for each there is a series of courts" can scarcely go unchallenged. Prison officials are not generally treated, by our author (p. 274), as part of the judicial system. The statement (p. 280, repeated p. 284) that the judicial functions of the house of lords are in practice "exercised by the lord chancellor . . . and by four jurists appointed by the crown to serve as lords of appeal," is inaccurate, since all peers who have held high judicial office also participate. A separate department for the colonies, with a minister at its head, was established in Germany in 1907, so the statement (p. 314) that "German colonial affairs are controlled by a division of the foreign office" is no longer true. What is meant by the statement, "Statute law is usually created by the ordinary government; that is, by legislatures or by the courts in applying common law"? It is certainly a strange error to state (as is done on p. 198) that "From 1848 to 1850 most of the German states secured written constitutions," when, in fact, Prussia is the only state which secured a constitution during these years.

WALTER JAMES SHEPARD.

*Ohio State University.*

**Giesecke, Albert A.** *American Commercial Legislation Before 1789.* Pp. 167. Price, $1.50. New York: D. Appleton & Co., 1910.

This is a highly convenient and well-nigh exhaustive summary of the laws enacted (1) by the British Parliament for the regulation of American trade and manufactures, (2) by the several colonial legislatures for the raising of revenues and the discouragement of certain imports, (3) by the Continental and Confederate congresses in the endeavor to bring Great Britain to terms by systematic boycott and, when separation had become inevitable, to provide new markets for American produce. The discussion of the economic effects of this restrictive legislation could hardly be undertaken in so brief a monograph, yet one cannot but regret that the author fails to present the *raison d'etre* of the imperial policy and the actual operation of the measures approved by a parliament that considered only English interests. Latterday historians are making quite evident the fact that the British colonial system was by no means so oppressive as it appeared to the resourceful and ambitious colonials, but a just estimate of its comparative liberality can only be reached by a study of the Spanish colonial policy as exemplified in New Spain. The English colonists knew no such handicap as the "closed port," and the mother country that monopolized their trade was their most convenient market, whereas the exclusive privileges granted to Cadiz by the Council of the Indies accomplished the ruin of industry and commerce both in Spain and in her luckless colonies. Even the "free trade edict" promulgated by Charles III merely enlarged the number of open ports and lowered some duties, while the admission of foreign vessels to trade with Mexico and California was not contemplated. The results in the way of stifling economic initiative were such as no British dependency was made to suffer.

KATHARINE COMAN.

*Wellesley College.*

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**Hazen, C. D.** *Europe Since 1815.* Pp. xxv, 830. Price, $3.00. New York: Henry Holt & Co., 1910.

A book should be judged by the purpose of the author. Professor Hazen has set himself to the task of writing a general history of Europe since 1815, and the canons by which his achievements are to be measured are simple. Is the volume well balanced in the proportions assigned to the several countries and historical problems? Is the method of treatment in keeping with the pretensions of the title? Are the statements accurate? Is the style, if not distinctly engaging, at least clear and direct? Is the arrangement of materials such as to attract and fix the mind of the reader?

In the matter of the distribution of emphasis, Professor Hazen has done fair justice to the stress of interest in the average American mind. If any objection could be urged against his balance or proportions, it is that he has given too much space to France and England, for out of 736 pages of text about three hundred are devoted to the internal developments of the two countries. The present reviewer is in no mood to quarrel, but he has a faint

suspicion that as the Near East moves nearer we shall want to readjust our perspective. There are now signs of an impending change.

In the method of treatment, Professor Hazen interprets his title, "Europe Since 1815," in that free manner now in vogue among the historians, as meaning principally the political record of the period. The thread that runs through this volume is a chronicle of the deeds of politicians and warriors. Other factors, economic and social, are noted by the wayside when they are subjects of the political game. Their weight, however, as conditioning forces in the general movement of the century, our author does not attempt to gauge. For the wayward course of the historians in making politics their theme, Professor Hazen is not responsible; but it would have been refreshing if he had struck a fell blow against tradition. His title should read: "The Political Events of Europe Since 1815."

On the score of accuracy, our author seems to have taken special pains. No doubt a reviewer who holds proof reading to be a part of his task might find a few errors to catalogue, but the big bold facts are presented with precision and fairness. This is what counts.

As to style, Professor Hazen seems to have sacrificed the graces for definiteness and clarity. One is tempted to weary occasionally at the unadorned tale told with so many short sentences and so little swing; but let the one who has not sinned in this respect cast the first stone. It is better to be understood always than to charm occasionally while creating much misunderstanding.

Lastly (after the fashion of an old New England sermon) there is the problem of arrangement. Professor Hazen has made a reasonably successful combination of the chronological and the topical methods, taking each country up separately and then giving us cross sections where the political situation is distinctly international in character. Anyone who has ever put his hand to this tangled skein will be slow to criticise this plan of procedure; and it seems that our author has told his story in as orderly a manner as the theme would permit. The historian may say with the preacher of old: "Consider the work of God: for who can make straight that which He hath made crooked?"

CHARLES A. BEARD.

*Columbia University.*

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**Kelynack, T. N. (Ed.).** *Medical Examination of Schools and Scholars.* Pp. xvi, 434. Price, 10/6. London: P. S. King & Son, 1910.

At a recent meeting of the American School Hygiene Association in New York City, the statement was made that the physician of the future would serve less and less in the capacity of family doctor and more and more as community doctor; that he would spend a decreasing amount of time in studying and curing individual cases of disease, and a proportionately increasing amount of time in teaching the laws of health and preventive medicine.

A striking instance of this "humanized medicine" is the effort to guard the community health through attention to the health of the school child by means of medical examination not only for contagious diseases but for physical defects. We are, however, but at the beginning of things. Medical examination is still, especially in this country, in the experimental stage. Many questions are still open and we have still much to learn regarding means and methods of examination and administration.

The present volume cannot fail to be of value to all practically interested in this movement. It consists of a collection of studies by no less than thirty-six experts in their respective lines—community doctors in the sense above referred to—and provides material gathered from all sources and dealing with every aspect of the question. Its aim is "to provide school medical officers, managers of schools, educationalists and all interested in the national care of the health of our children with a complete, reliable guide to every department of medical school service."

The chapter headings read like the program of an international congress. We are made acquainted with the status of medical examination in no less than fourteen different countries, and those who are interested in framing laws will find suggestive material in the different provisions adopted. England's law of 1907 provides for the systematic, compulsory examination of children in the public elementary schools. Scotland's law contains a clause providing that every teacher be thoroughly trained in school and personal hygiene. Sweden has had medical school officers since as far back as 1830.

The bulk of the book deals with English medical examination in its different phases. Chapters of most practical value are "Organization and Administration," "The General Routine Medical Examination of School Children," "The Eyes and Eyesight of School Children," "The Ears, Nose and Throat of School Children," "Dental Conditions in Elementary School Children," "The School Nurse." Of special interest in these chapters are a schedule regarding the medical inspection of schools and school buildings, a description of necessary equipment for medical examination, danger signals of defects, etc.

Distinctly newer fields are touched upon in the chapters on "The Medical Examination of Boys in Preparatory and Public Secondary Schools," and a like chapter on girls. These schools correspond to our private schools, and the ground is well taken that wealthy children have as much right to health protection as those less fortunate. Helpful chapters are also "Medical Examination of Children under the Poor Law and in Orphanages and Industrial Schools," and "Medical Examination of Schools and Scholars in the British Army."

The description of the open-air schools is sufficiently attractive to make us wish all children could enjoy their advantages instead of the favored few who are anæmic or tubercular. We wonder perhaps in the chapter, "Medical Examination of Teachers," why the writer limited himself to describing the examinations made of candidates for the teaching profession and did not recommend periodic medical examination of teachers actively engaged. The

European policy of taking the most obvious path to a desired end is well illustrated in the chapters on "Feeding the School Child" and "The School Clinic."

Not the least valuable sections of the book are the comprehensive bibliographies appended to each chapter, which not only are of practical value and stimulate to further study, but indicate better than anything else the strength of a movement which is now world-wide.

AGNES DE LIMA.

*Bureau of Municipal Research, New York City.*

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**Mangold, George B.** *Child Problems.* Pp. xv, 381. Price, $1.25. New York: Macmillan Company, 1910.

The purpose of the book, as stated in the preface, is to give "a general view of the principal social child problems of to-day." On the ground that the development of the child is largely determined by environmental conditions, and realizing that the individual cannot control these conditions, the author opens the discussion by presenting certain fundamental obligations of society to childhood, among which are the preservation of life and health, the right to play, the right to freedom from work and the right to education.

The problems are discussed in the following order: I. Infant and Child Mortality. II. Recent Aspects of Educational Reform. III. Child Labor. IV. The Delinquent Child. V. The Dependent and Neglected Child.

The author declares that "the infant and child mortality of a people is a barometer of their social progress." Therefore, he presents the historical stages through which infant mortality has passed, pointing out the slow decline, compared with the more rapid decline of the general death rate. To-day, however, intensive methods of saving life are being inaugurated. The future promises to bring about the prevention of a very large proportion of the present high infant mortality. Specific children's diseases, together with the mortality from each, are discussed, and the more important causes are classified. Special attention is given to the milk problem, and some supplementary methods of decreasing the mortality rate are presented, including parental education, visiting the homes by nurses, municipal campaigns, the prevention of overcrowding and the employment of married women.

In Book II the recent educational reforms affecting the welfare of the child are presented. The author begins this division by a study of play and its value, which he follows logically with a discussion of the playground movement. On the ground that many pupils are not able to benefit fully from our educational system on account of physical or mental defects, the author outlines the system of medical inspection and the special training of backward children. Since the school system, as now organized, is not adequate to meet the needs of our society, the author discusses the new

education which will train for the life activities into which the child must enter.

In Book III the causes, conditions and wastes of child labor are pointed out. The injury to the individual, the economic and social costs and the moral effects are emphasized. A chapter is devoted to legislation, in which the evolution of laws on this subject is discussed and the various subjects of legislation are pointed out.

In Book IV the causes of juvenile delinquency are discussed. The juvenile court, the probation system and the institution each receive attention, as methods of dealing with the existing problem. Looking toward the future, various methods of prevention are suggested.

The final book deals with the principles and methods of saving the dependent and neglected child, both public and private.

The volume deals with the child problem as a whole; it is comprehensive and suggestive; and presents the causes and conditions as preliminary to a discussion of methods of amelioration.

ROBERT E. CHADDOCK.

*University of Pennsylvania.*

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**Mathews, J. L.** *The Conservation of Water.* Pp. viii, 289. Price, $2.50. Boston: Small, Maynard & Co., 1910.

Much has been written about conservation in its different phases, but even the individual most widely read in that field could not fail to find a new note in this volume on the proper use of water. The topics discussed are floods, water storage, municipal supplies, water power, swamp drainage, irrigation, the relation of water to soil conservation, navigation, and a summary of the results of conservation of water. The estimate of the advantages to be secured by water conservation may be somewhat too roseate, but were only a measure of these far reaching reforms realized, it would be well worth any effort required in the attainment of them.

The best points made in the book are, first, the tremendous value of the resources available in the proper use of our long neglected streams; second, the critical significance of these resources to the future prosperity of the country, and third, the vital importance of water storage in any sane development of our streams. On this last point especially the author is to be congratulated for the clearness and forcefulness of his argument in favor of the only efficient solution of a great problem. A tendency to use generous figures, where statistics are presented, is the chief criticism against the book, but it may be excused on the ground that the purpose is primarily to set forth a great fundamental concept of the value of water as a resource. Much of the book reads like a romance, in spite of the solid truth that it tells.

WALTER S. TOWER.

*University of Pennsylvania.*

**Moore, Dewitt C.** *The Law of Interstate Commerce and Federal Regulation Thereof.* Pp. lxxvii, 808. Price, $7.50. Albany, N. Y.: Matthew Bender & Co., 1910.

There is no branch of law upon which concise and authoritative information is more sought for by lawyers and transportation students than is the law of interstate commerce. The author of "The Law of Carriers," Mr. Dewitt C. Moore, had a thorough preparation for writing a text upon interstate commerce, and his work is a most excellent one in every particular.

The greater part of the volume has to do with interstate commerce by rail. However, the discussion of the law upon this subject is preceded by chapters upon the definition of commerce, upon the history of federal regulation, and upon the nature of interstate commerce. The discussion of the interstate commerce act, as it now stands, amended by the legislation of last year, shows that the author thoroughly understands the economics of railroad transportation as well as its law. In view of the present attention being given to the principles of rate making and to what constitutes a reasonable rate, Mr. Moore's analysis of the elements to be considered in determining the reasonableness of rates—to which several chapters are devoted—is most timely and illuminating. The book closes with a long and admirable chapter upon the Sherman anti-trust act, in which the purpose of the enactment of this law is stated, this being followed by a detailed account of the interpretation of the law by the Supreme Court in all the important cases involving that act. In no other volume can so concise and satisfactory an account of the Sherman anti-trust law be found.

The volume is prefaced by a lengthy table of cases. The appendices include (1) the Text of the Interstate Commerce Act of 1887 as amended by subsequent acts down to and including that of April 13, 1908; (2) the Text of the Elkins Act of 1903, as amended in 1906; (3) the Text of the Mann-Elkins Act of June 18, 1910; (4) the Text of the Testimony and Expediting Acts of February 11, 1893 and 1903; and (5) the Text of the Immunity Act of June 30, 1906. Thus the table of cases, the main body of the work, and the appendices combine to make this volume an exceptionally useful handbook of the law of interstate commerce.

EMORY R. JOHNSON.

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**Nearing, Scott.** *Social Adjustment.* Pp. xvi, 377. Price, $1.50. New York: Macmillan Company, 1911.

"To be scientific is to be popular. There is no renown worth having but that of the newspaper and the magazine and the classroom." This test of fitness of the literary effort of economists, laid down in the president's address before the American Economic Association in 1908, could scarcely be more fully met than in the present volume. With an attitude of mind in which doubts have no place, with a tendency to concentrate on striking facts and phases of social adaptation, and with a style equally clear and decisive, little

is left to be desired in the way of a work for popular educational purposes. The scholar of ultra-scientific bent will rebel at the dogmatic tone of the book, and this feeling will be intensified by the knowledge that some of the material on which conclusions are based is of rather fugitive and uncertain type. None the less, there is great value in such an interpretation of some of the significant material at hand in the field covered by the book. It focuses and challenges thought, it connects materials and views the organic relation which often escapes attention, and it reveals gaps in evidence which when filled will do much to shift some of our thinking from the speculative plane to a basis in fact.

The theory of the book is simple and clear. The process of social adjustment is that of realizing the normal in human capacity. Its negative aspect is the eliminating of social costs which arise in our economic and social order out of the various hindrances and handicaps to the attaining of the normal. These obstacles to human attainment are in one aspect a product of outworn traditions, and in another a result of the failure of social arrangements to keep pace with the rapid industrial changes of the century. Bad living and working conditions, inefficient governmental and educational machinery, and the accompanying exploitation of resulting weakness and ignorance are all evidences of this maladjustment. Public educational arrangements are uniform; they must be differentiated to meet new and varied needs. Wages are low, the family budget is cramped, children are underfed; the "single man" standard of wages must be replaced by a minimum standard that meets family requirements. There is overcrowding in cities, housing is bad, morbidity and mortality are high; city planning, housing reform, the redistribution of labor, and a more careful handling of our immigration policy, with related means, must overcome these evils. The dependence of women must be transformed into a position of independence; and the large family must go the way of the auk and the dodo. Similarly as regards working conditions, premature employment, overwork, unemployment, and industrial hazards must be eliminated wherever possible. Where their removal is impossible the burden must not take the form of wasted lives and broken families, but must be shifted to the community.

The agencies of reformation are varied. Reform must begin by developing a feeling of social responsibility, with the school as a basis of action. Then other educational devices—the trade union, philanthropic agencies, the newspaper and periodical press, social propaganda of every description—will serve to prepare the ground for the social expert. His work will ripen into social legislation and administration. And in this ultimate remedies will be found.

The road of social reconstruction is long and devious. It leads uphill much of the way, but the present volume does much to give it a uniform style of finger-posting.

Roswell C. McCrea.,

*New York School of Philanthropy.*

**Nogaro, B., and Moyne, M.** *Les Régimes Douaniers.* Pp. 320. Price 3.50. Fr. Paris: A. Colin, 1910.

This handy and clearly written little book on tariff systems (260 pages, without the appendices), is intended mainly for French readers and has reference chiefly to French tariff legislation and administration. The definitions and preliminary chapters, however, are of general interest; and the sections on commercial treaties, the most-favored nation clause, preferential tariffs, differential and compensatory duties, and anti-dumping laws, will appeal to American readers. Brief but illuminating accounts are given, moreover, of the present tariff policies of France, Germany, the United States, Canada and Great Britain.

The second part of the book, containing about 100 pages, deals with the administration of customs laws in France. In analyzing the forces that led to the French tariff law of March 29, 1910, the authors, both of whom are professors in the University of Montpelier, are of the opinion that "the tariff revision of 1910 had its origin not in circumstances arising within the country, but was due principally to the situation to which France was reduced by the tariff legislation of foreign countries. . . . . The upward modification of European tariffs had become general, and our own products, although sometimes enjoying the benefit of the 'most-favored nation' treatment, were more heavily taxed abroad than foreign goods imported to France. Moreover, the extreme specialization introduced by the new tariff laws and commercial treaties was such that French goods were frequently excluded from the benefits of the most-favored nation treatment." Foreign trusts, the practice of dumping, and a vexatious administration of the customs laws by other nations are said also to have worked disaster to French export trade. The law of 1910, therefore, was in a sense a retaliatory measure, hastened by an increase of protectionist sentiment and influence in France.

In view of the recent enunciation in this country, by the Republican party, of the principle that protection should be so adjusted as to equal the difference between the domestic and the foreign cost of production, it is interesting to note that ex-Minister Méline speaks of the new French duties as "scientific," that is, as "equal to the difference between French and foreign costs of production."

C. W. A. Veditz.

*Washington, D. C.*

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**Osborn, C. S.** *The Andean Land.* 2 Vols. Pp. xxviii, 643. Price, $5.00. Chicago: A. C. McClurg & Co., 1909.

These two volumes do not pretend to be an exhaustive treatise on South America. They contain the impressions of a keen observer, who combines an appreciation of the picturesque with a great number of incisive and shrewd comments on national characteristics and trade and commercial

possibilities. The most interesting chapters are those dealing with the countries of the west coast of South America.

The great weakness of American writers in dealing with the Latin-American countries has been their inability to appreciate a point of view different from their own, and to judge South American development exclusively by American standards. This danger Mr. Osborn has happily avoided, and it lends to his book exceptional value as an introduction to the subject. Books such as these, while they do not give to the reader a very deep knowledge of Latin-American civilization, perform the equally useful service of awakening greater interest in the growing significance of these countries. Mr. Osborn's book adds to the list of descriptive works which has been increasing so rapidly within recent years. We are now prepared, however, for a more serious monographie treatment, not only of each of the countries, but of each phase of national life as it expresses itself in Central and South America. Until we have such a series of monographs, students of Latin-American civilization cannot hope to form an accurate judgment as to the real significance of the political, economic and social development that is taking place to the south of the United States.

L. S. Rowe.

*University of Pennsylvania.*

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**Quinton, R. F.** *Crime and Criminals, 1876-1910.* Pp. xvi, 259. Price, $1.50. New York: Longmans, Green & Co., 1910.

The author of this book served for twenty-five years as a medical officer in the Portsmouth, Millbank, Hull, Manchester, Liverpool, Wandsworth and Parkhurst prisons, and was subsequently for about nine years governor of Holloway Prison in London. This book gives in a somewhat discursive fashion many of his experiences and opinions.

The first two chapters contain statistics of the population of prisons which seem to indicate that crime has decreased in England during the last thirty years. This decrease is attributed in the main to rescue work done for boys who are likely to become criminals and also to improvement in the administration of prisons. In the third chapter prison labor is discussed. He condemns unproductive forms of labor, such as working on the treadwheel, which existed in English prisons when he commenced his service in them.

In the next chapter the professional criminal who is to be found usually in the convict prisons is discussed. He points out the attractions a life of crime has for such individuals and describes the excellent conduct within the prison which characterizes many of these criminals.

The fifth chapter is devoted to a discussion of the habitual petty offenders to be found usually in local prisons, such as vagrants and drunkards. He describes the chronic fatigue which seems to characterize them and points out very wisely the utter uselessness of many times repeated short imprisonments for this type of criminal. In the next two chapters the author describes

approvingly the so-called Borstal system, which is an attempt to specialize the treatment of youthful offenders within the prisons so as to improve their condition physically and mentally and to teach them a trade. This attempt seems to be along the line of the American industrial reformatory, though the author criticises quite severely the Elmira Reformatory. In the eighth chapter he depicts the exceedingly bad conditions which existed in English prisons in the time of John Howard and shows their subsequent great improvement. Discipline in the English prisons and its deterrent and reformatory effects are the subject matter of the last two chapters. American prisons are here criticised for what he believes to be their too great laxity of discipline.

Dr. Quinton has had a long practical experience within prisons, as is shown by the character of the present volume. But the author seems to be quite ignorant of the literature of criminology and his knowledge is apparently of the purely empirical sort. Dr. Quinton is manifestly an uncompromising defender of the existing prison system. There are, of course, wide differences of opinion on this point.

MAURICE PARMELEE.

*University of Missouri.*

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**Stimson, F. J** *Popular Law Making.* Pp. xii, 390. Price, $2.50. New York: Scribner's Sons, 1910.

Mr. Stimson's recent works on constitutional law are now supplemented by a discussion of statute law. The latest study is decidedly popular in style and will disappoint those who look for a scholarly analysis. The chapters devoted to the origin and history of law making by statute, forming the first third of the work, are decidedly the most thorough portion. There is little new material presented, but the development of the English parliament from a judicial to a legislative body, the gradual growth of the importance of statutory law and the character of some of the early legislation are ably discussed. The chapters on Early Labor Legislation and Laws Against Restraint of Trade and "Trusts" are in a field where the most valuable of Mr. Stimson's work has been done, and they are the best portion of the book.

The greater portion of the book is devoted to a discussion of American legislation and its tendencies. The chapters are sketchy in style—partly the result no doubt of the fact that the book is based on a series of lectures. There is evident the lawyer's prejudice against anything which modifies the sacred structure of the common law. "It has been well doubted . . . if this immense mass of legislation is a benefit at all" (p. 117). "Nobody is so willing to interfere with the rights or liberties of the people as the people themselves" (p. 121). If this be true, our first interest must be not what is the object of the book—to study the content of the laws that express our struggle for better conditions, but to find out the best way to hinder their passage and minimize their effects. Discouraging indeed must be the prospect

of those who seek social betterment by means of law if the author's point of view is correct.

Fortunately, however, his material, even with all its evidence of freak legislation and hastily made statutes, will not lead all his readers to his discouraging conclusion—indeed, the last chapters of the book, discussing the methods by which law making may be improved, show that the author himself does not fully accept his own argument.

The last two-thirds of Popular Law Making give chapters to the various branches of our social legislation. Laws on business affected with a public interest, on trusts, corporations, labor regulations, elections, racial and divorce legislation and criminal law and police are summarized in an easy and pleasing style though the author does not neglect the varied opportunities to castigate our state legislatures which his subject affords. The tone of the book is with few exceptions decidedly opposed to popular law making. Examples of this attitude are the belief in the unwisdom of the laws passed regulating rates and fares on railroads, doubts as to the changes proposed in the election of United States senators and as to primary elections. Woman's suffrage, the initiative, referendum and recall are of little promise or are openly opposed. It is a satisfaction to note that the author approves the legislation regulating the labor of women and children.

This books falls short of what the average reader will expect. It fails at two points. The treatment is sketchy and the repetitions and contradictions in thought and statement of fact are disconcerting. Secondly, the point of view is that of the man who worships the common law to such an extent that he overlooks the fact that the law is a progressive science, and that one of the greatest facts in its present development is the importance of the changes being wrought by statutory enactment.

CHESTER LLOYD JONES.

*University of Wisconsin.*

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**Sykes, Ella C.** *Persia and Its People.* Pp. 350. Price, $2.50. New York: Macmillan Company, 1910.

At this time, when the control of Persia by Russia or Great Britain has become one of the big questions of the East, this book on Persia will be read with great interest. It gives a comprehensive survey of the country, its physical characteristics, government, religion and all that pertains to its people. The author states that the book is the result of two visits to Persia, extending over a period of about three years. Some of the descriptions come from her own observations, but much of it is taken from the writings of other English travelers, whom she quotes frequently. The book is a popular description of Iran and cannot be called scholarly. However, the poor arrangement of some of the material and the occasionally awkward English are forgotten in the interest the book awakens. Much valuable information is given and the author is in sympathetic touch with the country she describes.

The inspiring and glorious account of Persia's past serves as a gorgeous background for the Persia of to-day, with its crumbling ruins, its poverty and sterility, its corrupt and unwise government, the oppression of the peasants and trades people. The lack of communication checks real nationality and makes it impossible to tap the resources of the country. The Mohammedan faith is blamed for much of the inertia of the people. The belief in fate, the petrifying education of the men, and the ignorance and bondage of the women make real progress impossible.

The writer closes with a quotation from the Persian meaning "Good luck to Iran," and expresses the hope that some great Persian will arise and lead his country to prosperity. Perhaps this wish will be fulfilled by the British, who have already paved the way by their efficient policing of the Gulf of Oman.

LURENA WILSON TOWER.

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**Turnor, C.** *Land Problems and National Welfare.* Pp. xvii, 343. Price, $2.50. New York: John Lane Company, 1911.

This book is evidence of the continued interest in agricultural problems among the people of Great Britain. It is written by a landowner, who came into an estate of 4200 acres in 1905, and gave up his profession as an architect to act the part of country gentleman. After four years of progressive and profitable farming, he retired from active farming, rented his estate, and apparently became a politician and writer. The present volume gives the author's reflections and conclusions on the subjects of land-holding, agricultural organization, economics, education, politics, and imperial federation.

Mr. Turnor concludes, among other things, that small holdings should be encouraged, but "not unduly" so. Landowners should cultivate the soil more intensively and not preserve so much game; farmers should be better educated and more progressive; labourers should likewise be better educated and should take more interest in their work. Agricultural schools and courses of study along agricultural lines should be increased and extended; in this connection the author notes with approval the work done in the United States. In the chapter on "Political Economy and the Land" the author approves of import taxes on foodstuffs, if they will "benefit the producer." His familiarity with the science of economics is sufficiently illustrated by the following sentence: "From the standpoint of political economy, the middleman, the distributer, is not as useful a citizen as the producer" (p. 208).

The remedies, which are discussed in the last three chapters, evidently lay nearest the writer's heart. These are almost purely political. "The chief problem for the agriculturist is how to make the agricultural influence a power within the House of Commons" (p. 262). As the best way to do this he advocates the formation of a new national party, to support which he would have all English farmers contribute two shillings each to a special Parliamentary fund.

Such a volume may have a certain value in arousing interest in some of the problems connected with the land in Great Britain, but as a contribution to the solution of agricultural problems it is worthless. What interest it has for the reader will depend upon the latter's readiness to accept the writer's unsupported opinions on various subjects. The book is filled with sweeping generalizations, as "on the continent as a whole farms are less well equipped than in England" (p. 12). Nowhere does the author critically analyze or even evidence a thorough understanding of the really fundamental problems in English agriculture, nor are his remedies more than political palliatives. Compared with such valuable contributions to the subject as those of Rider Haggard, Pratt, Seebohm Rowntree, and Sir Horace Plunkett, the present volume must be characterized simply as the observations of a none-too-well-informed onlooker.

Ernest L. Bogart.

*University of Illinois.*

**Van Hise, Charles R.** *The Conservation of Natural Resources in the United States.* Pp. xiv, 413. Price, $2.00. New York: Macmillan Company, 1910.

This timely volume serves two purposes: it sets forth the essential facts about our real natural wealth; and it states plainly what must be done to conserve that wealth for future generations. The subject matter is drawn largely from the voluminous report of the National Conservation Commission, published as Senate Document No. 676, of the 60th Congress, 2nd Session. The report contains much material not covered by the book, but unfortunate opposition in Congress prevented the publication of an edition for public distribution. This volume, therefore, really makes generally available for the first time, the epoch-making report on the state of our national resources. Additional material is introduced here and there, but to no great extent.

The subject matter is discussed under the five heads: mineral resources; water; forests; the land; and the conservation of mankind. The first four of these heads are the most important part of the book. Under each head the discussion includes extent and location of resources, their present use, waste, abuses, and the suggested means of preventing unnecessary impairment of these sources of national strength. The great principle that real conservation is simply wise use is constantly in the foreground. The amount of information which is conveyed in small space is amazing.

The reviewer is now using the book as a text and finds that it arouses the keenest interest among all types of students. It is a book which anyone can read with both pleasure and profit. It is a book which every man in the country should read carefully from cover to cover.

Walter S. Tower.

*University of Pennsylvania.*

# INDEX OF NAMES

ABBREVIATIONS.—In the Index the following abbreviations have been used: *pap.*, principal paper by the person named; *b.*, review of book of which the person named is the author; *r.*, review by the person named.

# INDEX OF SUBJECTS

[Titles of articles are printed in small caps.]

SUPPLEMENT TO
THE ANNALS OF THE AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE
JANUARY, 1911

# THE NEED FOR CURRENCY REFORM

Introductory Remarks
DR. L. S. ROWE
President of the Academy

Addresses by
HON. NELSON W. ALDRICH
United States Senator from Rhode Island, and
Chairman, National Monetary Commission

HON. THEODORE E. BURTON
United States Senator from Ohio, and Member of the
National Monetary Commission

HON. A. PIATT ANDREW
Assistant Secretary of the Treasury

HON. GEORGE E. ROBERTS
Director of the United States Mint

Session of the American Academy of Political and Social Science,
Thursday Evening, December 8, 1910

PHILADELPHIA
THE AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE
1911

## Introductory Address by the President of the Academy, Dr. L. S. Rowe, of the University of Pennsylvania.

To anyone interested in watching the currents of public opinion in the United States there is none fraught with deeper meaning than the growing demand, becoming more insistent with each year, that certain great questions of national policy be removed from the domain of party strife and party politics. It represents a new attitude of an intelligent democracy towards its own national problems.

This new movement is due in part to a widespread dissatisfaction with the conditions that determine party strife in the United States, but in the main it is traceable to a recognition of the fact that with the increasing complexity of our social and economic conditions, many of the most important problems cannot be satisfactorily solved at the polls, but must first be submitted to those who by training and preparation are in a position to recommend to the country the proper course to be pursued. Control over corporations, the tariff and the currency question are problems which are gradually being eliminated from the domain of party politics.

The work that is being accomplished by the National Monetary Commission is placing the currency question in its true light before the country. The non-partisan spirit in which the Commission has considered this question commands the confidence of the country, and it is to its Chairman, the Honorable Nelson W. Aldrich, that we owe in large part this great national service.

I have the honor of presenting to you Senator Aldrich, Chairman of the National Monetary Commission.

ADDRESS BY HON. NELSON W. ALDRICH,

United States Senator from Rhode Island and Chairman National Monetary Commission.

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*Ladies and Gentlemen:*

The problem which has been submitted to the National Monetary Commission has several very important phases.

I shall confine my remarks to-night to suggestions with reference to one of these—that of desirable or possible modifications of our banking laws. My studies have led me to believe that this question of the reorganization of credit is of more immediate importance than the question of note issues. If we can once settle properly and fairly the kind of a financial or banking organization we are to have, I believe that the solution of the other will follow as a matter of course, and quite naturally. The two subjects are in a way inseparable. We can not, of course, in the end present a satisfactory plan, or a system that is worthy of being called complete without disposing of the question of note issues. But I propose to talk to you to-night very briefly upon "The needs of reform in our banking system."

The National Government, by the enactment of laws establishing the national banking system, and by the adoption of Government control of its machinery, has undertaken to safeguard the interests of the Government and of the people in this most important agency for our national development. I think there are very few people who now deny that the National Government has the power to establish a system of this kind and to provide suitable machinery for its operation. There have been in times past many people, and there are some now, who believe that the establishment by the National Government of a banking system, with banks of various kinds under Government supervision and control, is without the legitimate sphere of governmental action. I believe that a careful examination of the question should convince all of you that there is no other power that can successfully do this work; that it must be done by the National Government. The Federal Govern-

ment has created 7,000 or more fiscal agents, which it certainly had the right to do, and it has given these fiscal agents certain powers and responsibilities. It has given them valuable franchises, if you please, but it has also put them under careful restrictions, and, as I believe, this has all been done properly, but not always wisely.

Unfortunately many of the methods prescribed by law for the management and control of our national banks have become obsolete, and the failure of many others to effect the purpose for which they were designed has resulted in widespread loss to the people in every section of the country. In actual operation, the rigid provisions with reference to the holding and use of reserves, and those preventing legitimate expansion of credit in time of need, have been found to be very detrimental to the public interest.

The National Government having thus assumed control of the organization of credit, it is manifestly incumbent upon it to enter at the earliest possible moment upon such a revision of our national banking legislation as will make our methods and practices more responsive to the demands of our modern business life. Our present national banking system not only fails completely under stress and in the presence of unusual demands upon its resources, but under ordinary conditions it has been found inadequate and unresponsive.

There can be no better illustration of the structural weakness and practical defects of our national banking system than is shown by the relative growth of national banks and State banks and trust companies in the last twenty-five years. Within this period the number of national banks has increased 4,268 from 1884 to 1909, while the number of State banks and trust companies has increased 11,185. The capital and surplus of the State banks and trust companies have increased in the same time from $175,000,000 to $1,283,000,000, the relative increase being much greater than in the case of national banks. In many of our most important communities practically all of the banking business is now carried on by trust companies chartered by the States.

From this statement it is manifest that the State banks and trust companies are better organized to meet in competition the business demands of the communities in which they are located. This relative growth also demonstrates the fact that if we are to

have a comprehensive reorganization of credit we must within safe limits so liberalize national banking requirements as to character, functions, and inspection as will secure practical co-ordination in each of several classes of the banking institutions of the country. The Government must at least give to national banks a status and such advantages as will enable them to compete in every line of banking activity with the institutions chartered by the States.

Anyone who looks upon this matter in a broad way must realize that one of the problems we have in hand is to devise, if possible, some plan for the unification of our banking institutions into one comprehensive system, but this unification can not be effected, of course, by requiring all banks to become national banks, as the latter are now organized.

I am aware, of course, that this proposition of thorough reorganization involves great difficulties. I know the extent to which local prejudices, especially in some parts of the country, would affect even a calm discussion of the question, and I know that there would be an indisposition on the part of local banks to give up their State charters and come into a national system unless they could see clearly the advantages that would accrue from the change. Possibly some system could be devised by which the State charters could be held, with provision for governmental inspection.

We shall have to deal with a large class of State banks throughout the country who loan money upon real estate and receive time and savings deposits. We shall have also to consider the trust companies, that do all kinds of business—loan money upon real estate and upon collateral, act as trustees and guardians, and carry on the business of commercial banks and of savings institutions. Some of them do an underwriting and promoting business. In fact, it would seem that there are no regulations or limitations fixed by State legislation, in some States at least, as to the character or safety of trust company transactions.

It seems to me that in the public interest in every section of the country it is extremely desirable that if possible we have one national system with perhaps different classifications of banks. We might have one class like the existing national bank that would do the business of commercial banks; another class to be specifically designated by a different name that might do a savings bank business

in addition to a commercial business and that might loan money received from the time and savings bank deposits upon real estate within certain proper and safe limits. We might have another class of national trust companies. I do not believe that there is any trust company now in existence, if it had the opportunity to submit to national inspection, with the safeguards which a Government examination would give, that would be unwilling to consent to put themselves in line with other similar institutions throughout the country. Of course, as I say, this is a difficult problem. I may be too sanguine in my belief that the Commission will in the end be able to work out some method by which this can be accomplished.

While this comprehensive inclusion of all banking institutions in one general scheme is desirable, it is by no means essential for the successful organization of the general credit system of the United States.

The differences between the national banking organization in this country and the organization of credit in other commercial nations are even more radical and fundamental than those to which I have already alluded. For instance, elsewhere reserves are concentrated and used in any direction where needed, and the resources of all are available for the relief of any. In this country reserves are scattered and in times of trouble are not available either for purposes of assistance or defense. We have practically in this country a vast number of isolated units, each working within a limited circle for their own selfish interests. The intelligent managers of these individual banks generally recognize the necessity of greater co-operation and of organization, but are powerless to effect either on account of the restrictions and limitations imposed by our laws.

I have alluded to but few of the many particulars in which our banking methods are out of line with those in use elsewhere. No country in the world has a system as antiquated in many respects as the national banking system of the United States.

If we admit, as it seems to me we must, that the existing national system is fatally defective in many particulars, it is difficult to see how any plan of reform can be approved by thoughtful students of the subject that does not involve a more complete organization, a more thorough association, of the banks of the country. The

evolution which has taken place in the function of clearing-house associations may furnish an indication which may be useful in determining the character of the organization which will be found most effective. Clearing houses were first organized to facilitate the exchange of checks, and the settlement of balances arising from this exchange. The necessity of co-operation in other respects has led to the enlargement and extension of these functions until they now include concentrated action upon all the questions affecting the interests of members and of the particular community in which the association is located. But their influence and beneficial results are largely confined in each case to a very limited geographical area.

This evolution of the clearing house has been to me, as I am sure it must be to you, a most interesting subject. The New York clearing house in 1873 performed a great service to the country. The very able report which was made at that time by the clearing-house committee is in a certain sense a landmark in banking literature. From that time to this the recognized functions of clearing houses in various parts of the country have rapidly increased in number and importance.

But the fundamental defect in the clearing-house system as it now exists is that the beneficial results have been local and not general in their character.

In many ways the associations have been of very great benefit to their own banking community and, incidentally, to the people in the districts in which they were located; but they have not been able to prevent general bank suspensions or the destruction of credit in times of stress. The clearing house in Chicago or New York or Philadelphia may be perfect in its operation. They may take up every public question affecting their own section in a broad and liberal way, but the people of other sections may not be benefited in the slightest degree. If we are to have an efficient organization it should be along lines which are indicated by our clearing-house associations, but on a different scale and in a different manner.

There must, of course, be differences of opinion as to the character, extent, and powers of any new organization we might recommend. Perhaps a greater difference will be found to exist upon the question of whether we should have a great number of separate organizations in scattered districts throughout the country, varying

in character and responsibility, each acting independently, or whether we should have an organization of associations covering the entire country.

It is perfectly clear to me that any organization which shall receive general approval must fully recognize the rights and independence of existing national banks throughout the country. Any new scheme of co-operation and association must be super-imposed on existing banks and must not in any respect assume either the business or the functions of any of these. If we are to give the banks of the country and of every section an opportunity which can only be afforded by the General Government for association and co-operation, the result must be of such a nature as will be mutually beneficial to all banks and clearly in the interest of the people of the country as a whole. It must be an organization that will, as far as possible, insure reasonableness and steadiness of rates of discount throughout the country; that will prevent the possibility of bank suspensions in the future; that will extend to a bank in any part of the country, under proper circumstances, facilities which will enable it to afford relief at all times to those who are entitled to credit. It must provide against any possible disruption of domestic exchanges. It must be an organization which will have both the power and the purpose to maintain at all times, under all circumstances, the credit of the great people whose interests it is bound to serve.

In Introducing Senator Burton, Dr. Rowe said:

During the last few weeks the students of the University of Pennsylvania have had the privilege of listening to a course of lectures upon the subject of "The State and Corporations" by one whose scholarship is as broad as his statesmanship. As a member of the National Monetary Commission he has made quite as deep a study of the currency question as of the corporation problem, and I have the honor of presenting to you the Honorable Theodore E. Burton, United States Senator from Ohio, who will speak to us on "The Present Monetary Situation."

## Address by Hon. Theodore E. Burton,

United States Senator from Ohio, and Member of the National Monetary Commission.

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*Ladies and Gentlemen:* An examination of the subject of currency reform will fail to convince us of the necessity of any increase in the aggregate volume of money in circulation. With one exception, that of France, the quantity of money per capita in the United States is greater than in any prominent commercial nation in the world. On December 31st last, the average per inhabitant in this country was $35.21. In France, it is $37.85, due principally to the fact that the use of checks as substitutes for currency is much less. If we include with the amount in circulation the $150,000,000 gold reserve and the government assets in our national treasury, our average amount would be $38.45 per capita, being greater than that of any prominent nation in the world. But whichever method of determining the per capita circulation is chosen, the amount is greater by nearly $15 than in the period of maximum inflation in the Civil War, and greater by almost an equal amount than in the very prosperous years of 1880 and 1881; greater also by approximately $10 than twelve years ago, and this notwithstanding the constantly increasing use of checks and other substitutes for currency.

The quantity of circulation is determined principally by four factors: First, the wealth of the country; second, the volume of its trade; third, the rapidity of exchanges, associated with what is called the efficiency of money; and, fourth, the degree in which checks and substitutes for money are used. Australia has a very large circulation, $44 per capita in gold, because its wealth in that metal is so considerable. The circulation is usually small in a poor country, such as India, which has only 62 cents per capita; or China, which has $1.06; while in a rich country like ours the circulation is near to the maximum.

The Netherlands have a large per capita circulation, $33, because of the volume of their trade. The United Kingdom has much less circulation, about $17 per capita, because the country is thickly settled and checks are almost universally employed, giving the same quantity of money a greater degree of efficiency.

It is a singular fact that the two countries having the minimum and the maximum circulation are located side by side. They are Venezuela and Colombia, in South America. The circulation per inhabitant in Venezuela is 39 cents, while that of Colombia is $222; but, strangely enough, Venezuela has a better monetary system than Colombia, because its circulation is made up almost exclusively of metallic money, while that of Colombia consists of depreciated paper currency. From this we note that the quality as well as the quantity of the circulation should be taken into account.

There are three important varieties of circulation: First, the exclusively metallic system, such as prevails in Russia and also in Turkey, where, you may be surprised to learn, they have a fairly good monetary system, notwithstanding disorder and bad government; second, a metallic circulation joined with a paper circulation, the latter being redeemable on demand in gold. This is the most common system among civilized nations. The third is an exclusively paper circulation, which, of course, is the worst. It prevails usually where there is a bankrupt treasury, or as a device to meet the exigencies of war or to hide the inefficiency of government.

The most distinctive feature of our currency may be expressed in a word, and that is its motley character. Many other features, closely connected with this one, affect our whole system. To explain in detail, we have, first of all, what are called the greenbacks, legal tender notes, amounting to $346,000,000. That amount was fixed in the year 1878. From 1862, the date of their first issue, until 1879 they were not redeemable in gold, but since that time a gold reserve has been maintained for their redemption, the amount of which was fixed at $150,000,000 in the year 1900. The next variety of currency is the national bank notes, which now amount to $726,000,000, according to the statement of December 1st last. These rest upon the security of government bonds. The greenbacks are the direct obligation of the Government. The national bank notes are indirectly the obligation of the Federal Government. Indeed, they are more than this, since, whenever a national bank note is presented to our treasury, it must be exchanged by the Government for greenbacks or other legal tender. The total amount of greenbacks and national bank notes together is $1,072,000,000. In addition to this amount, there are outstanding 564,000,000 of silver dollars, which rest in part on the credit of the Government.

On the silver dollar there is written the words "In God we trust." The intrinsic value of this silver dollar, according to the latest quotation of silver, is 42.8 cents, the remaining 57.2 cents depending upon the credit of the Government. This is semi-fiat money, and it would cause very great embarrassment in our circulation, except for the fact that it supplies the demand for currency in small denominations. In almost every country a certain amount of what is called token currency is required. The national authority assumes as its prerogative the coinage of fractional silver and derives a profit from it. For instance, in this country there is outstanding $156,000,000 of fractional silver and token coins. Only $84,000,000 in silver dollars are actually in circulation, the balance of $480,000,000 being represented by what is known as silver certificates. These are mostly in denominations of one, two and five dollars. The national banks are forbidden to issue bills below $5, and the greenbacks, which are legal tender, are not issued below $5. Our people very much prefer to handle bills rather than coin, so in providing denominations of $1, $2 and $5 the silver certificates are very useful.

There is a very great difference in the customs which prevail among different peoples. I remember at one time doing a little shopping in the city of Paris, and when I received my change after making purchases I had a large number of five-franc pieces, nearly equivalent in value to one of our silver dollars. It seemed like a load to carry, but I was in a measure consoled on looking them over to find I had on one piece or another the head of every sovereign who had ruled in France since 1800: Napoleon I, Louis XVIII, Charles X, Louis Phillippe, etc. The deceased king of the Belgians was also represented. It was very inconvenient to use these coins, but among the French people who were accustomed to them they were not regarded as a burden. This illustrates, I may say further, the differences among people created by custom, which differences extend to the circulation of money in use, whether metallic or paper, and to the banking system as well.

The best feature of our currency system I have not yet mentioned. We have in this country $1,700,000,000 of gold coins, nearly one-half of the whole amount of our currency, which at the present time is approximately $3,500,000,000. The $1,700,000,000 of gold, of course, circulates anywhere on the globe, since it has

intrinsic value. You may melt one of these gold coins in a crucible into a shapeless mass, and after that operation is finished it has as much value as it had before. This would not be true of the silver dollar, which I hold in my hand. It would be worth only 42.8 cents if melted.

The principal disadvantages of our system are, first, that too much of our currency rests upon the credit of the Government. While it is true that the man who accepts a silver dollar, a silver certificate, a greenback, or a national bank note has absolute confidence in it because it is backed by the Government; nevertheless, the system by which the Government issues so large a share of the currency is a vicious one. The experiment of issuing legal tender paper money has been tried by almost every nation in the world, and it has been abandoned by practically every one of the most advanced countries except our own. Nothing but the very exceptional credit of the United States saves us from disaster because of this situation.

It is true that the greenbacks served a very useful purpose during the Civil War, but what we need now is a currency adapted to our present needs, not one based upon historical or sentimental reasons. We want the best monetary system that can possibly be devised.

Briefly stated, the argument against such issues is that when a government issues currency it is in response to its own and not to business needs. Its expenditures should, under any rational system, approximately balance its income, but when its outgo is more than its income, then there arises the temptation to issue its paper currency, and that is just the very worst thing to do. In doing this the Government uses its right to create debt, to create issues of money, just at the time when such obligations ought not to be created. In a well-managed bank or financial institution circulation is small when its assets are small, and circulation is large or should be large when its assets are large. The quantity of money should respond to the demands of trade. Now it is not likely that we shall have any great calamity by reason of this quantity of government money to which I have referred, but if there should be a crisis like the Civil War; if there should be a period in which our crops failed year after year; if there should be an enormous increase in the expenses of Government, a tremendous strain would be placed upon

our financial system. Also, there should be an adjustment of the amount of paper currency to the increase or decrease of the gold supply. If there should ever be a cessation or material decrease in the present constantly increasing production of gold, there would be such a readjustment in the course of exchanges as would necessitate considerable alteration in our currency system.

A rational currency system is one in which the quantity of money may be increased or decreased according to the demands of trade, and there is no criterion of these demands so correct as the quantity of business that is done. When there is a large quantity of wheat to be harvested and the supply of bills to pay for it is small, then is the time when it is proper and rational to issue an additional amount of currency. I do not wish to be understood as saying we should make a sudden change in our system; all changes should be made slowly. Custom, so potent in all monetary systems, has adapted itself to the present situation, however faulty it may be. But I do advocate that little by little, step by step, with no retrogression, we should move away from this system under which the Government supports with its credit $346,000,000 directly, $726,000,000 indirectly and $564,000,000 in part.

What our currency system lacks most and what any reform must supply is elasticity. The present system is one of rigidity. Those amounts of currency which I have mentioned remain practically the same year in and year out. Every one knows that the demand for currency is different at different times. More is needed at the end of the week than in the mid-week, and more at the end of the month than in the middle of the month. Then there are annual disbursements, semi-annual disbursements and quarterly dividends to be paid. At certain times in the fall the crops must be marketed. Then you have what is called in England "the autumn drain." The degree of activity in business also varies greatly in different years. The volume of currency should expand and contract automatically to meet these business demands. But under our present system the amount of currency has no elasticity, no flexibility, except that which may be brought about by imports or exports of gold and by increasing or decreasing the quantity of national bank notes, and the volume of these latter never responds to the needs of business. The law as it now stands forbids decreasing the national bank notes by more than $9,000,000 a month. Undoubtedly,

the lack of elasticity is the most serious defect in our present currency system.

What is required first of all is the enactment into law of a definite policy under which the quantity of currency can be diminished as well as increased. There is no reason for having $3,500,000,000 in circulation when it is not all needed. The result is necessarily harmful, as I can readily show you. Our bankers naturally wish to utilize all the currency in their vaults. They desire to obtain an income from their money on deposit in seasons of slack demand as well as in seasons of large demand. In any monetary system like ours the tendency is to to make the total stock of currency sufficient to meet only the minimum demands. Thus when an increased demand arises, as inevitably it must, there is a scarcity or insufficiency of currency which threatens disaster. Now what happens? After great quantities of money have been loaned out and probably used for stock speculation or in other equally doubtful enterprises, there arises an insistent demand for currency for harvesting the enormous crops of the country. And thus at this time of the year, when we need all of the money in circulation, we find that it has already been absorbed. This causes a stringency in the money market. This will always happen under an inflexible currency system like ours. You will notice, if you follow the stock market in these seasons of slack demand, that perhaps stocks have been going up. The reason is that the speculator can borrow money at cheap rates, and consequently the number of stock buyers is increased.

The principal facts or objects to be considered in the solution of this problem are, first, the need for contraction as well as expansion; second, the amount of circulation should be adjusted to the volume of trade; finally, there should be absolute security for every note issued. I may have personally a partiality for notes based upon negotiable paper and the liquid assets of banks rather than upon bonds or other permanent securities, but whichever method you have, be sure that the note will be a good one, so that, as I said a few days ago at the University of Pennsylvania, no man when he rises in the morning and reads in the newspaper that a certain bank has failed need fumble through his pocketbook to see whether he has any bills of that bank.

This problem should be faced, and the Monetary Commission

asks for the co-operation of one and all in its attempt at solution. There are numerous obstacles to a reform in our currency. In the first place, there is no other field in which the visionary or the crank has such an opportunity as in questions pertaining to money and finance. Secretary Windom remarked to me twenty years ago, "There are a great many men scattered through the country, sitting on dry-good boxes, who may not be able to manage their own business affairs, but who are convinced that they could manage the Federal treasury a great deal better than it is now being managed." There are always a great many selfish interests which come to the front when there is any attempt toward judicious reform. Senator Sherman once said he never had taken part in the passage of any financial measure with which he was entirely satisfied. It was always necessary to make concessions to some one, in order to get the bill passed.

Another difficulty is that for the last fifty years or more there has been a demand that the Government pursue a policy which would result in high prices for crops and at the same time low prices for what we buy—that is, the Government is expected to make high prices for the seller and low prices for the consumer. I do not know how any system of currency or banking can perform this miracle. People have come, however, to associate a plentiful supply of money with good times. The issue of greenbacks was accompanied by great prosperity and a period of industrial reawakening throughout the country, and from that day to this people have thought that they were more prosperous when there was a large supply of money in circulation. But in any judicious system there must be provision for contraction as well as for expansion, and this has been exceedingly difficult to obtain in the face of adverse public opinion.

Perhaps you may not have realized that in the last fifty years whenever laws relating to currency were passed, the providing of a good system was never the main object. In 1862, when the greenbacks were issued, it was not to provide a good monetary supply, but to save the very life of the Government in the midst of a rebellion. Then a year or two later came the national banks. The main object in establishing them was not to obtain a perfect monetary system, but to supersede the variety of issues of the state banks, and, in addition, to aid the sale of the bonds of the Government.

Then we come to the silver acts of 1878 and 1890. They were also passed not for the purpose of providing us with good currency, but in response to the demands of those who were shouting for more money—some of whom doubtless were anxious to pay their debts in a depreciated medium—and also in response to those who were interested in silver mines and desired to sell their output to the Government.

We must appreciate rightly all these difficulties and conflicting interests, my fellow citizens, and undertake this problem of currency reform with an eye single to the prosperity of the country, resolved to place our monetary system on a par with the very best systems of other great nations.

APPROXIMATE PER CAPITA STOCK OF MONEY IN THE PRINCIPAL COUNTRIES OF THE WORLD, DECEMBER 31, 1909.

| Country. | Gold. | Silver. | Paper. | Total. |
|---|---|---|---|---|
| United States | $18.29 | $8.21 | $8.71 | $35.21 |
| Austria-Hungary | 6.66 | 2.60 | 1.91 | 11.17 |
| Belgium | 3.05 | 1.22 | 18.27 | 22.54 |
| British Empire: | | | | |
| Australia | 40.35 | 2.33 | —— | 42.68 |
| Canada | 15.65 | 1.08 | 12.32 | 29.05 |
| United Kingdom | 12.54 | 2.65 | 2.55 | 17.74 |
| India | —— | .49 | .13 | .62 |
| South Africa | 6.31 | 2.56 | —— | 8.87 |
| Straits Settlements | .06 | 23.44 | 5.06 | 28.56 |
| Bulgaria | 1.55 | .83 | 1.15 | 3.53 |
| Cuba | 18.19 | 2.38 | —— | 20.57 |
| Denmark | 7.19 | 2.30 | 5.44 | 14.93 |
| Egypt | 16.19 | 1.41 | .25 | 17.85 |
| Finland | 1.65 | .17 | 3.97 | 5.79 |
| France | 23.57 | 10.46 | 3.82 | 37.85 |
| Germany | 17.53 | 3.89 | 5.72 | 27.14 |
| Greece | .08 | .19 | 10.58 | 10.85 |
| Haiti | .67 | 1.67 | 5.87 | 8.21 |
| Italy | 6.82 | .83 | 2.69 | 10.34 |
| Japan | 1.37 | 1.09 | 1.27 | 3.73 |
| Mexico | 2.76 | 4.12 | 3.76 | 10.64 |
| Netherlands | 11.69 | 9.09 | 9.88 | 30.66 |
| Norway | 5.52 | 1.61 | 3.17 | 10.30 |
| Portugal | 2.70 | 7.35 | 5.56 | 15.61 |
| Roumania | 2.66 | .03 | 5.04 | 7.73 |
| Russia | 5.85 | .51 | —— | 6.36 |
| Servia | 1.82 | .54 | 1.89 | 4.25 |
| Siam | .02 | 7.07 | .34 | 7.43 |

APPROXIMATE PER CAPITA STOCK OF MONEY—*Continued.*

| Country. | Gold. | Silver. | Paper. | Total. |
|---|---|---|---|---|
| South American States: | | | | |
| Argentina | $27.98 | —— | $39.33 | $67.91 |
| Bolivia | 1.39 | $0.28 | 2.22 | 3.89 |
| Brazil | 3.18 | 1.16 | 8.87 | 13.21 |
| Chili | .03 | .82 | 16.56 | 17.41 |
| Colombia | .02 | —— | 222.22 | 222.24 |
| Ecuador | 3.46 | 1.00 | 1.54 | 6.00 |
| Guiana: | | | | |
| British | .33 | 1.33 | 1.67 | 3.33 |
| Dutch | 1.00 | 3.00 | 4.00 | 8.00 |
| French | 2.00 | 1.00 | 6.00 | 9.00 |
| Paraguay | .17 | —— | 58.33 | 58.50 |
| Peru | 1.48 | .52 | —— | 2.00 |
| Uruguay | 14.09 | 3.91 | 1.55 | 19.55 |
| Venezuela | .12 | .27 | —— | .39 |
| Spain | 5.24 | 8.82 | 4.88 | 18.94 |
| Sweden | 4.61 | 1.59 | 6.04 | 12.24 |
| Switzerland | 18.48 | 4.09 | 7.82 | 30.39 |
| Turkey | 5.50 | 1.10 | —— | 6.60 |
| Central American States | .59 | 2.80 | 16.65 | 20.04 |
| China | —— | 1.06 | —— | 1.06 |
| Total average | $5.23 | $2.13 | $2.90 | $10.26 |

Treasury Department, Bureau of the Mint,
December 7, 1910.

IN INTRODUCING THE HONORABLE A. PIATT ANDREW, DR. ROWE SAID:

Senator Burton entered the university field from public life. The next speaker entered public life from the university. From his professorship of Political Economy at Harvard University he entered upon the duties of Secretary of the National Monetary Commission. He was then made Director of the Mint and is now First Assistant Secretary of the Treasury.

I have heard his former students at Harvard University express the hope that he would complete the cycle and return to university work. His thorough acquaintance with monetary questions, combined with his present official position, lend special interest to his contribution of this evening.

I have pleasure in presenting to you the Honorable A. Piatt Andrew, Assistant Secretary of the Treasury.

# WHAT AMERICA CAN LEARN FROM EUROPEAN BANKING

ADDRESS BY HON. A. PIATT ANDREW,
Assistant Secretary of the Treasury.

We are confronted to-day with an opportunity for real constructive financial legislation. There has been but little such legislation in the field of finance since the early days of the Republic. We have had many revenue measures, but most of them have been framed not so much with the idea of providing adequate and equable methods of taxation as for other purposes; we have had many currency acts but most of them have tried only to revamp and rehabilitate systems which were admittedly outworn. From the time of Alexander Hamilton down to the present day the only important constructive financial legislation to which one can point is the institution of the national banking system under the leadership of Salmon P. Chase.

A great measure framed under the stress of a great emergency, the national bank act marked an important forward step. The currency of the country had for half a century consisted of heterogeneous notes which had been issued by hundreds of banks subject to the varying laws of different states and which circulated at varying rates of discount. The national bank act provided the country for the first time with a uniform currency subject to uniform laws in all parts of the country and of the same value everywhere. Not long ago I came upon a letter from Alphonso Taft, of Ohio, father of the President, written to Secretary Chase, in December, 1861, soon after the appearance of his first report recommending a national banking system, in which Mr. Taft said that if the war resulted in nothing else than the provision of the country with a uniform banking currency it would not have been fought in vain, and there was a large modicum of truth in the statement. The national bank act constitutes a very important milestone in our financial history. It rid the country of the crude and haphazard makeshifts for money with which it had been afflicted up to that date. It was the first step looking toward the unification of our banking system. It brought a considerable measure of unity into our note issue.

At that time, and even for decades thereafter, the function of note issue was regarded as the all-important function of the banks, and as a matter of fact it had been all-important up to about that time. If you look over the published statements of any of the banks in the fifties you will see that the issue of notes was the predominant business of banks. The banks extended their credit in the form of notes more largely than in the form of checking accounts upon their books.

In the decades that followed, however, this changed. Clearing houses developed and the public came more and more to use checks in making payments. Borrowers from banks less and less frequently withdrew their loans from the banks in notes or coin and more and more often left their borrowings on deposit with the banks from which they had borrowed. The important considerations for the banks were no longer the regulations and arrangements with regard to their note issues, but the provisions and practices with regard to their deposits and reserves. As decade followed decade the change in banking methods became more marked; the business of note issue became more insignificant, the business of discount and deposit more important.

This transition meant a fundamental change in the methods of banking, but it occurred so gradually that few perceived that it was taking place. Even those who pretended to write and talk upon banking for the most part overlooked the change which had occurred, and down to the very present they have continued to trace the history of bank note issue, if they were writing about the development of banking, and to discuss the reform of note issue regulations when they had it in mind to treat of banking reform.

Although about once in every decade they had witnessed a complete collapse of our banking system and had seen the mad struggle of bank against bank to get hold of reserves, and of city against city to get hold of reserves, and had seen the majority of solvent banks suspending payments for lack of a discount market, and domestic exchanges between different parts of the country suspended for lack of a transfer system, they continued down to within a year or two to discuss banking reform in the same old terms, with scarcely an illusion to the need of a discount market, a better system of domestic exchange or a more effective organization of reserves.

Many books upon banking in America and Europe have been printed, but most of them have confined their accounts to the history of the circulation privilege, and it was not in fact until the National Monetary Commission began to publish its carefully prepared accounts of European banking systems that there was available any adequate account of banking conditions throughout the world as they actually are. It takes time to digest such great masses of fresh information, but already the contrast between American and European banking organization is beginning to be widely understood, and already financial writers are beginning to call attention to the circumstances which differentiate banking in Europe from banking in America, and which help to explain why the great countries of Europe have been so free during the greater part of a century from the banking collapses with which we are still afflicted.

The banking systems of no two European countries are identical. Each has grown out of the peculiar conditions of its own past, and yet beneath the detailed peculiarities which differentiate one system from another there are certain broad outlines which are common to them all.

(1) The banks of all European countries present a much more coherent organization than our own. In no other country has individualism in banking gone so far as in the United States, with its 25,000 banking institutions, each acting for itself and without any organic relation with the rest. In every other country there is some sort of an institution which, because of its preponderant capital and resources, its relations to the government, and its peculiar privileges, is able to render peculiar services for the banks, which forms a common bond between them, and which exerts a controlling influence over their activities. It holds their reserves; it clears their mutual accounts not only within the same city, but between different cities; it furnishes an ever-ready and unfailing market for their best commercial paper, very much as the stock exchanges furnish a market for stocks and bonds. When credit expands too actively at certain times or at certain places its influence is directed to impeding the advance. If, on the other hand, on account of catastrophes or contingencies which could not have been foreseen, the banks in a given locality find themselves in difficulties, it renders assistance until the strain is relaxed and confidence restored. The functions and the details of the great Euro-

pean banks differ from one country to another, but they coincide in rendering invaluable services to the banks, and through those banks to their respective communities. In every case they perform an important function in providing at all times facilities for the exchange of money and credit between different localities, thus rendering impossible such cessations of domestic exchange as are frequently witnessed in the United States. In every case they serve as depositaries for the greater part of the reserves of the banks, thus economizing and rendering effective the otherwise idle cash of the individual banks in the same way that those individual banks render active and effective the cash which would otherwise lie idle and useless in the pockets or safes of their customers. By thus furnishing an immense reservoir of available money these European institutions provide their communities with vast resources of lending power to which resort can be made in moments of pressure or disturbance. Finally, these institutions furnish to the banks an agency for making available in times of need those sterling assets in the form of first-class commercial paper, which in the United States at such times can find no market and can only be translated into cash when they mature.

In America we have frequently in times of panic tried to imitate these European institutions by temporary expedients. The operations of our clearing houses in 1893 and 1907, and in earlier crises, were fundamentally like the ordinary functions of the great banks of England, Germany and France. With the banks as customers the clearing house associations made loans on collateral, rediscounted notes, and made the reserves of all the banks available for each other in practically the same way as do the great national banks of Europe under usual conditions. In two respects, however, our ingeniously contrived makeshifts were ineffective. First, being organized only under the pressure of an emergency, and after the situation had already become acute, they were quite unable to forestall the collapse, and second, even when the banks of a given locality were able through such contrivances to transform their commercial paper into partially liquid assets available for the settlement of local balances, they were still without any means of settling balances between different cities. Thus in each successive panic we have witnessed the disgraceful spectacle of the banks in

different cities endeavoring to fortify themselves at the expense of banks in other localities, with a resulting general collapse of exchange, and widespread suspension of payments, a condition of affairs which could really not be conceived of in any country of Europe.

(2) In the general treatment of reserves the banking arrangements of European countries differ fundamentally from our own. The reserves are far more available, mobile and alive. Our national banking law differs from the banking laws of all other countries in requiring a proportionate minimum of cash to be held in useless and inviolate idleness against all deposits. This rigid and unreasonable requirement has been copied in greater or less degree in the banking laws of our states, but it has no counterpart elsewhere in the world. It fixes an uncompromising limit to the expansion of loans and discounts, prevents the banks from extending their credit when it is most needed and deserved, and so inhibits the reserves of the banks from really serving as reserves. The reserves of European banks are much more effective than our own however, for the further reason, to which allusion has already been made, that in European countries all of the cash aside from the till money is left in the custody of the central institution, and can therefore be better administered to serve the fluctuating demands of particular seasons and different localities, than it possibly could be when in the custody of thousands of separate firms. Moreover, as the banks in those countries are accustomed to consider the balances held for them by their central institutions as equivalent to cash actually held in their own vaults, when a bank requires larger reserves because of increasing credit demands it can easily effect such increases by transferring to the central institution some of its commercial paper or bills receivable in exchange for an increased balance upon the books of the central institution. The reserves of European banks are thus peculiarly mobile, not only because the law prescribes no rigid minimum, but because they are consolidated, and above all because the banks are able at any time within reasonable limits to transform any solvent assets into available reserve funds.

(3) Another respect in which the drift of the world's banking is in a different direction from that of this country concerns the matter of note issue. The tendency of note issue regulations in every other

country is toward concentration in its control. In France the Bank of France alone for more than sixty years has been the sole note issuing institution; in England the Bank of England issues all but a fraction of one per cent of the outstanding notes; in Germany there remain only four note issuing banks aside from the Reichsbank; in Italy, Switzerland, Sweden and Japan, the note issue privilege has within recent years tended to be placed in the hands of a single institution. The importance of the question of note issue has doubtless been much exaggerated by writers in most countries and the question of the proper regulation of the issue privilege which was formerly the principal problem in banking legislation has ceased to have the importance which it used to command. The main reason for the drift of the world toward concentration in the control of the note issue doubtless lies in the opportunity which it offers for better adaption of currency supply to currency demand, for stronger control over credit expansion, and for wiser and more immediate relief in times of emergency or unsettlement.

Such are some of the features which are common to the banking systems of all of the important countries of Europe. It would be preposterous to suppose that we in America can solve our banking problem in the same way that any other country has solved it. It would be equally unreasonable in seeking a solution for our own difficulties to overlook those features which are common to the banking systems of all other countries and which are absent from our own. It would probably be considered unwise for this country to establish an institution like the Bank of Russia, owned and controlled by the Government, and it would probably be deemed equally unwise to consider the creation of a vast institution like the Bank of England, which is not in any way subject to governmental examination, regulation or control. It is unlikely that our people would ever be willing to establish an institution like the Bank of France or the Bank of Germany, which compete with existing banks and perform many of the functions which the individual banks perform, and for the same reason it would probably be generally regarded as inexpedient to attempt the revival of such institutions as the First and Second Banks of the United States. The problem which confronts the Monetary Commission and which confronts our country is to devise a system which will embody many of the valuable fea-

tures common to the banking systems of other countries, but which at the same time will be thoroughly consistent with, and will naturally grow out of the traditions and conditions out of which our present banking arrangements have developed.

This is the great constructive problem which Senator Aldrich and the Monetary Commission have before them, a problem formidably complex and of untold ramifications. It requires the most persistent and dispassionate thought, and the wisest counsel from all parts of the country. In helping now to find the appropriate solution, and later in helping to educate the community so as to secure its adoption, the universities, chambers of commerce, associations of bankers and economists, and the intelligent press throughout the country are in a position to render invaluable aid.

In Introducing the Honorable George E. Roberts, Dr. Rowe said:

It has become more or less of a tradition with those interested in the currency problem to refer to the present Director of the Mint whenever any peculiarly difficult or complex currency question arises. He requires no introduction to an audience of which so large a percentage is composed of persons who have given special study to the currency question. I need but mention the name of Honorable George E. Roberts, Director of the Mint.

ADDRESS BY HON. GEORGE E. ROBERTS,
Director of the Mint, Washington, D. C.

Every effort to reform our monetary system in the past has been embarrassed by the apparent necessity for disposing of our present complicated system—of somehow getting rid of the many different kinds of money in circulation. It seems to me, however, that the lapse of time and growth of the country have greatly simplified the situation.

It does not appear that there is any pressing occasion to deal with the United States notes and silver certificates at all. They are being rapidly absorbed by the retail trade, and there is no probability that they will ever again embarrass the treasury. Since June 30, 1900, the country has absorbed $337,000,000 of notes in the denominations of ones, twos and fives, and the demand has not been fully satisfied at that. The total amount of United States notes and silver certificates now outstanding in denominations above five dollars is only about $250,000,000. They are being reduced to the smaller denominations as fast as the treasury can lay hands on them, and at the present rate will all be absorbed in the next five or six years if the treasury can get them. In other words, the entire volume of credit notes which are a charge upon the treasury have been practically reduced to small change, are scattered from ocean to ocean, and no considerable amount of them can ever be gathered together at once. Whatever problem these notes ever presented has been solved by the growth of the country. They have become a negligible quantity. It is only a matter of time until they are all reduced to ones and twos, and ultimately to ones.

I do not see that the outstanding national bank currency need be disturbed at this time, and there are reasons for not dealing with it now. In the first place, that would involve refunding the two per cent bonds at a higher rate, and in the second place it would make a vacuum of $700,000,000 in our monetary stock which would have to be filled. There is no harm in having a part of the currency based upon public securities if the elastic element is large enough. In most foreign countries a portion of the currency is based upon

securities. If future bond issues are placed upon an investment basis and without the banking privilege, the present bond-secured currency will be a steadily diminishing factor in the whole stock.

The fundamental defect in our currency system now is this fact that there is no element in it that is readily responsive to the fluctuating needs of the country. It has seemed to a great many people that if all our money was "good," and the supply increasing from year to year in what appeared to be an adequate amount, nothing more was required. Nobody can say that a monetary stock of $35.00 per capita is not on general principles large enough, or that an increase from $28.00 to $35.00 in ten years is not enough. That is not the point of the controversy. The contention is for an elastic element in the currency, and elasticity means contraction as well as expansion. There must be contraction after expansion in order to regain the power to expand again.

Then, again, many people have emphasized the view that it is the exclusive function of the Government to furnish the money of the country, and that the banks should have nothing to do with the supply; that they should simply receive money on deposit, and loan it or pay it out on demand. This sounds plausible, for undoubtedly it is the function of the Government to define what shall be legal tender, and to supervise and safeguard the currency supply, but neither the Government nor any other body can determine in advance how much money will be required from time to time. No authority can determine how much money the people of this country will call for in the year 1911. Nobody can tell within hundreds of millions of dollars what the volume of business will be next year, or what proportion of that business will be handled by means of private instruments of exchange and what portion will require cash; nor can any one tell how much of the $15,000,000,000 of bank deposits may be called for in cash at any time. All of these demands are uncertain and fluctuating, and they are directed, not to the Government, not to the offices of the treasury, but to the banks. It is the province of the Government to supervise the supply, but the demand actually falls upon the banks, and the supply must be afforded through the banks.

The fact is that the great bulk of the payments in a country like the United States are not made in money, but by means of bank credits. Money has become the small change of the business world.

The drafts and checks that represent the payments of commerce meet in the clearing houses and practically offset and cancel themselves. That is the way business is ordinarily done, and the supply of money in the country adjusts itself to this method. Nine-tenths of the so-called bank "deposits" are not made in money, but are simply credits that arise in the exchanges, and if the banks are called upon to liquidate any undue proportion of them at once it simply cannot be done; we fall into just such a deadlock as we had in 1907.

The South, for example, at this season of the year, by the sale of its cotton crop is creating heavy "credits" or "deposits" in New York and other cities. In the usual order of events these will be drawn upon to pay for the South's purchases outside, and the entire exchange will be effected by the handling of comparatively little money. If the South should attempt to withdraw all of these "deposits" in cash it would disturb the financial equilibrium of the whole world.

So when a man says that he does not believe in an elastic currency, or that if all our money is as good as gold nothing more is required, or that the banks should have nothing to do with issuing currency, he overlooks the fact that the business of the country is not done with gold, or with any kind of money, but by means of bank credit; and when this credit receives a shock and the entire fabric of business affairs depending upon it totters to a fall, there is no way to prevent widespread disaster except by supporting it with some higher form of credit.

We have about $15,000,000,000 of bank deposits in the United States, and only about $3,000,000,000 of money in the country all told, in the banks and out. And this elimination of cash is all right; this system of clearings is sound, it is scientific, it is economical, it is permanent; but it never will be safe until it is backed up by machinery by which the banks on the basis of good assets can be supplied with lawful money to meet any demands that may come upon them. When everybody knows that such machinery exists we will be free from panics, as they are in all other countries where such machinery exists.

The problem is to provide this machinery. It is not generally regarded as feasible to enlarge the note-issuing powers of all the individual banks; if it is done it is certain to be done under such

restrictions that elasticity would be seldom effective. It is generally recognized that the weakness of our system is in its lack of organization and cohesion, and that what it wants is development along that line. One by one nearly all of the other important nations of the world have abandoned the policy of individual bank issues and have come to the central bank plan. Instead of allowing the note issuing function to thousands of scattered banks, they concentrate it in one great, strong, semi-official institution, immediately under the eye of the government, and, what is even more important, under the scrutiny of the whole financial world. In all these countries there are other banks of deposit and discount, and these other banks do the bulk of the business with the public, but back of them all and back of the whole business situation is the central bank with the power of note issue, with the ability to actually increase the supply of money in the country, to take over the assets of the other banks and make advances upon them.

In this country we lack this central, supporting factor, this great final resource. We have thousands of good banks, but they stand singly and alone, and in a time of crisis they are like an army of scattered detachments with no head and no organization. The natural impulse of all our scattered banks at the first symptom of trouble is to grab all the cash there is in sight and lock it up, and to restrict and collect loans, and of course all of these efforts simply aggravate and intensify the general distress.

And one of the most interesting features of the situation in 1907 was the way the bankers of this country, under the pressure of necessity, without the authority of law, but because no other means of relief were in sight, improvised an organization that performed practically the functions of a central bank. What they did through the clearing houses and the relief afforded point the way of natural development.

The Aldrich-Vreeland act was a step of evolution in that direction. It was avowedly a temporary measure and it has serious defects, but its defects are such as unavoidably accompany a lack of organization and central authority.

There is a want of freedom and flexibility and power which greatly limits the possible usefulness of the system. It gives a preference to bonds as security and distrusts commercial paper, whereas under proper authority and supervision commercial paper

is the ideal basis for currency issues. It relies upon a rigid, inflexible system of heavy taxation to control note issues, while under an intelligent central authority control may be exercised with judgment and discretion. It affords no machinery for dealing with our international relations, no facility for controlling the movements of gold. In all of these respects any mere clearing house plan is inferior to the systems which serve the other great commercial countries. And it is lacking in two fundamentals, viz., Any organization that is to enter permanently upon the business of lending money ought to have a paid-up capital of its own, and any organization that is to issue paper money in important quantities should maintain a gold reserve.

There is still another important respect in which the clearing house plan of organization falls short of the central institutions that have been developed elsewhere, and that is in the service which these institutions render as the fiscal agent of the treasury. The income and outgo of the United States Treasury are each now approximately a billion dollars a year. The operations of the treasury have become so great that they are often a disturbing factor in the money market. If revenues exceed disbursments the Secretary of the Treasury must put the excess back into circulation by arbitrarily depositing it in banks. He must select out of the 7,000 national banks the ones to be favored with these deposits. They cannot be distributed to all; they cannot be distributed by any general rule; and the task of determining when deposits shall be made, in what localities they shall be made and in what banks they shall be made, subjects the Secretary of the Treasury to constant importunity and criticism.

Talk about the possibility of a central bank getting into politics! What is to be said of the possibility of political influence creeping into the distribution of several hundred millions of treasury deposits controlled by one man? All other plans for currency reform leave the relations of the treasury to the money market unchanged, and this is one of the worst features of present conditions. And how are you going to change it unless you create a strong responsible agency which shall hold such relations to the treasury and to the banking situation that it can serve as an intermediary between them?

It would seem to be quite possible to develop the new system upon the framework which has been organized under the Aldrich-

Vreeland act. The board of directors of a central organization might be created by having each of the currency associations elect one member. The present powers of the local associations may be preserved, thus giving the localities a degree of independence and self-help.

The chief objection offered to a central organization is the vague possibility that it may be controlled to promote private ends rather than the general good. It has been said by persons whose opinions command attention that this would certainly occur. It was said by a great many people whose opinions were considered important that it would never do to have the Government undertake to supervise the railways. It was said to be a dangerous and impracticable concentration of authority. Nevertheless, everybody now accepts the Interstate Commerce Commission as a necessary and permanent institution; and the task of running a central banking institution of the limited functions proposed is simplicity itself compared with that of supervising all the railways of the country.

Experience has shown that large powers may safely be granted where responsibility is definitely fixed and surrounded by complete publicity. In this case there would be not only close supervision by government authorities, but the watchfulness of rival localities, each jealous for the interests of its own section.

If the loans of such an institution are confined to genuine commercial paper, representing commodities moving to market, this fear is an imaginary one. It is significant that in none of the countries where the function of supplying currency is confided to a central bank is there ever serious complaint that its powers are thus abused. There is no difficulty elsewhere in discriminating between speculative transactions and the current demands of legitimate trade, and there is no reason to believe that an institution controlled by bankers representing all sections of the United States would be unable to distinguish them.

Finally, there are going to be great banking institutions in the central cities whether we make special provision for them or not. The banking business in this country is not going to remain in its present disorganized and helpless condition.

In other words, unification and organization will go on in the banking business, whether we like it or not. The question is, shall we recognize the tendency, shall we shape its development, shall we

provide the means to make it most serviceable to all sections and to all interests; shall we keep our hands on it and regulate it, or shall we permit it to develop without direction or control?

The fact is that every step of progress is attended by problems which require treatment more or less experimental; but we cannot stand still if we want to. As population increases and civilization develops and society becomes more interdependent we are obliged to provide a higher and more complex organization. The beginnings of our political institutions were in the old town meeting of New England, but you cannot govern a nation like the United States with nothing but town meetings.

The banking system is a vital part of the machinery of modern business. When its functions are interrupted the injury is not confined to the banks; all classes are affected. I recall meeting a prominent railway official during the panic of 1907 and asking how traffic was. He said: "There is no traffic; we have laid off ten thousand men." What does it mean to lay off ten thousand men, most of them heads of families, and keep a large share of them out of work for a year or more? What does it mean to break up the habits of industry and thrift in ten thousand men, and send them out to idleness, and often to become tramps and dead-beats? Raise the ten thousand to hundreds of thousands, and we no longer have merely a financial question, but a social problem. There is an obligation somewhere to perfect the organization of society so that such conditions shall at least be minimized.

And that is not all. The members of the Monetary Commission report that wherever they have gone in Europe there has appeared the keenest interest in their errand, the most cordial efforts to assist in their work, and the greatest anxiety to prevent its being a disturbing factor in affairs. They said everywhere in 1908 that business was depressed and people out of employment by thousands because of the panic in the United States. The interests of this country have become so great that such a convulsion here is felt everywhere. And so we have another and even broader interest, that this country shall no longer be a menace to the industrial peace of the world.

SUPPLEMENT TO
THE ANNALS OF THE AMERICAN ACADEMY OF POLITICAL AND SOCIAL SCIENCE
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# The Living Wage of Women Workers

## A Study of Incomes and Expenditures of Four Hundred and Fifty Women Workers in the City of Boston

BY

LOUISE MARION BOSWORTH
Women's Educational and Industrial Union Fellow, 1907-1909

Prepared under the Direction of
The Department of Research
Women's Educational and Industrial Union, Boston

EDITED, WITH AN INTRODUCTION BY
F. SPENCER BALDWIN, PH. D.
*Professor of Economics, Boston University*

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# PREFATORY NOTE

## PLAN AND SCOPE OF THE INVESTIGATION

A tentative beginning of this investigation was made in September, 1906, when the Department of Research of the Women's Educational and Industrial Union attempted to gather data concerning the cost of living for working girls dependent on their own resources through inquiries among lodging-house proprietors. The few schedules that were filled out by this means were so inadequate, however, that they were found to be useless for the purposes of the present report.

In January, 1907, the work of investigation was taken up by Miss Jane Barclay, who had received training in welfare work in a Boston department store. The method followed at this time consisted in the distribution of schedules to be filled out by women workers, assisted through personal visits by the investigator. In this way 100 schedules were started.

After several months it became clear that authoritative information as to minor expenses could not be obtained in this fashion. In order to secure such information the Department of Research prepared and printed a classified account book for the use of the women workers dealt with in the investigation. At this point the work was taken up and carried forward to its conclusion by Miss Bosworth, who held a fellowship for the years 1907-1909. Account books were distributed to the 100 women already engaged in filling out schedules. The result was an immediate depletion in their ranks. The interest of others also gradually waned. In fact, most of the women had been interested in the beginning only through the vision of higher wages, and when they found that the investigator could not promise them living wages immediately on the completion of a year's accounts, they decided that the bother of account keeping was not worth while. Thus, one by one, they dropped out.

The investigation was then extended along different lines. In various ways the investigator got into touch with working girls—through the medium of clubs, unions, settlements, department stores, and through addresses furnished by societies, institutions

and the state free employment offices. Account books were distributed to the women who were thus reached and were followed up as far as possible. This work with the account books finally yielded a return of 30 books completely and accurately filled out. Information was also gathered from about 470 women through schedules covering the items of expenditure and the conditions of living in detail. These were filled out through personal interviews either by the investigator herself or other members of the Department of Research. Shorter schedules were sent to workers in factories and stores who could not be reached by a personal interview.

Doubt has frequently been expressed as to the possibility of getting accurate statements of expenditure when the figures are given from memory and not taken from books. This criticism is, of course, a fair one. The only way of securing absolutely trustworthy data is by examining account books. Undoubtedly, however, the schedules, when filled out intelligently and honestly, give the main facts and show the main trend of expenditures. In general, the investigator has been surprised by the accuracy and detail with which women, especially those on low wages, are able to recall their earnings and expenditures. In some cases the recollection has been very complete. Indeed, this facility of recollection is, after all, not remarkable. When the investigator begins with general questions concerning current expenses, such as board and room, and then proceeds to details, the latter come to the mind with comparative ease. In this way such details as the time lost by sickness, unemployment, and the like, can be recalled. The same method brings out the itemized expenditures for clothing; first, such easily remembered items as suits and hats are determined, and minor details are then added in natural order. Doubtless the statements of expenditures on some of the schedules are only approximate. Inaccuracies, however, probably occur chiefly under the headings of miscellaneous expenditures. On the whole, the figures given undoubtedly show the general proportion of all classes of expenditures.

The total number of schedules received was roundly 500. The rejection of schedules for incompleteness, inconsistencies and other causes reduced the number of schedules suitable for tabulation to 450. Of the workers represented on the schedules about 200 were

interviewed by Miss Bosworth, and about 100 by another investigator. The remaining schedules were turned in by members of the Department of Research, employers and workers.

The investigation was conducted throughout under the direction of Miss Mabel Parton. In the initial phases of the study Miss Bosworth also had the advice of Professor William Z. Ripley, as a part of a research course at Radcliffe College. Upon Miss Parton's illness, the present director assumed an advisory relation to Miss Bosworth in her organization of material and interpretation of data. Acknowledgment of kindly assistance is due to the leaders of working girls' clubs and to the superintendents of "homes," and especially to the large number of girls who consented to give their experience and interest in order to advance the welfare of fellow-workers.

Susan M. Kingsbury,
*Director of the Department of Research,*
*Women's Educational and Industrial Union.*

Boston, April 3, 1911.

# CHAPTER I

## INTRODUCTION

This study of the expenditures of women workers is based on detailed records of the living expenses of 450 wage-earning women in the city of Boston. The material was collected through budget schedules and personal interviews. Although the investigation was thus limited in scope, it is believed that the results are fairly representative of the living conditions among working women of all ranks in one American city.[1]

The question of the living wage for the woman worker is hardly touched at all in the existing literature of work and wages. There are numerous studies of women's work, but they do not deal with the living wage; there are also various treatises on the latter subject, but they do not discuss it with reference to women workers. The need of definite information on the cost of living for the wage-earning woman is a real one. A few years ago a group of working women, in making a demand upon their employer for higher wages, declared, "We cannot live on what we earn." The employer inquired, "Then what wages can you live on?" No one of the women could answer the question definitely or in any other way than by an estimate of her own individual needs. In general, the employer who wishes to pay a living wage to his women employes cannot tell what the amount should be. The determination of standards of expenditure and remuneration for women is thus a matter not merely of academic interest, but really of practical importance.

In recent years there has been a general awakening of interest in all questions relating to the industrial employment of women. This has come as a natural result of the great increase in the number of women workers. The proportion of women workers in the employed population of the United States has increased notably in recent decades. In 1880 women workers made up 13.5 per cent. of the total number of bread-winners, 3.2 per cent. of those employed in trade and transportation, and 15.4 per cent. of the employes in manufacturing industries.[2] In 1900 the corresponding

[1] See Prefatory Note.

[2] See Adams and Sumner, "Labor Problems," p. 41.

percentages were 16.6, 10.1 and 16.9. The census figures of 1910 are not yet available, but there can be no doubt that the increase in the number of women workers, as shown by the figures given for previous decades, has gone on at an even greater rate during the last decade. The increase in the field of trade and transportation is particularly striking. This class of occupations includes clerks, stenographers and other branches of employment in which women have largely displaced men. The fact that recent additions to the ranks of women workers have taken place chiefly in this field aggravates the problems centering about the cost of living for wage-earning women, as these are city occupations which involve a higher scale of expenditure in proportion to earnings than the average employment in manufacturing industries.

The causes of the recent influx of women into all fields of employment are easily discernible. The main cause is not, as is often assumed, the desire to earn "pin money." A recent investigator declares that the girls working for pin money are negligible factors. "The women were working from economic compulsion." That is unquestionably the principal motive of the economic activity of women. It is supplemented in some cases by higher and finer motives of personal ambition, or the determination to make an independent career, to realize the possibilities of personal development and social service, which in the past have been reserved largely for men. The pressure of economic necessity, it should be noted, has been increased greatly in recent years by the advance in the cost of living, which has forced women into the trades to supplement inadequate family incomes.

The growing interest in problems of women's work and wages has produced a large output of literature in this field within the last year or two. Miss Elizabeth B. Butler's volume on "Women in the Trades" in the Pittsburgh *Survey* Series of the Russell Sage Foundation, 1909, is an intensive local study of the working women of the steel metropolis. Miss Edith Abbott's "Women in Industry," 1910, is a comprehensive historical review of the expansion of woman's sphere of industrial activity. Miss Annie M. MacLean's "Wage-Earning Women," 1910, is an extensive national survey of the present conditions of women workers based on material gathered under the direction of a committee of the Young Women's Christian Association. Mr. William Hard's and Mrs. Rheta Child Dorr's

articles on "The Woman's Invasion" in *Everybody's Magazine,* 1908-1909, are popular and picturesque in style, but discriminating and illuminating in treatment. None of the previous studies dealt with the cost of living for working women. The Report on Conditions of Women and Child Wage-Earners in the United States issued by the Bureau of Labor under a Resolve of 1907, authorizing an investigation in this field, will, when completed, present a mass of information relating to the subject. Thus far two volumes have been issued, dealing with the "Cotton Textile Industry" and "Men's Ready-made Clothing." If one may judge by the plan and scope of these volumes, the report will contain very little matter bearing directly upon problems of expenditure and the living wage. The National Consumers' League, however, has collected information covering the earnings and expenditures of self-supporting women in New York City. This material has been worked up in articles on "Working Girls' Budgets," by Mrs. Sue Ainslie Clark and Miss Edith Wyatt, published in *McClure's Magazine,* 1910. These articles present the material according to the case method; that is, they are made up of a series of stories of the experiences of individual workers. Thus no systematic study has yet been made of the questions of expenditure and the living wage for working women.

In general, there is a lack of definiteness and conclusiveness about the work of investigators and writers who have dealt with the subject of women's work and wages. A mass of material is laid before the reader, but it is not interpreted and illuminated by the author. There is a failure to define clearly at the outset the objects of inquiry and the questions at issue, to direct the investigation consistently toward these ends and to focus the final results in such a way as to throw light on the problems in this field. The existing literature of the subject in general makes interesting reading, but does not afford satisfactory answers to the many questions that arise in the reader's mind. Thus most of the investigation concerning women's employment thus far appears to be rather aimless, pointless and useless.

The problems raised by the increasing participation of women in gain-bringing pursuits are many and various. In general, what is the effect of industrial employment on the status of woman, marriage and family? That is to say, is the new rôle degrading woman, antagonizing marriage, and disintegrating family life, or is its influ-

ence in these directions elevating? Again, is the competition of women workers a menace to male workers? On the side of earnings, the chief problem in this field relates to the causes of the low pay of women and the possibility of applying remedies. On the side of spending, the main question concerns the amount of expenditure that may be regarded as constituting a living wage. What is the minimum amount necessary to decent and comfortable existence for the woman worker? How is the income distributed among the several objects of expenditure—food, rent, clothing, etc.? How does the distribution of expenditures for the woman wage-earner compare in detail with the distribution of individual or family expenditures in general, as shown by investigations in this field? How do expenditures vary according to occupation? How according to earnings? What special problems of expenditure suggest themselves in the light of a study of working women's budgets?

The investigations thus far made with reference to the employment of women throw a good deal of light on the problem of low pay, but almost no light at all on the question of the living wage. The causes of the low rate of earnings for women are fairly well understood and progress toward the improvement of conditions in this respect has already been made. The primary cause of the low pay of women is undoubtedly comparative inefficiency, due to various reasons. The physical limitations of woman make her a less efficient worker than man in certain occupations. Her lack of trained skill is also a handicap. In this connection, the fact that many women take up industrial employment as a temporary makeshift rather than as a life career is important. Women workers in this position are not likely to make any great effort to master thoroughly the requirements of their occupations and thus to fit themselves to earn higher wages. Moreover, not only is woman actually less efficient as compared with man in some branches of employment, but she is often regarded as his inferior in general. The traditional notion of woman's inferiority stands in the way of the advance of her wages to the level of men's. It leads employers to pay women workers less than men, even when their labor may actually be of equal value. Lack of organization, furthermore, is a potent influence in keeping the rate of women's pay unduly low. Women workers have not in the past combined to protect their

interests, and modern political economy recognizes the truth that if the worker does not seek his interest alertly and persistently his interest will not seek him. The fact that woman's relation to her work is often parasitical is another factor in the situation. The wages of many women workers are not their only means of support, but are merely supplementary to income derived from other sources. Thus, part of the supply of female labor is of the nature of a by-product, and is correspondingly cheap. Finally, the sheer inertia of custom stands in the way of the advance of women's wages. The employer does not pay full wages to women because it is not the general practice to do so. The established custom of paying women low wages is thus in itself a barrier to reform.

As the causes of low wages have come to be understood remedies have been applied. Facilities for the industrial training of women workers have been provided. Additional safeguards have been thrown about women's employment by the improvement of the labor code and the education of public opinion, and women workers have been organized in trade unions in some branches of employment. Of course, much still remains to be done toward the betterment of working conditions for women, but a substantial beginning has been made in this field.

On the other hand, in the field of expenditures, hardly a beginning has yet been made. The problems relating to expenditures and the living wage remain unsolved. Indeed, the facts requisite for intelligent consideration of these problems have not yet been collected. The study of the cost of living of a considerable number of Boston working women presented in this volume makes no pretense of offering final answers and solutions of the problems in this field. It does, however, represent a serious attempt to collect and interpret a body of material that may give help toward such solution.

In tabulating and presenting the returns the investigator has adopted a two-fold classification, namely: according to occupations and according to earnings.[1] The incomes and expenditures of each class and group have been averaged; thus the figures given in the tables are in all cases averages. The classification of occupations contains six divisions, namely: professional women, clerical work-

[1]The editor of this volume had no part in determining the methods or directing the course of the investigation. His task began only when the final results were submitted in manuscript form.

ers, saleswomen, factory employes, waitresses and kitchen workers.[1] The wage groups are five in number, namely: (1) $3 to $5 per week; (2) $6 to $8 per week; (3) $9 to $11 per week; (4) $12 to $14 per week; (5) $15 and over per week.

As not all of the 450 schedules which were received contained entries under all headings of inquiry the number of cases represented in the different tables varies somewhat. The number of schedules giving returns for clothing, which was about the average number in the different divisions of the investigation, was 399, distributed as follows:

| Occupations. | | Wage Groups. | |
|---|---|---|---|
| Professional | 37 | (1) | 51 |
| Clerical | 143 | (2) | 185 |
| Sales | 49 | (3) | 102 |
| Factory | 88 | (4) | 36 |
| Waitresses | 64 | (5) | 25 |
| Kitchen | 18 | | |
| Total | 399 | Total | 399 |

The general summaries on pages 16 and 17 bring together the chief results of the study of expenditures.

The expenditures of the $9 to $11 wage group may be taken as representing the minimum living wage. This class stands midway in the wage scale and represents roughly the average of all women workers covered by the investigation. It appears, moreover, that the average income and the average expenditures of this class approximately balance each other, whereas in the two classes standing lower in the scale there is a deficit of income below expenditures, and in the two classes standing higher in the scale a surplus of income over expenditures according to the tabulated returns. This fact indicates that the income first becomes adequate to meet expenditures when this wage group is reached.

There are also other indications that the expenditures of this class represent a fair minimum standard of decency and comfort. In the case of food expenditures, in the second wage group as com-

[1]Employees in dressmaking and tailoring establishments are included in the group of factory workers. For a fuller discussion of income and expenditures of professional women see Susan M. Kingsbury, Report of a Committee on Economic Efficiency of College Women. Association of Collegiate Alumnæ Magazine, February, 1910.

pared with the first there is a large increase in the amount, but a fall in the percentage. The percentage is still unduly high, however, being over 46. The difference between the second group and the third group, or the middle class, is much less marked; the amount increases only slightly and the percentage drops to about 35. As the investigator remarks: "It appears that the increase of income up to $8 is used to provide a better dietary. The slighter increase both in regular board and extra food in the next higher division would seem to indicate that the most pressing needs in these directions are met at about a $9 wage." The figures of expenditure for rent show a similar tendency. There is a large increase in the amount in the second group as compared with the first, while the percentage remains practically the same. The latter is still unduly high, slightly above 20 per cent. In the third group, however, the amount is only slightly larger than in the second and the percentage drops to about 15. This indicates, as the investigator points out, that with the $9 to $12 wage the essential decencies and comforts of living conditions have been achieved.

The expenditures for clothing are not so clear in their indications with respect to the position of the third group, as are the expenditures for food and rent. In the case of both the latter, there is a sharp increase in the amount from the first to the second group, while the percentage remains about the same, or falls slightly; then there is a small advance in the amount from the second to the third group, while the percentage declines notably. In the case of clothing, however, the amount increases more from the second to the third group than from the first to the second group, while the percentage in the third group is not appreciably lower than in the second. In this case the fourth group shows conditions more analogous to those of the third group in the case of food and rent. That is to say, there is a marked increase in the amount up to this point and a small increase thereafter, with a pronounced fall of the percentage. On the whole, however, as the average amount of the expenditure for clothing by the third group comes closest to the general average of approximately $1.50 per week, it seems reasonable to take the expenditure of this class as representing the living wage standard.

The expenditure for health increases greatly in amount until the third group is reached; then it remains practically stationary in the

fourth group. The percentage at the same time declines only slightly from the first to the second group, but very noticeably from the second to the third group, and thereafter falls sharply. It appears, also, that the amount hardly increases at all for the fourth group, and decreases finally for the fifth. The figures indicate that the need of medical treatment is met more adequately as the wage level of the third group is reached. The expenditure of this group appears to represent the standard required for maintenance of health and efficiency.

The figures for savings also point to the third group as representing the living wage standard. The amount of savings first becomes an appreciable factor in the third group, where it exceeds $30 per year. In the first two groups the savings amount only to a few dollars annually. The amount increases greatly in the fourth and fifth groups. It thus appears that the earnings for the third group first afford some margin for savings.

The statistics for miscellaneous expenditures need not be considered in determining the question under consideration. The figures in the table are somewhat uncertain on account of difficulties in classification mentioned in the text. They do not warrant any conclusions concerning the relation of expenditures to the wage scale.

An examination of the movement of expenditures with increasing incomes clearly indicates the third group as representing the living wage. The expenditures of the third group are as follows:

Annual Expenditures Representing Living Wage.

| | |
|---|---|
| Food | $169.70 |
| Rent | 74.81 |
| Clothing | 88.99 |
| Health | 22.09 |
| Savings | 31.63 |
| Miscellaneous | 117.06 |
| Total | $504.28 |

It appears accordingly that annual earnings of approximately $500 a year, or $10 a week, may be taken as the amount of a living wage for women workers in Boston. The investigation shows clearly

that on the whole it is not possible for a self-dependent woman to live on less than this amount in decent comfort with any margin for saving.

It is interesting to trace through the table of average annual expenditures by wage groups the effect of increase of earnings upon expenditures in general and upon the several items of expenditure in particular. In the case of food, rent and clothing the amounts expended all increase, while the percentages of income represented by the amounts all decrease. There is absolutely no exception to this rule. The amount expended for health increases up to the highest wage group, when it declines, the percentage meanwhile falling steadily. The amount of saving is slightly less in the second than in the first group, but thereafter it increases notably, while the percentage also increases. The figures for miscellaneous expenditures show no regular tendency, although the percentage for the fifth group is considerably lower than that for the first.

The movement of the expenditures of working women, as shown by this table, does not conform in general to the well-known law of the growth of expenditures formulated by Dr. Ernst Engel, former Chief of the Royal Bureau of Statistics of Prussia. This law embodies four propositions, as follows: (1) The percentage of expenditure for food diminishes as the size of the income increases; (2) the percentage for clothing is approximately the same whatever the income; (3) the percentages for rent and for fuel and light are invariably the same whatever the income; (4) the percentage for sundries becomes larger as the income increases.

The first proposition alone holds true of working women's expenditures as determined in this investigation. Other tendencies here appear to be directly opposed to the propositions of Engel's law. The percentages for clothing and rent decline greatly as the income becomes larger, and the expenditure for sundries shows a slightly downward tendency.

Comparison of the expenditures of women workers with those of family units, as shown in other investigations, reveals some significant facts. The tables on page 18 afford a basis for such comparison.[1]

[1]For a general discussion of family expenditures, see "The Standard of Living" by Frank Hatch Streightoff, 1911.

Comparison of the percentages in these tables discloses a general similarity as regards the chief items of expenditure. All the tables show a considerable increase in the case of clothing and sundries. The expenditure for rent does not change appreciably in the first table, but falls in the others. In the case of the first two tables the expenditure for food decreases notably as the income increases.

When the percentages of family expenditures are compared with the percentages of working women's expenditures some noteworthy differences appear. The percentage of expenditure for food is much higher for the low-wage groups of women workers than it is for the small-income classes of families. The same is true of the expenditures for rent. The higher rates of expenditure for food and rent among women workers are doubtless to be explained by the fact that it is more difficult and expensive for a single woman to provide for herself table board and lodging accommodations than it is for a single man or for a family. The problem of board and lodging is a much more serious one for self-dependent women than for working men and families. Another striking feature of the expenditures of women workers, as contrasted with family budgets, is the extremely high percentage for clothing. This phenomenon again is readily understood. Women workers are obliged to spend proportionately more for clothes than men or families. The wardrobe is necessarily a large item in the working girl's budget.

When the changes in percentages of expenditures with advancing incomes are compared two differences stand out conspicuously. In the first place, the fall in the case of both food and rent is much greater for women workers than for families. As the necessary outlay for food and rent is a much heavier drain on the small incomes in the case of women workers than in the case of families, so the reduction of the percentages of expenditure for these purposes as earnings increase is more marked for women workers. In the second place, the percentages for clothing and sundries decrease in the case of women workers, while they increase for families. Here, again, the difference is doubtless due to the fact that the cost of clothing is of necessity disproportionately high for the woman on low wages. On the other hand, the well-paid women of the professional class represented in the highest wage group are, as a rule, economical and resourceful in the matters of clothing and sundries.

This study has revealed many significant features of methods of expenditure which cannot be touched upon in this introductory survey. In the field of food expenditure interesting details relate to the efforts made by the women of low wages to cope with this difficult problem. The devices consist mainly in the practice of cooking at home, and the tendency to take work that provides meals in part payment for services. The extent to which these practices prevail is shown by the tables and analyses in the chapter on food. The problem of rent is also a most difficult one for the low-paid working woman. The economies practiced in this field consist in taking roommates in order to reduce rent and in sacrificing the somewhat expensive advantages of heat and sunlight in the living quarters.

With reference to clothing, the investigator shows clearly the commercial necessity of dressing well as a means of securing and retaining employment. The standard of expenditure here is found to be necessarily variable. The requirements of occupation in respect to dress vary widely for the different classes, and the reaction against the monotony of employment, which naturally encourages extravagance in dress and amusement, is far greater in some cases than in others. The cost of clothing depends to a great extent on individual taste and ingenuity. Economy is sought in this field through home sewing and bargain hunts. Installment buying also comes into play as a method of procuring a season's outfit at one time. This practice is generally disliked and condemned, but it is followed largely as a matter of necessity.

The statistics of expenditure for health bring out the tendency of such expenditure to increase in amount as the income becomes larger. It thus appears that the conservation of health must be neglected largely by the low-paid women workers. In the chapter on Savings and Debts the fact is brought out that the amount of saving is practically *nil* in the low-wage groups, and that really permanent saving hardly begins to an appreciable extent before the highest group. It appears further that the only form of permanent saving is insurance. Savings that are made in other ways are usually drawn upon freely to meet special demands or emergencies. An impressive detail in the field of miscellaneous expenditures is the large amount of benevolence shown by working women. Indeed, it appears that in the fourth and fifth wage groups, with earnings

above the average level, the amount spent for others under the head of miscellaneous expenditures is considerably larger than the amount spent for self.

The statistical picture of the condition of the women workers in one large city presented in this volume, incomplete as it may be in many respects, is, on the whole, a valuable contribution to practical sociology. It is to be hoped that one effect of this investigation may be to stimulate similar studies in other cities. There are many questions of importance relating to the living conditions of working women to which answers can be furnished only by such detailed study of facts. In particular, an investigation that would show the proportion of women workers receiving less than a living wage and the conditions in this submerged group would have the greatest value.

F. Spencer Baldwin,
*Professor of Economics, Boston University.*

TABLE 1.—AVERAGE ANNUAL EXPENDITURES OF WOMEN WORKERS, BY OCCUPATION.

| Occupation. | Average net income. | Food. | | Rent. | | Clothing. | | Health. | | Savings.[1] | | Miscellaneous.[2] | | Total average expenditure. | Surplus of income over expenditure. | Deficit or excess of expenditure over income. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | | | |
| Professional..... | $695.41 | $192.18 | 27.63 | $80.33 | 11.55 | $112.27 | 16.14 | $26.38 | 3.79 | $130.41 | 18.75 | $142.13 | 20.44 | $683.70 | $11.71 | 0 |
| Clerical..... | 499.59 | 174.40 | 34.91 | 82.73 | 16.56 | 70.43 | 14.10 | 12.44 | 2.49 | 88.65 | 17.74 | 132.96 | 26.61 | 561.61 | 0 | $62.02 |
| Sales..... | 357.34 | 164.56 | 46.05 | 79.70 | 22.30 | 68.41 | 19.14 | 19.05 | 5.33 | 38.55 | 10.79 | 105.93 | 29.64 | 476.20 | 0 | 118.86 |
| Factory..... | 382.37 | 147.75 | 38.64 | 55.76 | 14.58 | 70.71 | 18.49 | 23.96 | 6.27 | 51.20 | 13.39 | 93.57 | 24.47 | 442.95 | 0 | 60.58 |
| Waitresses..... | 364.42 | 171.92 | 47.17 | 53.29 | 14.62 | 57.82 | 15.87 | 11.45 | 3.14 | 54.55 | 14.97 | 61.65 | 14.17 | 410.68 | 0 | 46.26 |
| Kitchen workers... | 342.30 | 156.65 | 45.76 | 82.17 | 24.00 | 28.22 | 8.24 | 8.64 | 2.52 | 61.67 | 18.02 | 40.28 | 11.77 | 377.63 | 0 | 35.33 |

[1] Doubtless some part of the amount entered as savings is in many instances spent during the course of the year for living expenses and thus really appears in the amounts entered in other columns.

[2] The figures given under this heading are exclusive of amounts entered under "Support of Others" in Miss Bosworth's table of miscellaneous expenditures. The latter amounts are suspiciously large in all cases. Presumably part of the sum entered under this head had been already reckoned in some cases under expenditures for rent and food. Undoubtedly, moreover, some of the expense of support of others was borne in all cases out of savings of the current year or previous years. For these reasons the item has been omitted in this summary statement of expenditures.

TABLE 2.—AVERAGE ANNUAL EXPENDITURES OF WOMEN WORKERS, BY WAGE GROUPS.

| Wage. | Average net income. | Food. | | Rent. | | Clothing. | | Health. | | Savings.[1] | | Miscellaneous.[2] | | Total average expenditure. | Surplus of income over expenditure. | Deficit or excess of expenditure over income. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | | | |
| $3.00 to 5.00 | $231.36 | $134.89 | 58.30 | $49.87 | 21.56 | $50.41 | 21.80 | $13.43 | 5.80 | $8.96 | 3.87 | $53.43 | 23.09 | $310.99 | 0 | $79.63 |
| 6.00 to 8.00 | 350.15 | 162.23 | 46.33 | 71.83 | 20.51 | 66.44 | 18.97 | 18.81 | 5.37 | 7.64 | 2.18 | 69.36 | 19.81 | 396.31 | 0 | 46.16 |
| 9.00 to 11.00 | 493.54 | 169.70 | 34.38 | 74.81 | 15.16 | 88.99 | 18.03 | 22.09 | 4.48 | 31.63 | 6.41 | 117.06 | 23.70 | 504.28 | 0 | 10.74 |
| 12.00 to 14.00 | 629.28 | 190.97 | 30.35 | 93.66 | 14.88 | 105.87 | 16.82 | 22.91 | 3.64 | 84.72 | 13.46 | 97.93 | 15.56 | 596.06 | $33.22 | 0 |
| 15.00 and over | 885.31 | 205.66 | 23.23 | 115.59 | 13.04 | 108.40 | 12.24 | 16.75 | 1.89 | 135.91 | 15.35 | 139.21 | 15.72 | 721.52 | 163.79 | 0 |

[1] Doubtless some part of the amount entered as savings is in many instances spent during the course of the year for living expenses and thus really appears in the amounts entered in other columns.

[2] The figures given under this heading are exclusive of amounts entered under "Support of Others" in Miss Bosworth's table of miscellaneous expenditures. The latter amounts are suspiciously large in all cases. Presumably part of the sum entered under this head had been already reckoned in some cases under expenditures for rent and food. Undoubtedly, moreover, some of the expense of support of others was borne in all cases out of savings of the current year or previous years. For these reasons the item has been omitted in this summary statement of expenditures.

TABLE 3.[1]—PERCENTAGES OF EXPENDITURES OF NORMAL FAMILIES IN THE UNITED STATES.

| Income. | Food. | Rent. | Clothing. | Fuel. | Light. | Sundries. |
|---|---|---|---|---|---|---|
| $200-$300 | 47.33 | 18.02 | 8.66 | 6.09 | 1.13 | 18.77 |
| 400- 500 | 46.88 | 18.57 | 11.39 | 5.54 | 1.12 | 16.50 |
| 600- 700 | 43.48 | 18.48 | 12.88 | 4.65 | 1.12 | 19.39 |
| 800- 900 | 41.37 | 17.07 | 13.57 | 3.87 | 1.10 | 23.02 |
| 1000- 1100 | 38.79 | 17.53 | 15.06 | 3.77 | 1.16 | 23.69 |
| 1200 or over | 36.45 | 17.40 | 15.72 | 3.85 | 1.18 | 25.40 |

TABLE 4.[2]—PERCENTAGES OF EXPENDITURES OF FAMILIES IN NEW YORK CITY.

| Income. | Food. | Rent. | Clothing. | Fuel and Light. | Insurance. | Sundries. |
|---|---|---|---|---|---|---|
| $200-$400 | 44.2 | 30.5 | 7.3 | 6.5 | 4.8 | 6.7 |
| 400- 500 | 44.4 | 25.9 | 9.3 | 6.2 | 4.5 | 9.7 |
| 600- 700 | 45.5 | 21.7 | 9.0 | 5.7 | 4.6 | 13.5 |
| 800- 900 | 45.8 | 18.6 | 10.3 | 5.4 | 3.1 | 16.8 |
| 1000- 1200 | 43.6 | 17.3 | 10.8 | 4.5 | 3.6 | 20.2 |
| 1200- 1500 | 39.5 | 18.0 | 11.3 | 4.5 | 3.7 | 23.0 |

TABLE 5.[3]—PERCENTAGES OF EXPENDITURES OF FAMILIES IN NEW YORK CITY.

| Income. | Food | Rent. | Clothing, | Fuel and Light. | Sundries. |
|---|---|---|---|---|---|
| $400-$500 | 40.8 | 26.8 | 13.0 | 5.6 | 6.9 |
| 600- 700 | 44.6 | 23.6 | 12.9 | 5.8 | 7.3 |
| 800- 900 | 44.3 | 20.7 | 14.0 | 5.0 | 9.1 |
| 1000-1100 | 44.7 | 18.1 | 15.5 | 4.5 | 11.4 |
| 1200-1300 | 45.9 | 19.8 | 15.2 | 3.8 | 10.5 |

TABLE 6.[4]—PERCENTAGES OF EXPENDITURES OF WORKINGMEN'S FAMILIES IN MASSACHUSETTS.

| Income. | Food. | Rent. | Clothing. | Fuel and Light. | Sundries. |
|---|---|---|---|---|---|
| Less than $450 | 56.00 | 21.96 | 9.15 | 7.91 | 4.98 |
| $450-$600 | 54.89 | 17.54 | 11.69 | 6.91 | 8.97 |
| 600- 750 | 53.30 | 17.27 | 11.68 | 6.75 | 11.00 |
| 750-1200 | 53.18 | 11.03 | 14.66 | 5.39 | 15.74 |
| 1200 and over | 54.87 | 6.80 | 14.62 | 4.49 | 19.22 |

[1]Eighteenth Annual Report, United States Commissioner of Labor, on the Cost of Living and Retail Prices of Food, 1903, p. 101.

[2]L. B. More, "Wage-Earners' Budgets," p. 55.

[3]R. C. Chapin, "Standard of Living in New York," p. 70.

[4]Report Massachusetts Bureau of Statistics of Labor, 1901, pp. 296-297.

## CHAPTER II

### HOMES AND LODGINGS

From suites in attractive apartment houses to dingy tenements, and from sunshiny rooms in the suburbs to dark attics or beds behind screens in a working girls' dormitory, evening visits to girls at home take the visitor through a wide range in the conditions of living, which depends not alone on the wages earned, but quite as much on standards of living, both inherited and acquired.

In an apartment hotel in a suburb lives a girl whose income is $10 a week. She has a tiny suite, consisting of a little reception hall, bath and one room. The building is an especially attractive one of its kind, with air space about it. The room is a corner one on the top floor, with side views, sunshine and a freshness of paint and paper, which is a real satisfaction compared with the dingy walls and dusty furniture of a cheap lodging. The little bathroom is spotless with white tiled floor and walls and porcelain tub and basins. The furniture is cheap, but has been collected by dint of much self-denial and study of values and needs. A low bookcase, made by a carpenter, a table desk doing double duty, an easy chair and a couch, with a couple of rugs and a few pictures make the place a real bit of home. Rent takes one-half the income of the occupant and makes a very rigid curtailment of food necessary. She meets the necessity by doing her own cooking on an oil stove. A few dishes in a little cupboard, a saucepan or two, a teakettle, and a cold air-box in a window, seem all that is necessary. The sense of possession and independence in her home is so valuable that she considers it worth the sacrifice of comforts which are often thought to be indispensable.

This longing for a home, however modest and circumscribed, and sometimes overexpensive, is almost universal. Its recognition is essential to a sympathetic understanding of the wage-earning woman. Sometimes it is only a longing and a dream of the future; sometimes it is a reality, purchased at a price; and sometimes the story is one of every conceivable struggle, with failure and lodgings at the end. And the price is not always paid with money alone, but often with health.

Two sisters starting to earn their living at twelve and thirteen years of age, about fifteen years ago, spent much of the strength that should have gone into winning an increase of wages in struggling to keep the little tenement home when the death of their mother and a drunken father threw them on the world with only each other for support. "I worked," said Rose, "from eight in the morning to ten at night, and eleven on Saturdays, and every week my sister and I had brought our envelopes home unopened to mother. The first raise I had after she died—a raise from $6 to $7—I wanted to keep. All the girls had money of their own, and at first I really made up my mind to hold back that extra dollar. It was my own money and I had earned it. But when I went into the house the first thing I knew I gave the envelope unopened to my sister. One time my sister was off on her vacation—just a week, the first she had had for years—and I fell ill. I could hardly crawl around for my food, but I wouldn't send for her because she needed that one little week in the country, and so I got along somehow until she came back. We were advised to take another girl in to help us pay expenses and do our work. So we rented a little side room for a dollar and a half a week. But the girl who had it squeezed us hard. In a week the gas bill jumped fifty cents. She would keep the coal stove going and do a big washing and all her cooking. I didn't know how to argue with her, and we had to get rid of her. But we found it necessary to have some one to start the fire and get dinner at night. Then we heard of an old woman out in Roxbury with a grandchild. I went out to see her, and she agreed to leave the grandchild with a friend and come and live with us. She worked on my sympathies so that I offered her a little bit of money a week. But when she came she had two cats and some birds and no end of boxes. She used up all the wood and coal, keeping a roaring fire all day. Soon we were feeding not only all her animals and herself, but her grandchild as well. That ran us into debt, and we decided that we should have to take a room and give up housekeeping, because our long working hours made us too tired at night to do all our work and keep house as well."

Experiences like this are common. Few working women, especially older women who have settled down "into harness" and expect to earn their living all their lives, drop into lodging houses without

a struggle for something better. Oftentimes a woman who is a clever manager is able to achieve a comfortable little home without too great an expenditure of energy or money.

The Smith sisters are happy and very proud of their "home." It consists of two rooms reached by a creepy elevator in a big forlorn office building, but that makes no difference to the girls, for it is high, sunny and their own. As a matter of fact the sun and the air are confined to the outer room, for the inner apartment, which opens into the other by large double doors, has no windows whatever. Here they keep their kitchen supplies, a double-burner gas stove on a table, a cupboard, a refrigerator, an ironing board, two bureaus and one bed. But they explain that when the double doors are open at night the room gets plenty of air. A bathroom in a private hall is shared by one other suite. They are almost jubilant in their pride in their home. By careful planning it costs these two girls less than four dollars a week apiece for all of their living expenses, excepting clothes and incidentals. The rent of the suite is about two dollars apiece a week. They lay this amount aside every payday toward the regular monthly rent, with an extra dollar apiece for the last three days. The furniture required quite an outlay at first. The beds cost $9.75 apiece, and the rugs in the living room $22.50. The furniture includes a center reading table, a desk, a bookcase, the two beds, several chairs and a piano. The latter, which is an inheritance, is a joy and pride as well as the chief recreation of their lives. They apparently enjoy doing their own cooking, washing, ironing and cleaning, but the younger sister, who works in a store, has little of it to do. Miss Smith is a manicurist and hairdresser, whose business hours are irregular, since she must meet appointments at the homes of her customers. She makes very good wages and has practical independence in the matter of hours, so the housekeeping does not seem too hard to her.

Another little family of four sisters on low wages solve the problem in their North End tenement through their more or less invalided older sister, who cannot take a position, but does do the household work and even much of the dressmaking.

Oftentimes a group of friends get together and rent a suite, furnish it as best they can and share the rent. The visitor found two or three instances in which a group rented a little cottage at some near-by seashore or country place for the summer, thus get-

ting more of an outing than the ordinary two weeks' vacation. This plan of co-operative householding works very well financially, even with the purchase of furniture and the payment of rent and gas bills, and often fuel as well. It is practically always cheaper, as well as very much more independent than living in lodgings. One great objection is that the burden of housekeeping is too hard for girls who are tired after a day's work and in need of recreation instead of more work. There is also the difficulty of finding groups who, without the anchor of family ties to hold them, can live together in harmony. Persons with experience in co-operative living all tell the same tale of shipwreck upon the rock of uncongeniality. In some cases, however, the right combinations have gotten together and co-operative living has proved thoroughly successful.

In general, the family group solution of living seems to be possible in the case of women earning fairly good salaries who are able to afford quarters sufficiently roomy to give each member some corner of her own, and to allow, too, a certain amount of leeway in the matter of expenses for light, fuel, cleaning, etc. In such cases the burden has not proved too heavy and the comforts of living have reduced other expenditures to a very appreciable extent. This reduction is effected chiefly in the matter of doctor's bills and in expenditure for recreation. More than one group finds its open fire and its piano, the rent of which divides up into comparatively small amounts for the individual, more attractive and more restful than evening theaters or Sunday trips into the country. It is sociability that the human being needs, and the lack of it drives the isolated habitant of the lodging house to the beaches and theaters. But, in general, the woman who can live happily in this way is the woman earning enough to live comfortably anywhere; and, usually, of course, the woman who is clever enough to earn good wages is clever enough to plan the details of co-operative living without drawing too heavily on her energies.

The case of the woman in lodgings is not, certainly at first view, so cheering. In the city, conditions make the life less protected and more difficult in very many ways. To the young girl coming to work for the first time the city seems indeed "a wilderness." If she knows of a trustworthy room registry she can find a room that has been inspected and is known to be "respectable." If she knows of no such registry she very often takes refuge in one

of the Young Women's Christian Association buildings, Franklin Square House, or Brooke House.[1]

The writer has come upon very few cases in which girls have met with unpleasant experiences in looking for rooms. Stories of such are common, but first hand accounts are rare. Most experiences of an unpleasant nature one learns at third or fourth hand, seldom directly. However, the existence of such a possibility is an ever-present anxiety to the girl seeking rooms.

Albert Wolfe, in his study of lodging houses of the South End, gives a comprehensive and searching view of the lodging house problem. The dangers to unprotected girls, as well as the temptations to seasoned lodgers are seen to be very real and far-reaching in their effects. That the present investigator has not met with this problem may be explained in several ways still consistent with the existence of the evil. First, of course, is the fact that in making acquaintances among the girls this condition would be the last to reveal itself so long as concealment was possible. But the real explanation may lie in the sources from which the investigator drew her material. As stated in the introductory chapter, this was obtained through personal acquaintance with girls in touch with various clubs and social organizations. The list was extended by means of names given by this nucleus, and so the circle grew. Therefore, while our material was literally chosen "at random" in the matter of wages, occupations and general living conditions, it may be said to have been selected from the viewpoint of character. The majority of the girls were visited several times each, so that the character of the houses in which they lived was known, and was invariably respectable. Through the State Free Employment Bureau any one who was willing to talk became material. And here, indeed, in several cases there were discrepancies in statement which seemed suspicious. In these cases however, the rooms were not visited, and so no suspicion could be verified or discredited. In two or three instances pathetic little stories came from girls evidently too ignorant to protect themselves or too miserable to care to conceal their plight; but they were not stories that dealt with lodging house life.

Each quarter of the city has lodging houses typical of itself in the matter of comfort. The proximity of the South End to the

[1] Subsidized boarding houses.

business section makes it a desirable place of residence for working girls. The elevated and the many lines of surface cars bring it into better connection with all parts of the city than any other section, and the four long streets—Tremont, Washington, Shawmut and Columbus Avenues—make all parts of it a fairly direct walk from the business centers of the city. These long streets are the canals of business. They are lined with stores of all varieties, but of uniformly cheap quality. The streets of red brick lodging houses run at right angles to these. The uniformity of these cross streets is varied occasionally by a "square" or "park," in which the street widens for a block and the houses draw back on either side from a bit of lawn with fine old elms and perhaps a fountain. The trees and the heavy ropes of wistaria vines, which have twisted themselves through the elaborate wrought-iron work of the balconies on the old mansions, were planted in the days of the South End's prosperity, and have reached their beauty only in the days of its decay.

The old South End houses of red brick and wrought-iron were once the stately and comfortable homes of the prosperous of the city. Now, still stately, they have fallen into the dinginess and lack of repair which mark the district as one over which not the householder, but the landlady, holds sway. The massive front doors with shining bellpulls, nameplates and handles open into halls reminiscent of the formal dignity of the seventies. Long curving staircases and panellings of fine woods lead up toward large rooms, the spacious front and back parlors of the period, with curving fronts and beautifully carved marble fireplaces and ornate chandeliers. Sometimes the great mirrors, seeming to double the size of these lofty rooms, are still in place over the mantel, but more often all vestiges of former grandeur, excepting the lines of the room itself and the heavy panelled doors and wainscots have long since taken their way after their onetime owners and left the shell of prosperity with only shabby meagreness and decay within.

These large rooms—"square" rooms as they are called in distinction from the hall bed rooms or "side" rooms—can be rented some times for $3, $3.50 or $4 per week, and are very comfortable. The "square" rooms on the upper floor, designed by the owners as bedrooms, usually have a set basin with hot and cold water built into a niche in the wall. As a rule, they are comfortably furnished, and the lodger has easy access to an old-fashioned bathroom. Many

of these bathrooms still have tin tubs and closed plumbing; they are often odorous, and are always shared by as many people as the house contains. This is synonomous with as many as it will hold, for the South End landlady is getting a living, not supplementing an income, by her house, and fills it to its limit, which is often fifteen or more lodgers.

The hall bedrooms are cheaper, and often, on the upper floors, unheated. The fifth floor, or attic, bedrooms, which are either dormer-windowed or in the mansard roof of the house, are high and cold and cheap—sometimes as low as one dollar or seventy-five cents per week. These rooms, tiny and uncomfortable as they are, are in demand by women whose wages will not permit of more commodious quarters.

For the same reason—that of making it pay—the South End lodging house boasts no parlor for the lodger. The liberty of each is confined to her room, or her share of her room. This must necessarily be her living, reception and sleeping room, sometimes dining room and kitchen as well. This combination, of course, leads the way to many of the dangers which beset the path of the girl living by herself. It is quite the usual custom to receive one's callers of both sexes in one's room, and this custom is by no means confined to the South End or to the lodging house without a parlor. It is true in general of those who are living in lodgings and not as one of a family. It is probably true that the lack of a parlor rather enforces the custom, and it is certainly true that the average landlady cannot afford to provide a reception room.

The disastrous story of one South End landlady tells her side of the case. "I saved up $1000 and decided to invest my savings in a lodging," she says. "My furniture cost me $900, and I started well equipped to run a decent house. But I was too strict, and you can't make a house pay if you are particular. I used to be wakeful at nights, kept a sharp outlook, and turned wrong people out of my house. You *can tell* about the character of your house if you are careful, but it pays to shut your eyes. At best a house won't pay more than $250 over expenses, and if respectable will seldom pay." And then she added, after telling how she worked eight years to be successful and then gave up with the loss of all she had invested: "After my long struggle I can hardly blame lodging-house keepers who shut their eyes, nor yet young girls who go wrong, because they must live."

On the whole, the atmosphere of the South End is depressing. Its very attractions seem more sordid by their combination with the untidiness of the ill-kept streets and the sense of moral unwholesomeness which taints the district. Quite different is "The Hill" and the adjoining "West End." Here the atmosphere of "old Boston" still clings undefiled, reaching from the State House down among the old homes whose metamorphosis into lodgings is at least an evolution in respectability. This latter term would seem perhaps typical of the whole district. No section of the city, however, shows greater variety of social conditions within a limited area. Two or three streets back from the Common there is a section of homes, many of which are beautiful old houses of the sort which never change hands. Pinckney Street, one block farther west, is almost exclusively lodging houses, and only one block beyond is Revere Street, hanging on the edge of the West End slum district, which extends over Cambridge Street to the water's edge. Pinckney and West Cedar are perhaps the two streets thoroughly given over to the lodging house. Here the houses are not unlike those of the South End in plan, with two large square rooms and a small hall bedroom on each floor. The prices are somewhat higher, but the distinction that stamps the difference in the two sections most clearly is in the grade and variety of business which the inhabitants of "The Hill" have attracted to themselves. The basement dining room, omnipresent on Columbus Avenue and Tremont Street, is unknown. Delicatessen shops are rare, and the quack doctors, dime-novel exchanges, pawn shops, cheap tailors, dentists, and furniture dealers, which infest the track of the elevated toward Dudley Street, do not show their signs in the West End. Instead, the lunch and dining rooms offer food of good quality, provision stores are more or less high-priced, and the dealers in second-hand furniture have expensive mahogany and brasses in their windows. The business section and the main sources of supplies near by do not affect the character of the district.

Such, superficially, are the South and West Ends, the centers of lodging-house life in Boston. In the suburbs, isolation, the worst evil of the lodging house, is not so evident as in the city. The landlady generally has lodgers in her spare rooms only, and does not keep a lodging house as a business and means of support. The lodger usually has or makes friends in the house and is on terms of socia-

bility and friendliness with her landlady. She is less of an impersonal unit and more of a participant in the life about her. She becomes a member of the family and does not suffer the disadvantages of lodging-house life.

Suburban houses and rooms are, of course, much less monotonous. The surroundings are oftentimes sordid and miserable in cheap neighborhoods, but even at the worst have not the wretchedness of certain sections of the city. Lawns, however circumscribed, are not uncommon, and shade trees and gardens, quiet streets and dooryards give to the lodging house in the suburbs a setting very different from conditions in the city. Neighborhoods are not so absolutely and entirely given over to lodgings. Homes are interspersed and weave through the whole fabric of life here a sociability quite unknown to the city, which is an anchor, however frail, to the lonely girl on her own resources.

A suburb having large factories, like Jamaica Plain, has sections largely populated by girls and men in lodgings. In these sections, the informality of life in a smaller community leaves a woman less alone. The girls in Jamaica Plain know each other and know their neighbors and housemates more familiarly than in any city neighborhood. But this very familiarity takes away a real protection for the working girl, for the restraints of conventionality are practically unknown in the big lodging or boarding houses, always to be found in a factory neighborhood.

Finding an individual in one of these houses is, to the stranger, no easy task. There is no desk, no parlor, no office, a bell to ring but no one to answer, no proprietor, nothing but a row of closed doors on each landing. In warm weather, there may be some of the lodgers, men or girls, on the doorstep, of whom inquiries can be made. If not, a knock at random may reveal a man or woman who may or may not be able to indicate the right room. One night, when the writer was sitting in one of these rooms, a man's voice came in over the transom throwing a jovial remark to the woman inside; on another occasion a head appeared in the doorway with hardly the formality of a knock. In private houses the disregard of convention is, of course, not so evident.

Always, however, as in the city, girls entertain their men callers in their rooms. One girl who had her Tuesday and Friday evenings regularly so engaged had so small a room that there was

space for only one chair beside the bed and bureau. Others with larger, pleasanter rooms, were able to have them furnished like sitting rooms, and to entertain their friends more properly. Whatever the original reason for this custom among women in lodgings, the lack of a parlor cannot be given as an explanation in these houses. In a great many of them there is a parlor, and in many cases, too, the girl has full house privileges, which include the use of the parlor. This use of one's room, however, is a firmly established social custom of lodging-house life, so universal as to be taken quite as a matter of course. The reason for it seems to be simply the desire of privacy in entertaining one's callers. In the city this privacy must be secured either in the streets or parks or in one's room. In the suburbs, where the houses have parlors, this is almost equally true. A parlor within earshot and sight of the family affords little privacy, and when it is necessary to share the room with another girl entertaining her caller the call loses its pleasure. In a girl's own home or in dormitory life where there are strict rules, a girl conforms to the decree of the house, but when she is bound by no such rules, she naturally and quite generally solves the difficulty by taking the caller to the one private place in the house—her own room.

How much harm results from entertaining callers in the girl's room cannot be determined by one with only casual knowledge of conditions. But it is conceivable that the consequences of such laxity of social rules may be frequently unfortunate. The Franklin Square House has solved the difficulty by a series of small and attractively fitted parlors which can be engaged in advance and used in private. In other working girls' houses in which the rules forbid taking callers to the girls' rooms, it is doubtful if the situation is any better than in houses having no such rules. Rather than occupy one corner of a room shared by other couples, the girls take their men friends to the streets, to the benches in a public park or elsewhere. In the case of lodgers in private houses, however, the entertainment of callers in this fashion is subject to the protecting scrutiny of the landlady, who necessarily knows about what is going on within the limits of a small household and can judge more or less of the character of those who frequent her house.

In general, it may be concluded that, as lodgings in the suburbs conform to no type, the life of the girl in the suburbs observes no

one set of bounds or customs. There is laxity that is dangerous, and there are ties that are a protection.

The alternative of the lodging house for the girl who cannot or does not live in a private family is one of the working girls' "homes," of which there are several of various types. These institutions meet a very urgent need in the community. Probably the largest and most widely known are the two Young Women's Christian Association houses and the Franklin Square House. "The Grey Nuns" is a Catholic Institution in the South End, and Brooke House is nearer town. Pembroke House is a smaller place, having more the atmosphere of a family and less of the institution. In all excepting the last named, the arrangements are similar. Board is $3 per week, and the price of rooms varies with the room, the number sharing it, and the wage of the girl, for these institutions are not self-supporting but are semi-philanthropic in character. Rooms may be had singly for those who can afford it, but for the most part the girls have one roommate, sometimes two, and, in the case of the girls who have very low wages and only pay 50 cents per week for their rooms, three or four roommates. These latter occupy a large room in the top of the house, usually with plenty of windows around the four or five beds. The double rooms are small and barely furnished with necessities of the plainest description. The ceilings are high, the walls painted drab or tan, the windows high and narrow. The demand is for rooms on the upper floors, for some of these houses take transients, and girls on the lower floors lacking a roommate are quite likely to come home and find a stranger asleep in the other bed, or an unfamiliar hat and coat over the chair. Some of the rooms are heated and some are not; all are lighted by gas, usually by one small jet near the bureau.

The arrangements for ventilation seem very often inadequate. In one large building the rooms, with the exception of a row of outside rooms across the front on the north, all open into a court in the center of the building. The corridor, which is continuous, runs entirely around the outside of these rooms. All the south windows, with sunshine streaming into them all day, open into this corridor. The rooms get practically no sun; those on the lower floors actually none. The amount of fresh air that comes from this little court into which so many windows open must be very small, especially when we consider the rigid rule which prevails

in the house that transoms must be closed when windows are open, in order to avoid cooling off the corridors. Two or three persons in a small room often increase the discomforts of poor ventilation, not only by the mere fact of their number, but because it often happens that one person will absolutely refuse to be "exposed" to any more air than is unavoidable.

The bathrooms vary generally in size and quantity, and in number of tubs. In some of the old buildings they are close and musty with unwholesome looking tin tubs and closed plumbing; very often, too, there are water bugs around the pipes. But many of the bathrooms are more modern and more sanitary.

Although these houses are always well filled, many working women object to them. This dislike is not based primarily upon any of the unpleasant features that have been mentioned. The fact is that the same longing for independence which brings so many into industry keeps them in lonely rooms, leading isolated lives. The rules of an institution are shackles; the customs to which inmates must conform are fetters. The women who do live in a "home" usually give as their reason for choosing it the sociability and liveliness of life in a center of many people. Young girls coming to the city for the first time find protection and safety here. Girls on low wages find more adequate living for the price than can be obtained elsewhere. Some women there are in each of these houses who have spent many years there and who look upon it as their home, indeed, but the great number come, stay for a time and go on to something else.

This insight into not only the habit of living but the desires and aspirations of working women reveals that housing for single men and women is even more important than for families, but that it has not yet been attacked in the general efforts for better housing. True it is that consideration of kind and quality of living advantages must be studied in relation to the income, and, therefore, the amount which can be paid for rent. But the present custom of remodeling the house, built for a family, to accommodate the single woman, whereby heated rooms and reception room opportunities are impossible, is responsible for much of the undesirable situation in lodging houses.

If any effort of reform is to be made it is apparent that the attitude of the girl should be considered and new plans should

strive to meet her demands for co-operative living or living in family groups. On the other hand, much corrective work can be done through properly enforced legislation requiring cleanliness, light and ventilation in lodging houses; providing for parlors and protecting lodgers from carelessness. Certainly listing, licensing and inspection should be provided for.

In searching out the "woman on her own resources" it seemed at first as if there were no such, for wherever the writer went among settlements and clubs and even shops, the reply was invariably, "Our girls all live at home." If the long rows of red brick lodging houses in the South End had not proved the existence of the problem, the inquirer might almost have been led to the conclusion that the working girls of Boston were all safe and happy in their own homes, earning wages for "pin money" and to supplement the family income that supported them. In fact, however, only one hundred of the girls visited are living at home or in the families of friends. Immigrant girls first coming to this country, ignorant alike of social customs and means of living in a strange land, usually find a prearranged lodging with some family to whom they are known. So it happens that in the West and North Ends of the city, where the great colonies of Italians, Russians and Jews are found, very few girls live by themselves in lodgings. But it is not only the immigrant girl on low wages who is a member of a family. In the suburbs, on quite a different scale of living, the American girl earning good wages is frequently "one of the family" in the prosperous home of relatives or friends. Then there is the girl who is actually living at home, paying something toward the support of the family.

One night, in a West End tenement, a group of girls compared experiences, and came to the conclusion that the girls who were living at home had less money for themselves and less independence than their friends. On the other hand, they had an advantage, which because of their ignorance of an unprotected life seemed not very valuable to them, in the form of security, companionship and freedom from the great anxiety of self-support. In reality, the cost of board and room for girls living at home is far less than for those in lodgings, and the value that they receive in return is hardly comparable. Often the amount that a girl pays is based not on the value of her board and room, but on the amount of wages

that she is earning. In the tenements of the North End even this small addition is a sufficient help to make the boarder profitable, and in more prosperous homes often the boarder is welcomed more for the sake of the companionship that she brings than for the money that she pays. Among girls living at home the amount paid is seldom commensurate with the value received. Either a proportion considered sufficient for clothes, incidentals and pin money is retained by the girl, and the remainder is paid into the family, or the whole wage is turned in weekly, and the girl's expenses are decided upon and paid by the mother, as in the case of the younger children. Sometimes her wages more than cover the meager amount spent on her clothing, and sometimes much more is spent on her than the amount that she earns.

## CHAPTER III

### NOMINAL VERSUS ACTUAL INCOMES

The weekly wages of the working girl by no means indicate her yearly income. The latter is ordinarily much less, proportionately, than the former. Just as the proprietor of a restaurant in making the prices on his menu must consider not only the price paid for raw food, but the cost of shrinkage or probable waste of the raw product as well, so the woman worker in planning her expenses must take into account the shrinkage of her income before it comes into her hand by reason of fines, trade expenses, docking for holidays and vacations, seasons of short time and no work.[1] It is the girl on the low wage who has this loss to bear in greatest measure. The actual amount of money loss increases up to the income of $10 per week, and beyond that decreases with the increasing wage. While the girl on starvation wages, who earns $3, $4 or $5 per week, does not actually get more than 84.37 per cent. of this amount, the more prosperous woman earning $15 and over, gets 94.84 per cent. of her supposed wages.

These losses are distributed through all occupations, the average of no occupation being less than 8 per cent. nor more than 13 per cent., excepting that for factory workers. The latter suffer most for pay-docking, losing on the average 18.43 per cent. of their annual income. Sales girls average 13.05; waitresses,[2] 10.74 per cent.; kitchen workers, 8.97 per cent.; professional women, 8.83 per cent. Women in clerical occupations have the lowest rate of loss, 8.25 per cent., and also receive the highest incomes. Factory workers, sales girls and waitresses, with low incomes, have high rates of loss.[3]

The high percentage of loss of income among factory girls is

[1] See Table 1, p. 37.

[2] In reckoning wages of waitresses, board is figured at $3 per week for three meals per day, $2.10 per week for two meals, and $1.20 for one meal per day, according to the estimate made by the lunch rooms of the Women's Educational and Industrial Union in reckoning salaries for employes' benefit. Room is figured at $3 per week if included in wages all the year round. If a regular rent is paid during part of the year, the room, when supplied as part of the wages, is figured at the same rate.

[3] See Tables 1, 2 and 3. pp. 37, 38.

due in part to the long periods of short hours and lay-offs on account of slack trade. Among sales girls the 4.50 per cent. loss through illness is a large factor in the high rate. But the greatest source of loss for all classes is unemployment. The factory girls pay the highest penalty here, having an out-of-work loss of 7.14 per cent., followed closely by the waitresses, with 6.89 per cent. The latter probably increase their out-of-work time considerably by changing places between seasons, working summers at the beach and winters in the cities. Sales girls have 6.66 per cent. loss from out-of-work; clerical workers, 5.75 per cent.; kitchen, 5.43 per cent.; professional, 3.85 per cent.

The losses of the professional woman are comparatively small. The 3.85 per cent. loss from unemployment is the chief one. There is a 2.70 per cent. loss through vacations, which are usually voluntary, and are taken in addition to her regular vacation of one week, two weeks or one month. The percentage for illness is only 1.41 per cent., and the reductions on account of lay-offs and holidays are less than 1 per cent. each. The clerical worker also has no very considerable loss beyond that of unemployment. She is almost always paid for holidays and vacations, and even "days off"; she is seldom docked for illness or fined for tardiness, and hardly knows what "laid off" means. The sales girl, on the contrary, loses almost as much because of illness as for no work, but a very small amount through fines. Waitresses pay more for trade expenses than any other class of workers. Factory workers, on the other hand, lose 5.73 per cent. through being laid off and 2.57 per cent. by illness.

Comparison of the losses by illness shows two facts; first, that the clerical and professional occupations do not commonly deduct pay for illness; second, that the occupations having the largest percentage of loss, sales, factory and kitchen employment, require a larger expenditure of physical energy, with probably worse conditions of work. The offices where clerical and professional women work are better ventilated than are the big department stores and factories. Then, too, health is influenced by hours of work and the demand of that work upon physical strength. This question will be considered again in the chapter on Health.

It appears that the heaviest loss for all occupations comes from no work, that sales girls pay the highest amount for illness,

professional workers for vacations, factory employes for holidays and laid-off times, waitresses for fines and trade expenses, and that in general the low-wage groups pay a higher proportion back to the firm than the high-wage groups.

The manner in which the working girl meets this curtailment of income remains to be considered. Obviously, on wages of $6, or less, something must be done. A girl making ends meet on inadequate wages cannot allow any margin for unforeseen reductions of her small income. Certain compensations, however, are provided by the work itself.[1] The factory girl, to offset her loss of almost 13 per cent. from out-of-work and lay-offs, gains almost 1 per cent. in overtime. This, it can be seen, would hardly confirm the theory that extra work in rush seasons makes up loss in slack seasons. The waitress, however, more than makes up her total loss of 10.74 per cent. by tips alone, which amount, on the average, to 11.74 per cent. of her entire income. In many cases, where the hours of work and physical health permit, a secondary occupation adds a small amount. But the chief means of additional revenue for all occupations are those included under the heading "other sources." In most cases this means help from home, relatives or friends, or drawing upon the savings of previous years, sometimes care during an illness or gifts of clothing, and in many cases charity from various sources. One or two girls have incomes from a small property.

As a whole, these additions to income tend to be complementary to the scale of losses. The largest percentage of gains comes to the group earning $9 to $11 per week, while the two lower groups have an almost equal percentage. The more highly paid women, with small losses, have also a small percentage of gains. It becomes clear, then, that it is real necessity which makes outside help important, and not extravagance. Women on comfortable wages are not forced to work overtime and at outside work, nor to receive partial support from outside sources, as are those on smaller wages. The losses of women earning $15 and over are less than one-third, in proportion, than those of girls earning but $3, $4 or $5. The income from gains does not equal these losses, which are unforeseen and incalculable, so that all effort at supplementing

[1] See Tables 4 and 5, p. 39.

incomes by extra work and charity does not even keep the income up to its nominal level.

The fact that low wages are really much lower even than they appear to be, by reason of disproportionately great losses, means that efficiency is more highly rewarded than is indicated by the difference in nominal wages. In addition to good pay, the worker of the high-wage groups is further rewarded by practical immunity from loss. To what extent the unforseen shrinkage of income is unfair to the poorly paid worker depends on her expectation of loss. A girl who would refuse an actual wage of $4.25, may unwittingly accept a nominal wage of $5, although the real earnings, after reduction of losses, may be no more than the former amount. It is the element of potential deception that makes the reductions seem unfair. In some cases a firm expects and counts on a cut in its pay-roll by means of what are often unavoidable fines, enforced absences, holidays and vacations, so that in offering a wage of $5 per week they have no intention of paying that full amount. Scarcely less unfair is the enforced lack of vacation and holidays. When the worker is not only docked for any recuperative period, but is actually debarred from taking such time at her own expense, it means that the firm is not offering her reasonable and possible terms of employment. It becomes a temporary job to last only so long as the human machine can stand the strain. In such cases doctors' bills should rightly be considered one of the various forms of pay-docking, since the firm profits by its demands on strength at the worker's expense.

Any consideration of the low wages of women, or of minimum wages, must, therefore, recognize that the nominal rate of wage, in whatever occupation, is from 4 to 14 per cent. above the actual income;[1] that is, the supplementary income in the trade is very small, averaging, in any case, barely more than 4 per cent., except among waitresses, while the loss from trade causes ranges from 8 to 18 per cent. This results in from about 35 cents to $1.25 reduction each week on a $9 wage, disregarding income from other sources, because it is not determined by the wage.

[1] See Tables 3 and 4, pp. 38, 39.

TABLE 1.—MODIFICATION OF INCOMES BY LOSSES AND GAINS, BY OCCUPATION.

| Occupation. | Average income. | Average loss. | | Average gain. | | Average actual income. | | Average net loss or gain. | |
|---|---|---|---|---|---|---|---|---|---|
| | | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. |
| Professional..... | $682.33 | $60.22 | 8.83 | $73.30 | 10.74 | $695.41 | 101.91 | +$13.08 | +1.91 |
| Clerical..... | 516.98 | 42.67 | 8.25 | 25.28 | 4.89 | 499.59 | 96.64 | — 17.39 | —3.36 |
| Sales..... | 382.92 | 49.97 | 13.05 | 24.39 | 6.37 | 357.34 | 93.32 | — 25.58 | —6.68 |
| Factory..... | 406.99 | 75.01 | 18.43 | 50.39 | 12.38 | 382.37 | 93.95 | — 24.62 | —6.05 |
| Waitresses..... | 344.71 | 37.02 | 10.74 | 56.73 | 16.46 | 364.42 | 105.72 | + 19.71 | +5.72 |
| Kitchen workers... | 374.83 | 33.63 | 8.97 | 1.10 | .29 | 342.30 | 91.32 | — 32.53 | —8.68 |

TABLE 2.—MODIFICATION OF INCOMES BY LOSSES AND GAINS, BY WAGE GROUPS.

| Wage. | Average income. | Average loss. | | Average gain. | | Average actual income. | | Average net loss or gain. | |
|---|---|---|---|---|---|---|---|---|---|
| | | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. |
| $3.00 } 4.00 } 5.00 } | $250.31 | $39.13 | 15.63 | $20.18 | 8.06 | $231.36 | 92.43 | −$18.95 | −7.57 |
| 6.00 } 7.00 } 8.00 } | 367.65 | 47.31 | 12.87 | 29.81 | 8.38 | 350.15 | 95.24 | — 17.50 | −4.76 |
| 9.00 } 10.00 } 11.00 } | 515.10 | 66.39 | 12.89 | 44.83 | 8.70 | 493.54 | 95.81 | — 21.56 | −4.19 |
| 12.00 } 13.00 } 14.00 } | 664.51 | 56.47 | 8.50 | 21.24 | 3.20 | 629.28 | 94.70 | — 35.23 | −5.30 |
| 15.00 and over } | 903.65 | 46.63 | 5.16 | 28.29 | 3.13 | 885.31 | 97.97 | — 18.34 | −2.03 |

TABLE 3.—SOURCES OF LOSSES, BY OCCUPATION.

| Occupation. | Average income. | Average illness. | | Average out of work. | | Average holidays. | | Average vacation. | | Average laid off. | | Average fines. | | Average trade expense. | | Average total loss. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. |
| Professional..... | $682.33 | $9.60 | 1.41 | $26.25 | 3.85 | $0.51 | .07 | $18.39 | 2.70 | $3.85 | .56 | 0 | 0 | $1.62 | .24 | $60.22 | 8.83 |
| Clerical..... | 516.98 | 3.90 | .75 | 29.75 | 5.75 | .91 | .18 | 5.26 | 1.02 | 2.69 | .52 | 0 | 0 | .16 | .03 | 42.67 | 8.25 |
| Sales..... | 382.92 | 17.22 | 4.50 | 25.49 | 6.66 | .88 | .23 | 4.48 | 1.17 | 1.68 | .44 | $.02 | .005 | .20 | .05 | 49.97 | 13.05 |
| Factory..... | 406.99 | 10.46 | 2.57 | 29.07 | 7.14 | 6.19 | 1.52 | 5.43 | 1.33 | 23.31 | 5.73 | .01 | .002 | .54 | .13 | 75.01 | 18.43 |
| Waitresses..... | 344.71 | 5.16 | 1.50 | 23.74 | 6.89 | .36 | .10 | 3.53 | 1.02 | .69 | .20 | .17 | .05 | 3.37 | .98 | 37.02 | 10.74 |
| Kitchen workers... | 374.83 | 10.19 | 2.72 | 20.37 | 5.43 | .64 | .17 | 2.24 | .60 | 0 | 0 | 0 | 0 | .19 | .05 | 33.63 | 8.97 |

TABLE 4.—SOURCES OF GAINS, BY OCCUPATION.

| Occupation. | Average income. | Average overtime. | | Average bonus. | | Average secondary occupation. | | Average other sources. | | Average total. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. |
| Professional..... | $682.33 | $1.16 | .17 | $0.12 | .02 | $25.19 | 3.69 | $46.83 | 6.86 | $73.30 | 10.74 |
| Clerical..... | 516.98 | 2.01 | .39 | .09 | .02 | 4.01 | .78 | 19.67 | 3.80 | 25.78 | 4.99 |
| Sales..... | 382.92 | .25 | .07 | 0 | 0 | 5.14 | 1.35 | 19.00 | 4.96 | 24.39 | 6.38 |
| Factory..... | 406.99 | 3.76 | .92 | 4.33 | 1.06 | 10.15 | 2.49 | 32.15 | 7.90 | 50.39 | 12.37 |
| Waitresses..... | 344.71 | .70 | .20 | 40.47 | 11.74 | .73 | .21 | 14.83 | 4.30 | 56.73 | 16.45 |
| Kitchen workers... | 374.83 | .35 | .09 | 0 | 0 | 0 | 0 | .75 | .20 | 1.10 | .29 |

TABLE 5.—SOURCES OF GAINS, BY WAGE GROUPS.

| Wage. | Average income. | Average overtime. | | Average bonus. | | Average secondary occupation. | | Average other sources. | | Average total. | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. |
| $3.00 } 4.00 } 5.00 } ..... | $250.31 | $0.14 | .06 | $3.78 | 1.51 | 0 | 0 | $16.26 | 6.49 | $20.18 | 8.06 |
| 6.00 } 7.00 } 8.00 } ..... | 367.65 | 1.38 | .38 | 9.52 | 2.59 | $4.87 | 1.32 | 14.04 | 3.82 | 29.81 | 8.11 |
| 9.00 } 10.00 } 11.00 } ..... | 515.10 | .71 | .14 | 12.83 | 2.49 | 6.05 | 1.17 | 25.24 | 4.90 | 44.83 | 8.70 |
| 12.00 } 13.00 } 14.00 } ..... | 664.51 | 1.15 | .17 | .65 | .10 | 5.93 | .89 | 13.51 | 2.03 | 21.24 | 3.19 |
| 15.00 and over } ..... | 903.65 | 0 | 0 | 0 | 0 | 10.03 | 1.11 | 18.26 | 2.02 | 28.29 | 3.13 |

## CHAPTER IV

### FOOD

The problem of getting a sufficient supply of wholesome food at a price within her means is probably the most serious one that the woman on a small wage has to face. With nourishing, plentiful meals, other problems become less serious, and are met with comparative ease, but in an ill-nourished condition, courage and initiative wane, perplexities multiply, and the woman loses heart for the struggle.

At first glance, it would seem that the opportunities for board at reasonable expense are many. First, of course, are the dining rooms of the larger "homes" for working women. Here board is $3 per week for girls not rooming in the house, as well as for inmates. Single meals may be had separately at any time at a cost of 15 cents each for breakfast and lunch, and 25 cents for dinner. Basement dining rooms, where boarders eat regularly or irregularly, on meal tickets or individual payments, at a rate usually of "$3 per week for ladies, $3.50 for gents," seem almost to form the foundation of the South End, as well as its sustenance. Interspersed with these, and scattered throughout the city, are à la carte restaurants, almost equally cheap. Delicatessen shops, which supply ready-cooked food, and provision stores complete the main part of the city's equipment for feeding its lodging-house population. The means appear sufficient, but their adequacy is open to question.

The atmosphere of the dining rooms of the "homes" is not, as a rule, inviting. An experience of the investigator may serve to illustrate the purport of this observation. With a companion, she visited the dining room of a home for working girls. They were seated by the head waitress at the "transient" table, facing the corner of the room opposite a row of empty chairs. "I beg your pardon," said the investigator to the head waitress, "but would it be possible to change our seats to the other end of the table?" The head waitress looked her over severely for several uncomfortable seconds. Then, "I put you *there*," she remarked. "Oh,

yes," the investigator replied, "but we are looking for some friends, and"—— She got no further, for the head waitress's eyes were blazing. A long forefinger shot out and pointed straight at the unfortunate questioner's nose. When a voice came it was suppressed ominously. "I—put—you—there—and—*you*—STAY—there," it said. The eyes blazed into the investigator's for a full minute, and then two more transients who arrived took the head waitress's attention. "Let me see," she remarked, aiming her words obviously at the investigator, "I think I'll put you here," and she seated them in the seats just asked for, facing the length of the dining room. The next guest to arrive was a thin, ill-looking woman with a cough. She was placed next to the investigator, under an open window, from which a chilly draught swept through to the dining room door. The woman coughed, shivered and finally spoke to the head waitress, "Is there any other seat I may have?" she asked. "I've a cold and I feel the draught." Before she had finished, the head waitress's eyes were staring her out of countenance. The long forefinger again shot out, but no word came. A long breath, compressed lips, and the forefinger were enough. The woman had paid her 25 cents; she must have the dinner; she stayed where she was.

This incident has been used here because it seems typical. Most of the women to whom it has been told have remarked that it was nothing unusual. To the investigator it was an experience of one meal. But to the woman to whom it represents home, coming tired from the day's work to a "home" that she depends upon for relaxation and recuperation of her powers, mental and physical, the humiliation of submitting to such treatment must be severe. "The girls are treated like prisoners," is a common verdict among those who have lived under these circumstances. "The voice of authority is always over them, and they are never allowed to forget it." To many, of course, the value of fairly good food, community life, and the other advantages of these institutions, more than offset the petty tyrannies. Many may chance to encounter actual unpleasantnesses very seldom, and may live happily enough even in the omnipresent atmosphere of authority, to which, it may well be imagined, they become so accustomed as to feel no discomfort. But it is, nevertheless, a barrier that keeps others from entering.

The quality of the food served in the "homes" is some-

times good, sometime not, but usually, so far as could be learned, the quantity is plentiful. One large institution, to be sure, serves scanty rations. The matron in charge complains that the girls are half-starved and that she can do nothing about it. She declares, too, that the institution is making money, but nothing definite in regard to this statement could be ascertained. The girls living in this particular house give various testimony. The majority seem to think, however, that the food is poor and insufficient, and most of them report expenditure for extra food, fruit and crackers in their rooms. Certainly the investigator's one dinner in this building made her loath to risk another. The quality of food in one other institution seems so poor as to be inadequate. After dining at this place the following note was made on the schedules based upon the girls' opinions and the investigator's observation: "Orders scanty, second orders of everything served if desired, but seldom desired." At all the other "homes" visited the food is uniformly adequate. The menus are fairly well selected, and the cooking good. The orders are, in general, well cooked, good-sized and second orders are served upon request. The service, too, is satisfactory. The waitresses are willing, pleasant and quick, and show less indifference than is frequently encountered in more high-priced dining rooms. The tablecloths are of necessity coarse, the dishes thick and there are few superfluous attractions. One can easily conceive, too, that the food might become unbearably monotonous after a time, but, on the whole, it seems adequate.

A very different tale might be told of the basement dining rooms. They are uniformly bad. Usually, the first thing to weary tired eyes and nerves is the physical aspect of these places. In one, the walls are decorated with flamboyant paper of sprawling figures in green and scarlet; on its fly-blown surface hang such well-meaning placards as, "If we please you, tell your friend; if not, tell us," and huge price lists announcing different rates, according as the customer is a "gent" or a "lady." During the summer the single gas jets in the tarnished chandeliers burn hotly in the stifling air; in winter the atmosphere is full of steam and kitchen odors. There are two or three long dining tables covered with badly soiled linen, and silver greasy both to sight and touch, four long rows of vinegar cruets, salts, peppers, plates of bread or biscuit, wilted lettuce and all the dreary accompaniments of such a meal as was to be had

here. Untidy, careless waitresses, as soiled in dress as the table linen, come with the remark rather than the question, "Soup or fish?" and without waiting for an answer, saunter off to return with both. Certainly these places are not attractive. And the food they serve is not palatable. As great a variety as possible of the poorest quality, badly cooked—this, in brief, is the whole story. It may be that, concealed among the many establishments of this description, there are some of a better sort, but the investigator did not happen upon them. All those recommended as especially good, with "fine food," were visited. These recommendations, made in all sincerity, seemed to indicate standards of living very much to be deplored since they allow satisfaction with such food in such surroundings. These are, it must be understood, dining rooms of the $3-a-week grade.[1] There are other dining rooms serving table d'hôte at $4 a week and upward, which are attractive in appearance, and thoroughly satisfactory in respect to food and service, but they are beyond the means of the woman on small wages.

The cheapest way of providing food is, of course, to buy raw material and cook it at home. Many landladies will not allow lodgers to cook in their rooms, but, nevertheless, the woman who depends upon doing so can always find lodgings where she may have this privilege. Sometimes 50 cents a week extra is charged for the room if cooking is to be done. Sometimes, though chiefly in the suburbs, the use of the kitchen is granted. Often an oil stove solves the problem.

The weekly cost of food provided in this way is frequently very small. Three sisters, all earning fairly good wages, who have a small suite together, state that it costs them about $1.25 a week for breakfasts and dinners. They are all strong and well, and adequately fed. The almost absolute lack of waste makes economical living possible. On the other hand, however, an ignorant girl, not capable of good management of her food supplies, may, in the end, find boarding herself anything but economical. "We tried boarding ourselves," said three Jamaica Plain shoe factory girls, "but we bought so much stuff from the baker's windows because it was easy to get and we were tired, that we all got sick, had doctors' bills to pay, and went in debt. So now we find the only way to get along

[1]South End dining rooms; three-course dinner—20 cents: Choice 2 soups, 3 meats, 3 vegetables and all kinds of pie or pudding.

is by waiting on table for our board. It's hard work, after factory hours, but at least we get enough food and don't get sick."

It is true that a smaller amount spent for food may mean very much more adequate nourishment when the cooking is done at home. It is a question, however, whether the expenditure of strength which this exacts from a tired woman does not offset the advantage of more wholesome food. The landlady of one girl remarked, "Miss I—— often doesn't have any dinners. She gets home at 7 P. M. from the factory, and is too tired either to go out to dinner and climb the five long flights to her room or to cook anything for herself." And this is not an infrequent case. "I know that I ought to get my meals regularly," said another girl, "but when I get home I am so tired that I don't feel like fussing to go out and buy stuff and bring it home and cook it."

On account of the difficulty of managing the food problem on low wages, many women express the opinion that the most desirable occupation is waiting on table. When meals are included in the wages of the waitress, there is surely plenty of food, but the statements of many of these girls that they spend largely on extra food seem to indicate that in reality the occupation is not so desirable as it seems. This may be due to the insufficiency of the food, or possibly to the irregularity of the meals, or more probably to the lack of desire for food immediately after having served it in large quantities. Waitresses in summer hotels often have fare that is so plain as to be very untempting. In a large hotel there is a separate kitchen, and cook, as well as dining room for the "help." The fare consists of cheap meats, boiled potatoes, bread and butter, and tea and some kind of dessert. Fresh vegetables are seldom served; fruit and salads, never. Sometimes the left-over muffins from the guests' dining room are served at the "help's" breakfast the next day, but beyond this nothing goes from one kitchen into the other. Rules are strict against taking any left-over food from the trays as the waitresses carry them out, and anything of the sort detected by the ever-watchful head steward is punishable by dismissal. Nevertheless, fruit and other portable bits are frequently pocketed "between doors." In some hotels the waitresses are "on watch" one day in every two or three weeks. This consists of being on duty for the late evening train, for early breakfasts and lunches. The reward is the privilege, divided among the three or four who are on watch

together, of eating up all the ice cream left in the freezers, which often is a considerable amount.

In restaurants the fare is less restricted. In most of the places visited the waitresses are allowed "anything on the menu." Rare or unusually expensive foods, like unseasonable fruits and vegetables, are often excepted, and sometimes the waitresses are allowed only the food left unsold from the day before. On the whole, however, employment in restaurants, whether it affords good conditions in other ways or not, does at least provide good food.

The standard of living in respect to food varies considerably for different occupations.[1] The professional woman spends the largest amount on food, but the smallest proportion of income. Her expenditure averages $3.20 per week for regular meals, and about 50 cents for extra food, so that the whole cost is nearly $3.70 per week, representing 27.63 per cent. of her income. The clerical woman pays the next highest sum, amounting, with extra food, to $3.35 per week, although the expenditure for regular board averages but a trifle over $3.00; the percentage of income spent for food is next to the lowest, 34.91 per cent. The waitress pays almost as much, $3.31, and the highest percentage of income, 47.17 per cent. The sales girl pays $3.16, or 46.05 per cent of her income. The factory worker pays the smallest amount for food; her entire expenditure is only $2.84 per week, or 38.64 per cent. of her income.

Waitresses and kitchen workers appear to spend a larger amount for regular meals than do sales and factory girls. But it should be noted that the figures of food expenditures for these classes are only estimates; meals included in wages are reckoned at the rate of $3 per week for three meals.

Sales girls, clerical workers and professional women buy the largest amount of extra food; factory workers buy the least. The first group may be more inclined to extravagance. It would seem as if the more adequate incomes of the clerical and professional classes and the possible instinct of indulgence stimulated by surroundings in the sales girl would cause such expenditures, while the low wage of the factory girl would explain the small amount spent in this group both for regular board and for extra food.

A classification of expenditure for food by wage groups is really

[1]See Table 1, p. 47.

more serviceable, as it is evident that the grade of the worker in the various occupations standardizes the living more effectually than does the occupation.[1] Between the $3 to $5 group and the next higher division there is a large increase in food expenditure. The difference between the $6 to $8 group and the next higher is less marked. It thus appears that the increase of income up to $8 is used to provide a better dietary. The slighter increase, both in regular board and in extra food, between this and the next higher division would seem to indicate that the most pressing needs in these directions are met at about a $9 wage. With the transition to a still higher wage the increase in expenditure for regular board again becomes marked, showing a distinct advance in standards to a more adequate food allowance for the $12 to $14 income. Interesting to note here is the absence of any expenditure for extra food. Evidently board at the rate of $3.67 per week, the weekly cost of food in the $12 to $14 group, is satisfactory. The large outlay for extra food in the $15 and over division and the decrease in expenditure for regular board indicate that the extra food largely takes the place of regular meals, probably saving many "punches" of the meal ticket. The whole cost of food, regular and extra, increases steadily from the $3 girl to the highest paid, with the rate of increase smallest between the $6 to $8 and the $9 to $11 group. The percentage of income spent for food shows a fairly uniform decrease with increasing earnings. Beginning with over 58.30 per cent. of the income for the lowest wage group, it drops to 23.23 per cent. for the highest, or from considerably over one-half the income to slightly less than one-quarter.

There is a marked tendency on the part of the lowest paid workers to seek positions including board.[2] With the transition from positions including board to those not offering meals as pay comes the first increase of food expenditure. The second notable increase comes between the third and fourth groups, when wages become large enough to afford sufficient food without the necessity of "working overtime" in cooking it.

[1] See Table 2, p. 47.
[2] See Tables 3 and 4, pp. 47, 48.

TABLE 1.—AVERAGE ANNUAL EXPENDITURES FOR FOOD, BY OCCUPATION.

| Occupation. | Income. | Cost of food at regular meals. | | Cost of extra food. | | Whole cost of food. | |
|---|---|---|---|---|---|---|---|
| | | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. |
| Professional | $695.41 | $166.43 | 23.93 | $25.75 | 3.70 | $192.18 | 27.63 |
| Clerical | 499.59 | 156.75 | 31.38 | 17.65 | 3.53 | 174.40 | 34.91 |
| Sales | 357.34 | 144.96 | 40.57 | 19.60 | 5.48 | 164.56 | 46.05 |
| Factory | 382.37 | 143.27 | 37.47 | 4.48 | 1.17 | 147.75 | 38.64 |
| Waitresses | 364.42 | 160.65 | 44.08 | 11.27 | 3.09 | 171.92 | 47.17 |
| Kitchen workers | 342.30 | 156.65 | 45.76 | 0 | 0 | 156.65 | 45.76 |

TABLE 2.—AVERAGE ANNUAL EXPENDITURES FOR FOOD, BY WAGE GROUPS.

| Wage. | Income. | Cost of food at regular meals. | | Cost of extra food. | | Whole cost of food. | |
|---|---|---|---|---|---|---|---|
| | | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. |
| $3.00 4.00 5.00 | $231.36 | $131.64 | 56.90 | $3.25 | 1.41 | $134.89 | 58.30 |
| 6.00 7.00 8.00 | 350.15 | 152.23 | 43.48 | 10.00 | 2.86 | 162.23 | 46.33 |
| 9.00 10.00 11.00 | 493.54 | 158.35 | 32.08 | 11.35 | 2.30 | 169.70 | 34.38 |
| 12.00 13.00 14.00 | 629.28 | 190.97 | 30.35 | 0 | 0 | 190.92 | 30.34 |
| 15.00 and over | 885.31 | 179.41 | 20.27 | 26.25 | 2.97 | 205.66 | 23.23 |

TABLE 3.—NUMBER OF MEALS RECEIVED AS WAGES, AND NUMBER DOING OWN COOKING, BY OCCUPATION.

| Occupation. | Number of meals daily as wages. | | | | Own cooking. | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 0 | Yes | No |
| Professional | 0 | 0 | 3 | 12 | 4 | 17 |
| Clerical | 1 | 1 | 4 | 36 | 14 | 48 |
| Sales | 0 | 0 | 0 | 18 | 1 | 20 |
| Factory | 0 | 0 | 0 | 47 | 3 | 45 |
| Waitresses | 2 | 6 | 17 | 8 | 5 | 28 |
| Kitchen workers | 0 | 8 | 0 | 3 | 5 | 6 |

TABLE 4.—NUMBER OF MEALS RECEIVED AS WAGES, AND NUMBER DOING OWN COOKING, BY WAGE GROUPS.

| Wage. | Number of meals daily as wages. | | | | Own cooking. | |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 0 | Yes | No |
| $3.00 4.00 5.00 ... | 1 | 2 | 7 | 0 | 0 | 10 |
| 6.00 7.00 8.00 ... | 0 | 12 | 12 | 64 | 13 | 80 |
| 9.00 10.00 11.00 ... | 1 | 3 | 8 | 30 | 10 | 42 |
| 12.00 13.00 14.00 ... | 0 | 0 | 0 | 0 | 1 | 3 |
| 15.00 and over ... | 0 | 0 | 5 | 4 | 2 | 2 |

## CHAPTER V

### Rent

Between one-fifth and one-ninth of the working woman's income is spent for shelter. It appears that professional women, clerical employes, sales girls and kitchen workers pay in actual amount approximately the same rent, between $1.50 and $1.60 per week, while factory girls and waitresses pay a little over $1 per week.[1] One would naturally expect that the comparatively high standard of living of professional women would place them at the top of the list in regard to the amount paid for rent. Clerical employes, too, approach this standard, partly because they must come from fairly prosperous circumstances, in order to afford the expense of special business training, partly because they are usually surrounded by industrial conditions that make for high standards. But the higher pay of the professional woman gives her the lowest percentage of income spent for rent, 11.55 per cent., while the clerical worker pays a very large proportion for rent, 16.56 per cent. It will be noted that the relative position of the professional woman in respect to rent expenditure is about the same as it is in reference to food outlay.

The presence of kitchen workers in the class paying the higher rents seems strange. The explanation is found in the fact that most kitchen workers are not young girls; they are usually middle-aged women, and a large percentage of them have others dependent on them. When it has been possible to do so, the investigator has reckoned the share of the rent that should be charged to the persons living with the worker, and, if the latter pays it all, has entered the amount of the formers' share under "support of others." In many cases, however, this was impossible. The large number of such cases in this group is doubtless responsible for the appearance of kitchen workers among the higher rent payers.

It would seem also that sales girls do not properly belong in this group, from the point of view either of education or of income. Evidently their personal standards are influenced by the attractive goods which they often deal in, for their percentage of expenditure

[1]See Table 1, p. 59.

for rent is extremely high, 22.3 per cent., or almost one-fourth of their income.

Factory girls and waitresses spend for rent about the same amount, a little over $1 a week, and about the same proportion of income, 15 per cent. This is natural. In these two occupations the amount of education is likely to be practically equal. Girls with no special knowledge of any kind of work probably enter these occupations, as they afford openings for uneducated, untrained workers. This might be said of sales girls as well, but in stores, especially in the large department stores, the girls come in contact with the beautiful. Everything is kept up to a high standard, from the scrubbing of the floors to the care of stock and personal appearance. Constant contact with light and color would naturally tend to create a distaste for dirty and stuffy lodgings. Factory girls, on the other hand, see the seamy side of things. The conditions that surround the workers in many factories, despite the sanitary laws, are suggestive of the sordid. The investigator occasionally visited girls in their noon hours at factories of various sorts and found conditions generally depressing.

In one factory of a well-known hat company the women stitch all day in a gloomy room with bare and dirty brick walls, the floor cluttered with crumbs, crusts and dirty cups from the brief lunch on the work tables. They work ten hours a day, only stopping long enough to heat some cold tea at noon. Every minute during the day counts toward the few weekly dollars; the investigator felt guilty in taking their attention even for a moment. In a box factory the girls take off their street suits and put on old skirts and waists matted with glue and dirt, in which they spend ten hours a day "scoring," cutting and snipping, wetting great sheets of paper with paste by laying them on a board thinly spread and lifting the heavy finished boxes back and forth, or deftly covering little ones and throwing them rapidly into a basket, at a few cents a day. In an overall factory the light is so poor, and soot-caked windows make it so dim, that some of the women who work there say that they cannot stand the eye-strain and will have to seek work elsewhere. In one shoe factory town many complaints are heard about the ventilation; in winter the windows are kept closed until the girls' shirt waists are wet with perspiration. Then at 5 they suddenly emerge into the winter air and consequently have perpetual coughs. What kind of

life is this to inspire women to cultivate the niceties of home life? Their energy and their patience are exhausted at the end of ten hours of close application at piece-work, and little is left for ambition to work upon.

The investigator spent two weeks as waitress in one of the best hotels in New England, a hotel where conditions of work and of living for the help are, from all that could be learned from the waitresses, far above the average. Convenient devices were everywhere in evidence for making the labor of cooking, serving and dish-washing expeditious and smooth-running. The organization was well-planned and well-managed. But the kitchens were not clean, and one of the most frequent and heart-felt remarks heard in the servants' dining-room and kitchen was, "I'm glad I don't have to eat the stuff that's cooked out there. Those poor guests little know what they're eating." These unappetizing conditions have an obvious effect upon the waitresses. Seeing the food manipulated before they take it on their trays frequently causes indifference and sometimes lack of conscience in serving. A certain attitude of irresponsibility toward the food becomes the normal standard, and even girls who seem to be naturally fastidious drop into this attitude.

On the whole, then, the marked difference between the rent paid by sales girls and by factory girls and waitresses indicates that working conditions do have a tangible effect in elevating or lowering the standard of living.

The amount spent for rent rises as income increases, while the percentage of income taken by this expenditure falls. In both these respects the cost of rent bears the same relation to income as that of food.[1] The amount increases from less than $1 per week for the $3 to $5 wage group to over $2 per week for the $15 and over wage group, but the percentage declines from 21.56 to 13.06. The advance in expenditure for rent, as for food, is especially marked in the case of the second, or $6 to $8 wage group, as compared with the lowest, or $3 to $5 wage group, namely, from less than $1 per week to nearly $1.50 per week. It appears that the first increase in the amount of income goes largely for better lodgings and board. A sharp drop in the percentage of rent expenditure comes with the $9 to $12 wage, indicating that here the essential decencies and comforts of living conditions have been achieved.

[1]See Table 2, p. 59.

The whole story of standards in rent, however, is not told in terms of dollars and cents, as over one-third of the total number live in the suburbs and this tends to make the general average of rent paid among these workers lower than the city average.[1] One-quarter of the professional women, one-third of the kitchen workers and factory workers and two-thirds of the clerical workers concerning whom information was obtained are suburbanites.[2]

Roommates are another form of economy in rent. And hall bedrooms, unheated rooms, rooms without light, all come cheap, and reduce the ratio of rent to income. If a fair priced room is divided among two or more occupants, the cost to the individual immediately drops to an amount that would come far short of paying for adequate living conditions by itself. But this is at a cost of privacy and independence which make it doubtful whether a large room shared in this way is any more adequate than a small unheated room held in sole possession.[3] The tables show that 16 out of 28 professional women report no roommate; 11 report one roommate; 1 reports two. The clerical division shows only 13 out of 62 reporting no roommate; 30 share their room with one; 19 share with two or more. Sales girls in this respect apparently preserve a much more adequate standard. Thirty-one out of 52 report a room to themselves; 16 have one roommate; 5 have two or more. Factory girls report 17 out of 57 living in single rooms, 25 sharing with one, 15 with two. The fact that 62 per cent. of the entire number of women are living two or more in a room adequately explains the generally low average of expenditure for rent. The wear and tear on an individual is doubtless very much less when she lives with members of her own family and not with strangers. In a total of 134 cases of girls not living alone in their rooms, 43 live with relatives.

A living wage can perhaps purchase nothing which is of greater value than the luxury—which should really be considered a necessity—of a room to one's self. Sharing one's room is the easiest, and, as the tables show, the most common way, of reducing rent expenses. By doing so a girl can afford a room that would otherwise be beyond her means, in point of size, warmth, comfortable

[1] See Tables 3 and 4, pp. 59, 60.

[2] To the rent of this class should be added car fares when suburban and city rents are compared.

[3] See Tables 5 and 6, pp, 60, 61.

furnishing and general good surroundings, both in the house and the quarter of the city in which it is situated. Individual taste varies in no respect more than in these details. Some women are happier in a cold attic room in an attractive part of the city than in an entirely comfortable place where the sights and sounds around them and the atmosphere of the street through which they have to pass are distasteful. Others care little about exterior surroundings that do not touch them directly, provided that they are satisfied with their own corner.

The returns in regard to neighborhoods are unsatisfactory and can be classified in no hard-and-fast manner, for the "goodness" or the "badness" of a neighborhood, unless it be extreme, depends largely upon the individual viewpoint. The matter of adequate comforts and necessities of living, however, is more definite. In the case of women workers, whose nights for the most part are spent in their own rooms, size is an important item of comfort from the recuperative standpoint. The majority live in small rooms.[1] This means, in the city, hall bed-rooms, in the suburbs, rooms corresponding more or less in size to the hall bed-room. Eighty-four report living in large rooms; 142 in small rooms. As the number reporting roommates is 134, it is evident that some among this number are sharing even small rooms with another person. This is true especially in tenements of the West End. The investigator noted one case in which three Russian Jewish girls shared one tiny room, which was barely large enough for one double bed in which the three slept, a bureau and one chair. The room contained one window, looking out upon a small court, and opened into the common room of the family, which was used for cooking, eating, laundry and general living purposes. This was the only case found by the investigator of three persons in one small room. There were several cases, however, in which such a room was shared by two girls.

The number of rooms having no windows is 22 out of 219.[2] Though but a small proportion of the rooms have no direct outside ventilation, the fact that there are any of this sort in which girls must sleep seems too barbarous a condition to be tolerated. The rents for such rooms are, of course, very low. Sometimes the indirect supply of air from windows in the next room seems more

[1]The size of the room has been determined by the investigator's opinion of sufficient or insufficient size.

[2]See Tables 7 and 8, pp. 61, 62.

adequate than the direct ventilation that some rooms have from a small court on which innumerable other windows open. The investigator noted a few cases in which the windowless room opened by large double doors into a well-ventilated room, and was informed that the problem was solved by having these doors open at night, thus practically turning the apartments into one large room. This, of course, could be done only when the next room was occupied either by relatives or friends who were willing to allow such a privilege. Some cases there were in which the windowless room opened into an equally windowless hallway, and had no possibility of any circulation of air. The majority of the rooms, however, have outside ventilation, and but few of them open on a small court or air-shaft. All but 65 in a total of 204 report sunshine in their rooms during some part of the day. It should be stated that the investigator has dealt with but few cases in the over-crowded foreign quarters of the city. Doubtless an investigation of housing among the tenement dwellers would reveal less encouraging conditions. The lodging houses of Boston, however, so far as the results of this investigation show, do not lack in general for light and air.

The matter of lighting is of less importance than sun and air, but still is a factor in the adequacy of a room.[1] The greater number are lighted with gas. Of a total of 223 rooms reported, only 16 have electric lights; 71 have kerosene lamps. But the kind of light is comparatively immaterial. It is the quantity and situation of light in the room that is significant. On this point the data are not satisfactory. Oftentimes, and almost always in the working girls' homes, the light seemed to the investigator inadequate for reading or sewing, but was rarely the subject of complaint by the occupant of the room. Eye-strain could quite as often be accredited to poor lighting during the day at work, or to abuse of the eyes then, as to the small remote gas jets in the room at night. As a general condition, however, the gas jets are small and remote, entirely inadequate for more than one occupant of a room, and are almost never provided with burners giving a good light. In one of the smaller working girls' homes each room is provided with a drop-light, but this is rare.

The most important detail in both the cost and the comfort of a room is the amount of heat provided.[2] Only 80 of the total of

[1] See Tables 9 and 10, pp. 62, 63.
[2] *Ibid.*

191 rooms reported are furnace-heated; 17 are warmed by coal stoves; 8 by oil stoves; 86 have no heat whatever. An unheated room is not so bad when the woman can use the rest of the house for general living purposes, but becomes a real factor in physical deterioration when it is used, as is ordinarily the case with women lodgers, as a general living room. In some cases where the hallway is heated, and the room is specially sheltered, or gets much sunshine, the discomfort is not so great, except during really severe weather. Complaints about cold rooms are rare. In general, however, unheated rooms, even to one accustomed to cold, must be, if not a severe discomfort, at least a serious drain upon vital energy.

Next in importance, if not surpassing the physical features of the room itself, come the rights and privileges in the house.[1] When there is a bathroom the lodger always has the use of it. In 96 cases out of 226 reported, the house has no bathroom. This usually means in a tenement or apartment building a toilet in the hall used in common by all the dwellers on a floor or in a building. The toilet is usually a tiny dark closet in the hall lighted artificially, if at all, and almost totally unventilated and uncleaned.

The privilege of using a parlor in the house is of secondary importance. For the occupant of an unheated room the privilege may be valuable. The parlor is usually a reception room in which to entertain callers. This, as has been pointed out, has less bearing on the problem of adequate accommodations, which is one of privacy and not of etiquette, than might superficially appear. The returns show that 127 out of a total of 229 have such privileges. This proportion is doubtless large, because of the number of women living in homes for working women, and in suburban private homes.

A privilege considered of primary importance by women is that of doing one's own laundry. Of 232 reporting, 168 have the privilege, and many of the 64 not having it do bits of laundry "on the sly." The institutions always give this privilege. Sometimes a small charge of ten cents is made, as at the Grey Nuns' Home, for the use of heat for the irons. The girls always buy their own soap and starch. Laundry is expensive, and most women, even when tired after a hard day's work, would rather "earn the money" themselves by doing their own scrubbing than pay it to any one else.

The effects of increase of income upon housing conditions can

[1]See Tables 11 and 12, pp. 63, 64.

be traced to some extent. The distribution according to city or suburbs seems not to be affected by the wages earned, possibly because some women earning low wages live in the suburbs for the reason that they have work there, while those receiving higher wages and working in the city have car fare to pay, if they move into the suburbs, which equalizes the difference between city and suburban rent. An increase in income evidently goes in part at least to securing a room without a roommate. In the lowest wage group between one-fourth and one-fifth share their room with *more than one* roommate. The proportion drops to less than one-fifth in the next higher wage group, and in the two highest wage groups disappears entirely. Again, almost 90 per cent. of the number giving information from the lowest wage group have one or more roommates, while less than 25 per cent. of the highest wage group have roommates. Evidently a value is set upon having a room to one's self, and roommates are not in general chosen because of the companionship which they afford.

The size of the room is apparently of lesser importance. No very marked variation in this occurs between the lowest and highest wage groups. In the matter of ventilation, the two highest wage groups do not report any windowless rooms, but the number of windows, apparently, does not vary with the different groups. This is probably because the low-paid girl can have a large room with more than one window by sharing it with one or more other girls, while the high-wage girl who can afford a room alone has to content herself with a room of smaller dimensions. The proportion of sunny rooms rises directly with the increase of income, being valued evidently next to privacy. The proportion using kerosene lamps for light decreases with increasing wages, though always, excepting in the lowest wage group, gas predominates. The percentage having no heat is another detail that decreases steadily with increasing wages.

It appears that the chief advantages which the girl on higher wages gains by her ability to pay higher rent are a room to herself, heat of some sort and sunshine. These advantages come to the majority only when the wage has reached at least $9.

It is somewhat astonishing to discover the large proportion of women who are unable to secure the advantages of privacy through rooming alone and the social amenity of an opportunity to receive

callers outside of their own room, while from the point of view of health the number who live in unheated rooms presents a serious factor. Forty-five per cent. of those who reported are thus seen to be forced to meet the dangers to health which may come from an unheated living room. On the other hand, even including the privileges of a reception room which come through the working girls' homes, about 35 per cent. are forced either to surrender the privileges and pleasures of social relationship with men, or to overstep the boundaries of conventionality. Here then, may be found the fundamental basis for the lack of certain social properties and even moralities on the part of our working girls. With cold rooms, with no opportunities to receive guests and without the privacy even of a single room fully 35 per cent. of our working girls, if these proportions may be considered typical, are in danger of overstepping social and moral law. These conditions may be distinctly traced not only to the inadequate wage which our working women receive, but to our effete laws which have failed to keep pace with the changing conditions of home environment on the part of such a large group of its working citizens. Furthermore, poor economy is presented in the makeshift housing opportunities offered by the average landlady who, with little capital and no ability, is endeavoring to make her living in the face of a landlord ignorant of how to equip his tenement so as to receive a good return or to give adequate accommodations.

It is important, finally, to discover in the case of the girl living at home the amount paid per week and how many of the essential expenses of living it provides.[1] The headings in the tables represent only the more obvious necessities. Much more in the way of service and privileges, both trifling and important, comes to the girl living in a family than can possibly be classified or analyzed. It is also true that the girl so living gives to the family much more than the value of her weekly payments. She has often the place of a daughter in the house, even when the family is not her own, and with this place go duties and responsibilities as well as privileges. She usually helps with the housework, the family cooking and cleaning, the laundry and sewing. These duties, coming outside of her regular working day, are as truly "secondary work" as the cooking, laundry and cleaning that the girl by herself in lodgings does to make ends meet, and differ but little in effect from the

[1]See Table 13, p. 64.

evening and holiday sewing, typewriting, or table waiting that other girls do in order to have their cooking and laundry done for them. Oftentimes, however, these duties are not required, while, on the other hand, many extra services are included in the relatively small weekly payment for lodging. The housework is all done for her, her room is cared for, her laundry and mending done, sometimes her sewing as well. The working girl in a home like this is fortunate, indeed, for much of the physical and mental strain of self-support is lifted from her shoulders and she is relieved of the hardest part of the struggle of earning her living.

It appears that in all cases in which information was obtained the weekly amount of $3.06 to $6.43 pays for board and, in all but one case, for room; in 59 out of 73 cases it pays for laundry; in 24 out of 70, for clothing; and in 46 out of 67, for mending. In possibly 25 per cent. of the cases the average payment of $4.63 per week pays practically all the necessary expenses. The average earnings of this group are $7.76 per week.

Among the girls on low wages some give their services in entire payment of room and board, many make a regular bargain of payment in part money and part service, and others contribute their services in return for the many extra comforts of their life. Only 13 out of 85 cases giving this information report no household duties. In 60 cases it is *possible* that the girl is working either for the sake of spending money or to help somewhat toward her own support. In the greater number of cases, however, the payment covers only board and room, frequently laundry, and sometimes the small but important service of mending. It is perhaps a fair amount to pay for board and room when the cost to the family of the extra person is considered. But the home privileges which go with it cannot be purchased in a lodging house or restaurant for any price, and it is the privileges that make this kind of living real economy to the woman worker, freedom beyond the four walls of one room, social companionship and variety of diet and living. As these privileges are worth more than money to her, so she pays for them not with money but with her own service.

TABLE 1.—AVERAGE ANNUAL EXPENDITURES FOR RENT, BY OCCUPATION.

| Occupation. | Average income. | Average expenditure for rent. | |
|---|---|---|---|
| | | Amount. | Percentage of income. |
| Professional | $695.41 | $80.33 | 11.55 |
| Clerical | 499.59 | 82.73 | 16.56 |
| Sales | 357.34 | 79.70 | 22.30 |
| Factory | 382.37 | 55.76 | 14.58 |
| Waitresses | 364.42 | 53.29 | 14.62 |
| Kitchen workers | 342.30 | 82.17 | 24.00 |

TABLE 2.—AVERAGE ANNUAL EXPENDITURE, FOR RENT, BY WAGE GROUPS.

| Wage. | Average income. | Average expenditure for rent. | |
|---|---|---|---|
| | | Amount. | Percentage of income. |
| $3.00, 4.00, 5.00 | $231.36 | $49.87 | 21.56 |
| 6.00, 7.00, 8.00 | 350.15 | 71.83 | 20.51 |
| 9.00, 10.00, 11.00 | 493.54 | 74.81 | 15.16 |
| 12.00, 13.00, 14.00 | 629.28 | 93.66 | 14.88 |
| 15.00 and over | 885.31 | 115.59 | 13.06 |

TABLE 3.—EXTENT OF SUBURBAN RESIDENCE, BY OCCUPATION.

| Occupation. | Number reporting place of residence. | Number living in city. | Number living in suburbs. |
|---|---|---|---|
| Professional | 22 | 15 | 7 |
| Clerical | 61 | 36 | 25 |
| Sales | 60 | 44 | 16 |
| Factory | 71 | 43 | 28 |
| Waitresses | 7 | 5 | 2 |
| Kitchen workers | 12 | 8 | 4 |
| Total | 233 | 151 | 82 |

TABLE 4.—Extent of Suburban Residence, by Wage Groups.

| Wage. | Number reporting place of residence. | Number living in city. | Number living in suburbs. |
|---|---|---|---|
| $3.00, 4.00, 5.00 | 18 | 11 | 7 |
| 6.00, 7.00, 8.00 | 125 | 76 | 49 |
| 9.00, 10.00, 11.00 | 77 | 43 | 34 |
| 12.00, 13.00, 14.00 | 15 | 8 | 7 |
| 15.00 and over | 9 | 7 | 2 |
| Total | 244 | 145 | 99 |

TABLE 5.—Number of Roommates, by Occupation.

| Occupation. | Total number reporting number roommates. | Number reporting 1 roommate. | Number reporting 2 or more roommates. | Number reporting no roommate. | Number reporting roommate relative. | Number reporting roommate not a relative. |
|---|---|---|---|---|---|---|
| Professional | 28 | 11 | 1 | 16 | 4 | 8 |
| Clerical | 62 | 30 | 19 | 13 | 14 | 38 |
| Sales | 52 | 16 | 5 | 31 | 10 | 11 |
| Factory | 57 | 25 | 15 | 17 | 0 | 0 |
| Waitresses | 4 | 2 | 2 | 0 | 1 | 3 |
| Kitchen workers | 12 | 5 | 3 | 4 | 4 | 4 |
| Total | 215 | 89 | 45 | 81 | 43 | 64 |

TABLE 6.—Number of Roommates, by Wage Groups.

| Wage. | Total number reporting number of roommates. | Number reporting 1 roommate. | Number reporting 2 or more roommates. | Number reporting no roommate. | Number reporting roommate a relative. | Number reporting roommate not a relative. |
|---|---|---|---|---|---|---|
| $3.00 4.00 5.00 | 18 | 12 | 4 | 2 | 10 | 6 |
| 6.00 7.00 8.00 | 106 | 42 | 20 | 44 | 28 | 34 |
| 9.00 10.00 11.00 | 62 | 22 | 5 | 35 | 15 | 12 |
| 12.00 13.00 14.00 | 15 | 9 | 0 | 6 | 2 | 7 |
| 15.00 and over | 13 | 5 | 0 | 8 | 0 | 5 |
| Total | 214 | 90 | 29 | 95 | 55 | 64 |

TABLE 7.—Size of Room and Exterior Light, by Occupation.

| Occupation. | Size of room. | | Windows. | | | Sunlight. | |
|---|---|---|---|---|---|---|---|
| | Large. | Small. | One. | Two or more. | None. | Yes. | No. |
| Professional | 11 | 18 | 16 | 11 | 2 | 21 | 6 |
| Clerical | 22 | 39 | 32 | 22 | 8 | 40 | 21 |
| Sales | 16 | 39 | 27 | 23 | 4 | 32 | 19 |
| Factory | 25 | 39 | 32 | 19 | 6 | 35 | 15 |
| Waitresses | 4 | 1 | 2 | 3 | 0 | 3 | 0 |
| Kitchen workers | 6 | 6 | 6 | 4 | 2 | 8 | 4 |
| Total | 84 | 142 | 115 | 82 | 22 | 139 | 65 |

TABLE 8.—SIZE OF ROOM AND EXTERIOR LIGHT, BY WAGE GROUPS.

| Wage. | Size of room. | | Windows. | | | Sunlight. | |
|---|---|---|---|---|---|---|---|
| | Large. | Small. | One. | Two or more. | None. | Yes. | No. |
| $3.00 4.00 5.00 | 6 | 10 | 6 | 9 | 1 | 10 | 5 |
| 6.00 7.00 8.00 | 34 | 82 | 53 | 45 | 12 | 69 | 30 |
| 9.00 10.00 11.00 | 19 | 45 | 33 | 21 | 9 | 44 | 16 |
| 12.00 13.00 14.00 | 5 | 13 | 7 | 8 | 0 | 11 | 3 |
| 15.00 and over | 8 | 14 | 10 | 6 | 0 | 8 | 8 |
| Total | 72 | 164 | 109 | 89 | 22 | 142 | 62 |

TABLE 9.—ARTIFICIAL LIGHT AND HEAT, BY OCCUPATION.

| Occupation. | Light. | | | Heat. | | | |
|---|---|---|---|---|---|---|---|
| | Gas. | Electricity. | Kerosene. | Furnace. | Coal stove. | Oil stove. | No heat. |
| Professional | 18 | 0 | 10 | 13 | 4 | 0 | 6 |
| Clerical | 34 | 13 | 15 | 25 | 3 | 0 | 12 |
| Sales | 39 | 2 | 14 | 20 | 3 | 6 | 23 |
| Factory | 39 | 0 | 23 | 18 | 2 | 0 | 39 |
| Waitresses | 4 | 0 | 0 | 2 | 1 | 1 | 1 |
| Kitchen workers | 2 | 1 | 9 | 2 | 4 | 1 | 5 |
| Total | 136 | 16 | 71 | 80 | 17 | 8 | 86 |

TABLE 10.—ARTIFICIAL LIGHT AND HEAT, BY WAGE GROUPS.

| Wage. | Light. | | | Heat. | | | |
|---|---|---|---|---|---|---|---|
| | Gas. | Electricity. | Kerosene. | Furnace. | Coal stove. | Oil stove. | No heat. |
| $3.00 4.00 5.00 | 7 | 1 | 9 | 3 | 1 | 1 | 12 |
| 6.00 7.00 8.00 | 74 | 3 | 32 | 40 | 1 | 2 | 57 |
| 9.00 10.00 11.00 | 38 | 2 | 21 | 24 | 5 | 1 | 16 |
| 12.00 13.00 14.00 | 14 | 0 | 5 | 10 | 0 | 1 | 1 |
| 15.00 and over | 11 | 0 | 3 | 10 | 1 | 0 | 0 |
| Total | 144 | 6 | 70 | 87 | 8 | 5 | 86 |

TABLE 11.—HOUSE PRIVILEGES, BY OCCUPATION.

| Occupation. | Use of bathroom. | | Use of parlor. | | Laundry privileges. | |
|---|---|---|---|---|---|---|
| | Yes. | No. | Yes. | No. | Yes. | No. |
| Professional | 17 | 12 | 18 | 10 | 19 | 9 |
| Clerical | 46 | 18 | 50 | 19 | 51 | 16 |
| Sales | 34 | 21 | 21 | 34 | 36 | 19 |
| Factory | 21 | 40 | 31 | 29 | 49 | 16 |
| Waitresses | 5 | 0 | 3 | 2 | 4 | 1 |
| Kitchen workers | 7 | 5 | 4 | 8 | 9 | 3 |
| Total | 130 | 96 | 127 | 102 | 168 | 64 |

TABLE 12.—HOUSE PRIVILEGES, BY WAGE GROUPS.

| Wage. | Use of bathroom. | | Use of parlor. | | Laundry privileges. | |
|---|---|---|---|---|---|---|
| | Yes. | No. | Yes. | No. | Yes. | No. |
| $3.00 4.00 5.00 | 1 | 1 | 11 | 6 | 15 | 3 |
| 6.00 7.00 8.00 | 69 | 47 | 58 | 56 | 80 | 31 |
| 9.00 10.00 11.00 | 33 | 28 | 32 | 33 | 43 | 21 |
| 12.00 13.00 14.00 | 16 | 1 | 11 | 5 | 11 | 4 |
| 15.00 and over | 11 | 3 | 12 | 5 | 12 | 5 |
| **Total** | 130 | 80 | 124 | 105 | 161 | 64 |

TABLE 13.—CONTRIBUTIONS TO SUPPORT OF FAMILY BY WOMEN WORKERS LIVING AT HOME.

| Wage. | Average amount paid per week. | Percentage of income. | Number pay for | | Pay for laundry. | | Pay for clothes. | | Pay for mending. | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Board. | Room. | Yes. | No. | Yes. | No. | Yes. | No. |
| $3.00 4.00 5.00 | $3.06 | 68.78 | 10 | 11 | 5 | 3 | 4 | 4 | 6 | 2 |
| 6.00 7.00 8.00 | 4.45 | 66.08 | 41 | 44 | 31 | 7 | 13 | 22 | 23 | 10 |
| 9.00 10.00 11.00 | 6.43 | 67.75 | 17 | 17 | 15 | 2 | 7 | 11 | 13 | 5 |
| 12.00 13.00 14.00 | 4.33 | 35.78 | 7 | 7 | 7 | 0 | 0 | 6 | 3 | 3 |
| 15.00 and over | 4.01 | 23.55 | 4 | 3 | 1 | 2 | 0 | 3 | 1 | 1 |
| Total | ..... | ..... | 79 | 82 | 59 | 14 | 24 | 46 | 46 | 21 |

# CHAPTER VI

## CLOTHING

There is a widespread notion that the working girl spends her money largely on clothes. A group of shop girls was heard discussing their reputation for extravagance in this respect with a certain amount of indignation. "I know why people think that of us," said one. "It is because the less money you have to spend on clothes the less you can afford 'plain' things. In underclothes, for instance, the very cheapest things are loaded with ugly coarse lace, and this is true of hats, suits and all kinds of clothes, so we often look as if we were extravagant and trying to be showy when really we haven't the money to buy something a little better in quality, much better in taste, and a lot more durable. These people who make that criticism only see that the plain things which they look at are cheaper than the trimmed. They don't know that there are still cheaper things, which they don't even see, that we have to buy, whether they offend our taste or not."

There is doubtless some truth in this statement, and there is also an element of human nature, a longing for something bright and pretty at the expense of wise selection. A newspaper account of one shop girl's experience contains a story in point: "And for a best waist," said the girl, "I just went and got what I wanted. It was pink silk with black buttons on it. I felt as if I couldn't live without it, and I paid $5. It didn't last but four or five times' wear, and then it began to crack. I could just have cried when I saw that crack, for I knew I wouldn't get another nice waist for one while, and I was so afraid I would have to wear those awful black things to church. But I don't think I could have stood it not to get that pink waist." The next year, having learned wisdom with experience, she bought four yards of white Danish cloth for sixty cents, made a waist herself, and trimmed it with red French knots which cost five cents.

The results of this investigation certainly do not support the common opinion regarding the working girl's extravagance in the matter of dress. On the contrary, it appears that, as a rule, in the long year-in-year-out run, with the individual and with the group,

only so much of the weekly earnings as is left after almost everything else is bought goes for really necessary clothing. Of course, there are cases of unwise and ill-judged purchases. But the woman worker on low wages, while she may sacrifice comfort to appearance occasionally, has not so many comforts that she can easily dispense with any of them. It is true that, with an increase in earnings, money which might possibly be saved may often be spent on extending the wardrobe—"improving the standard of dress."

This tendency is not, however, necessarily culpable. To any one who has been in contact with many working women the statement that "it pays to dress well" must have a familiar sound. It is, indeed, so universally accepted a conclusion that one is forced to believe that there must be at least some truth in it. Many women affirm that good clothes are absolutely necessary in getting a position, useful in holding it, and valuable in securing promotion; and many in unquestionable sincerity devote capital or credit to the purchase of "something decent" when they go the rounds of the employment bureaus. In a discussion of wise principles of living in one of the working girls' clubs of Boston one of the points emphasized was this: "The necessity of considering dress first, because your position depends on dress." One woman earning $8 a week as saleswoman writes on her schedule: "Every cent aside from my living expenses has been *invested* in clothes. A poorly clad saleswoman draws a small salary and often finds it hard to obtain a position. I have proved to my own satisfaction that an up-to-date toilet goes a great way in securing and holding a position. A girl *must* be well and stylishly dressed, and, consequently, she has to scrimp on other things." And then she adds: "Clothes seem to 'make the man' in the drygoods business, certainly."

This woman's schedule, however, shows that she does not "scrimp" to the extent of denying herself many things necessary for health or reasonable comfort. She lives in a suburb where pleasant rooms are to be had for comparatively little. The cost of rent is $1.50 per week, and she describes her room as large, with two windows, lighted with gas, furnished with a couch, chiffonier, reading table, Morris chair, rocker, window seat and four rugs. Her car fares cost sixty cents per week to and from work; her lunches, twenty-five cents per day. She is fortunate in having very good breakfasts and suppers with her mother, who lives near, at

the cost merely of butter, eggs and fruit, which amounts to $1 per week. Her mother also does her laundry for her. For illness she has the "store doctor" of the department store where she works with no charge. Medicine cost $3 and dentistry $35. She spent $10 for pleasure, $2.60 for insurance, $5 for support of others and $10 for gifts. Incidentals amounted to $9 and she saved $14.50. What remained for clothes after these expenses were paid was less than $90—certainly no extravagant sum. The woman notes that without help from her mother she could not have lived on her salary. Doubtless she would have lived on it, but at the sacrifice of some of the expenditures that she now considers necessary.

Concerning installment buying, opinions are many and various. The majority of the women condemn it as a bad plan, but recognize it as a necessity for some people under certain conditions. One woman, for example, states that she has a young son to provide for and that she is obliged to resort to installment buying very often. She knows a firm on whose credit she can buy at all the stores, paying them the per cent. on the amount of her purchases for the credit. Consequently she is almost never out of debt. Most working women see clearly the lack of economy of credit buying as well as the danger to morals. Very few would resort to this practice from choice. In general, it is regarded as a necessary hardship, forced upon the poor in all kinds of buying, in the case of provisions, fuel, furniture, even insurance, as well as clothing. The cause back of it all is insufficient capital.

It is difficult, if not impossible, to fix upon any common standard of clothing for women workers. The various occupations involve very different requirements as regards dress. Individual taste also varies widely. The faculty of economy or "managing" ability is equally variable. Personal differences in respect to taste and economy are evident in all expenditures, but nowhere perhaps to a greater extent than in the outlay for clothing. One woman, for example, lived for seventeen weeks while out of work on $47, and bought at the same time her entire winter wardrobe for $7.56. The latter consisted of the following articles:

| | |
|---|---|
| 1 blue serge suit—coat and skirt | $2.00 |
| 1 black cloth skirt | 1.43 |
| 1 wool dress | 2.50 |
| 1 warm winter jacket | .75 |

| | |
|---|---|
| 1 hat | .05 |
| 3 belts | .03 |
| 2 yards of veiling | .05 |
| 1 pair of shoes | .50 |
| 1 pair of rubbers | .25 |
| Total | $7.56 |

Of course, the woman made all these things herself, mostly by hand, since she had no machine and could only borrow the use of one occasionally. Training as lady's maid and seamstress, which she had had in her younger days, stood her in good stead, and bits of material bought at bargain sales went a long way under her contriving fingers. A bunch of wire for two cents, and a large bunch of old-fashioned chenille for three cents were worked up into a really presentable hat. A bit of heavy material here, and a shop-worn or damaged remnant there, made her a coat, a suit and a dress. No woman in a regular position would be able thus to work for her clothes. The case is an extreme example of that possibility of getting much for little money by adding to cash, time, work and cleverness, which makes expenditures for clothes so variable.

One woman says that she seldom buys anything, because her old clothes can be made over and over and with care practically never wear out. Another woman states her problem simply: "I buy what I can, and go without what I need." One young girl, who has been on her own resources since childhood and never earned over $5, when asked how she could dress for a year on $10, replied that when her clothes were worn out she simply had to hold on to them and *make* them last longer. Many exhibit their wardrobes with much pride as they tell of various methods of economizing. Buying out of season and watching for bargain sales are the chiefest of these. Shop girls have the advantage here, since they are on the "inside track." In some stores the girls are allowed a certain amount of time away from their counters for shopping in the store during the part of the day when there are not many customers. One saleswoman bought a very good heavy coat, when the store was anxious to get the winter stock cleaned out in the spring, for 98 cents. She bought a rain coat for $1.98 from stock which she herself had sold for $8. A neat gray skirt, which she wore all summer, cost her 98 cents. Many stores give a discount to their employes.

This discount is usually from 5 to 10 per cent., and is sometimes greater for goods to be worn in the store, on the principle possibly that a certain rather high standard of dress is required of the sales girl. Credit is allowed by some stores for a limited time, two weeks or a month. The penalty for not paying up on time is forfeiture of the privilege of buying on credit. In shoe factories and rubber factories the girls often can buy "at cost."

While there are possibilities of economy for sales girls, there are, on the other hand, rather high requirements and a tendency to even higher ambitions for good dressing. Sometimes white waists are required, sometimes black. Even when no definite requirements are laid down, a neat and attractive appearance is demanded. It is almost a superstition with the sales girl that the greatest show of up-to-dateness makes the largest number of sales, and hence is the making of a valuable saleswoman. Whether this be true or not, need not be discussed here. Its effect on the account book is seen in the many entries for the latest novelty in neckwear or in coiffure, as well as for skirts and shirt waists.

Clerical and professional women, for the most part, also recognize the necessity of good clothes and attractive appearance. Waitresses usually have to provide themselves with a definite uniform, which, however, does not vary so much from place to place that new outfits have to be purchased at every change. It merely requires a small investment to begin with. The investigator's position in a good summer hotel called for black dresses with small aprons for breakfast and lunch, and white dresses with bib aprons for dinner. The aprons had to be absolutely uniform and were sold to the girls by the hotel "at cost"; that is, seventy-five cents each for the large and fifty cents for the small aprons. Waitresses were required also to do their own laundry. The writer's own outfit cost fifteen dollars. Probably most girls would have at least some of the articles already in her wardrobe, so that the cost would not be so great. But those whose wardrobes are the barest are the very ones who would find it most difficult to raise this amount.

Unless it be scrubwomen and cleaners, factory girls have the least required of them in the matter of dress. The work is oftentimes so dirty that the girls cannot wear street clothes to work in, but keep cast-off clothing at the factory and change before and after work. In a box factory the girls are so completely smeared with

paste and whatever adheres to it that it is frequently hard to make any guess as to the fabric underneath. Since those who do the dirtier part of the work *cannot* dress up to a standard, those having cleaner work do not feel obliged to wear good clothes.

In general, then, higher standards of dress are maintained by workers in occupations that bring them into direct contact with the public; and this either voluntarily or by order of the employer. The lower standard of dress prevails among those who work behind "no admittance" signs. A further generalization, not without its exceptions, is that the higher dress requirements are found in the occupations that pay the higher rates of wages.

The matter of laundry is a hard problem for the working woman. A girl who worked her way through college by all kinds of outside work once called it the last straw. "I don't mind waiting on table," she said, "or doing copying, or other people's mending, or collecting bills, but that everlasting drawer of laundry to be done which never stays done wears me out."

Many women spend their evenings, holidays and even Sundays over the tub and ironing board. On the whole, laundry is an expensive item—expensive either of time and strength or of money. It means at least two evenings a week, or, at most, every evening when done at home. When it cannot be done at home, either because the rules of the house forbid it, or because of lack of facilities, the cost can hardly be kept below fifty cents a week by the greatest care, and very easily increases to double or several times that amount. Only 39 women report doing none of their own laundry; 127 report doing part or all. Clerical women, waitresses and factory workers pay about the same yearly amount. Kitchen workers pay the highest amount, partly, perhaps, because they are frequently required to wear a washable uniform, but chiefly, doubtless, because they pay the laundry bills of those dependent on them at home together with their own, so that part of their laundry bill, if it were possible to separate it, belongs under expenses for the support of others. Professional women pay almost as much as kitchen workers; sales girls pay the least. Also the largest percentage of sales girls and the smallest percentage of waitresses do their own laundry. Sales girls and clerical women pay the smallest percentage of income for laundry, kitchen workers the highest, other classes about the same proportion of income.

In general, the management of the clothing problem is, for the low-paid woman, a severe tax on her physical or financial resource. Either she must spend much ill-spared energy in hunting marked-down goods that will serve her purpose and in making them up, or she must resort to the extravagant method of buying on the installment plan or the equally extravagant course of buying very cheap clothes which do not last. Of course, the woman who is exceptionally clever in remodeling old clothes and making them last, and the woman who is in a position that affords unusual opportunities of buying goods at a reduction, find this problem less troublesome. But the average working girl on low wages is hard pressed to keep up appearances. The only saving feature of the situation is the fact that the need of new clothing is not so imperative as that of food or lodging. It is, fortunately, a demand that can be postponed under pressure.

A theoretical ranking of the occupations in respect to expenditure for clothing, as determined by their respective requirements in the matter of dress, has been suggested in the foregoing discussion. At one extreme of this scale stands the sales girl, with high occupational standards; at the other, the factory worker, with comparatively low requirements. The facts regarding the expenditure for clothing, as set forth in the tables embodying the results of this investigation, show, however, a striking departure from this hypothetical order in the case of the factory worker.[1] Her actual expenditure for clothing is larger than that of any other class of workers, except professional women. The latter pay by far the largest amount for clothing. Clerical workers come next, closely followed by sales girls. Waitresses spend about four-fifths as much as clerical workers and sales girls, while kitchen workers spend only two-fifths of that amount. The factory worker spends a little more for clothes than does the clerical worker, although her income is about 23 per cent. less. A striking fact is that the actual amount expended for clothing by all classes below the professional worker is practically the same, with the exception of the sheltered workers, the waitresses and kitchen workers.

In the proportion of income expended for clothes, the order is different. The sales girl spends the largest proportion—19.14 per cent. The fact that the sales girl has the greatest opportunity for buying her wardrobe at a reduction gives to this large percentage

[1]See Table 1, p. 74.

added significance. The factory worker is not far behind, with 18.49 per cent. The waitress, with 15.87 per cent., stands slightly ahead of the clerical woman, with 14.10 per cent. The kitchen worker is far in the rear of all, with only 8.24 per cent.

These figures show conclusively that there are other factors besides the requirements of the trade that determine the amount spent for clothes. It is possible that the fact that sales, clerical and professional women, and often waitresses usually work eight hours or less a day, while the factory women more often than not work the full fifty-six hours per week permitted by law, may cause the difference. Not only have those working a shorter day more time to shop and purchase carefully, but they have likewise more time, and very likely also strength and ability to do part of their own sewing, thus cutting down the expense. The returns support this inference.[1] Fewer kitchen workers do part of their own sewing than factory women, but, as has been noted, the former are, as a rule, older women with families and homes to keep up. Other demands on their time would preclude very much attention to the making of clothing, as, indeed, the heavy drain on a small income prevents the buying. About the same proportion of professional women report making clothes for themselves, but this is explained by the fact of the comparatively high incomes. The small proportion of factory workers who do their own sewing at home appears the more striking when it is added that this class includes employes in dressmaking and tailoring establishments, who sew for their living, and might be supposed because of their skill with the needle to sew also for themselves. Of the 19 per cent. of factory workers who do their own sewing, about two-thirds are employed in such shops, leaving a possible 6 per cent. of factory workers employed in other classes of establishments who do some of their own sewing. This fact doubtless accounts in part of the factory woman's large clothing expenses.

There is another possible factor in the situation which may be important. Sales and clerical women and waitresses have working conditions which perhaps supply them with much of what we may call the "social" need. They come in contact with many people every day; sales girls in particular have much variety of intercourse in their calling. The factory worker, however, is shut up with her

[1]See Table 3, p. 75.

machine, in a dingy shop, with the same group of associates day after day, and a group as busy as she. There is usually little or no variation of employment; close attention to the same operation on the same machine fills the daily ten hours of probably the majority of factory workers. This monotony of occupation naturally stimulates a craving for outside relaxation and indulgence. Thus, while factory employment itself makes small demands on the workers as regards clothing, the reaction against the dreary monotony of the daily toil tends to promote extravagance in clothing as well as is amusement. So, if the statement that those varieties of work which lead to direct contact with the public demand the largest expenditure for clothing seems to find an exception in the factory worker it is not difficult to understand the reason. The factory worker has a longer day, has less time for making her own clothes, and has greater monotony of work, and so has greater need of social diversion.

The average cost of clothing by wage groups advances regularly from slightly less than $1 per week, for the lowest wage group, those earning $3 to $5, to slightly over $2 per week for those earning $12 to $14.[1] For the highest wage group, those earning $15 and over, the amount is not much greater, being only $2.08 per week. The proportion of income expended for clothing declines pretty steadily from 21.80 per cent. for the lowest group to 12.24 per cent. for the highest. Thus, through the whole range of earnings the average cost of clothing varies only between one and two dollars a week approximately. Evidently, then, the working woman, with only ordinary ability to manage her wardrobe economically, with the usual trade demands on it, and the average amount of time for sewing and mending, cannot dress on less than $1 per week as a minimum, and does not need as a dress allowance more than $2 per week. Dressing on an allowance within these limits means, as a rule, doing some sewing and laundry out of working hours. About five-sixths of the women regularly do a part of their own dressmaking, in addition to mending, and over three-fourths regularly do a part or all of their laundry. As to the adequacy of clothing provided for one or two dollars a week, it is possible to judge this only by examining a wardrobe kept replenished and in order on this amount. The investigator examined many wardrobes of many degrees of adequacy, and could only conclude

[1]See Tables 2 and 4, pp. 74, 75.

that more than in any other part of a working woman's expenses, the matter of clothing depends on the taste and cleverness of the individual. The figures of expenditure here tabulated may be taken to represent a fair average of these supplementary qualities which have to do with economical buying.

TABLE 1.—AVERAGE ANNUAL EXPENDITURES FOR CLOTHING, BY OCCUPATION.

| Occupation. | Average income. | Expenditure for clothing. | |
|---|---|---|---|
| | | Amount. | Percentage of income. |
| Professional | $695.41 | $112.27 | 16.14 |
| Clerical | 499.59 | 70.43 | 14.10 |
| Sales | 357.34 | 68.41 | 19.14 |
| Factory | 382.37 | 70.71 | 18.49 |
| Waitresses | 364.42 | 57.82 | 15.87 |
| Kitchen workers | 342.30 | 28.22 | 8.24 |

TABLE 2.—AVERAGE ANNUAL EXPENDITURES FOR CLOTHING, BY WAGE GROUPS.

| Wage. | Average income. | Expenditure for clothing. | | Number buying clothes. | |
|---|---|---|---|---|---|
| | | Amount. | Percentage of income. | By cash or employees' store credit. | By installment. |
| $3.00, 4.00, 5.00 | $231.36 | $50.41 | 21.80 | 14 | 6 |
| 6.00, 7.00, 8.00 | 350.15 | 66.44 | 18.97 | 54 | 4 |
| 9.00, 10.00, 11.00 | 493.54 | 88.99 | 18.03 | 28 | 4 |
| 12.00, 13.00, 14.00 | 629.28 | 105.87 | 16.82 | 5 | 1 |
| 15.00 and over | 885.31 | 108.40 | 12.24 | 9 | 2 |
| Total | ..... | ..... | ..... | 110 | 17 |

TABLE 3.—HOME DRESSMAKING AND LAUNDRY WORK, BY OCCUPATION.

| Occupation. | Cost of laundry per year. | | Number doing part or all of laundry. | Number doing no laundry. | Number who make part or all of clothes. | Number who make no clothes. |
|---|---|---|---|---|---|---|
| | Amount. | Percentage of income. | | | | |
| Professional | $22.26 | 3.20 | 14 | 4 | 7 | 1 |
| Clerical | 14.26 | 2.85 | 19 | 13 | 41 | 9 |
| Sales | 10.37 | 2.90 | 39 | 8 | 17 | 3 |
| Factory | 14.84 | 3.88 | 45 | 13 | 17 | 1 |
| Waitresses | 14.03 | 3.85 | 3 | 0 | 16 | 3 |
| Kitchen workers | 23.90 | 6.98 | 7 | 1 | 1 | 3 |
| Total | ..... | ..... | 127 | 39 | 99 | 20 |

TABLE 4.—COST OF LAUNDRY AND CLOTHING, BY WAGE GROUPS.

| Wage. | Cost of laundry per year. | | Number doing part or all of laundry. | Number doing no laundry. | Yearly cost of clothes and laundry combined. | |
|---|---|---|---|---|---|---|
| | Amount. | Percentage of income. | | | Amount. | Percentage of income. |
| $3.00 4.00 5.00 | $2.42 | 1.05 | 11 | 2 | $52.83 | 22.84 |
| 6.00 7.00 8.00 | 12.22 | 3.49 | 78 | 18 | 78.66 | 22.46 |
| 9.00 10.00 11.00 | 18.32 | 3.71 | 30 | 9 | 107.31 | 21.74 |
| 12.00 13.00 14.00 | 14.71 | 2.34 | 3 | 5 | 120.58 | 19.16 |
| 15.00 and over | 22.48 | 2.54 | 5 | 5 | 130.88 | 14.78 |
| Total | ..... | .... | 127 | 39 | ..... | ..... |

# CHAPTER VII

## HEALTH

Expenditure for health varies considerably for different occupations and wage groups, both in respect to amount of outlay and its proportion to income. It is not possible, however, to draw definite conclusions from the figures as to the effect on health of workers in the various occupations and wage groups. Workers receiving low wages are often obliged to do without needed medical treatment, although by reason of small earnings and consequent hardship they may need it the more. On the other hand, free treatment is frequently received by working women of all classes.

The tables show that the professional woman pays the largest annual amount for health, $26.38; and the factory worker the next, $23.96.[1] The professional woman may be supposed to work under the best sanitary conditions, with the least exacting hours; the factory woman under possibly the worst conditions, for the longest hours. Yet the actual money spent for health in these two groups is almost equal. Obviously, therefore, it is no index of actual conditions in the occupations. The professional woman may be educated up to a higher sense of responsibility for her own physical well being, or she may demand a higher grade of medical attention, or she may accept less free treatment. Certainly her income is much higher than the factory worker's. Twenty-six dollars and thirty-eight cents represents 3.79 per cent. of her income, while $23.96 is 6.27 per cent. of the income of the factory worker. It is significant, furthermore, that the factory worker, with an income averaging only a few dollars more than that of saleswomen and kitchen workers, spends a much larger amount for health. Saleswomen spend $19.05 per year, and kitchen workers $8.64. Waitresses, with a somewhat smaller income than factory workers, spend $11.45. The percentage of income expended for health by the factory woman is also the highest, 6.27 per cent. The percentages for other classes are: Saleswomen, 5.33; professional, 3.79; waitress, 3.14; kitchen, 2.52. It may be concluded, therefore, that factory women as a class have a comparatively heavy burden in caring for their health.

[1]See Table 1, p. 78.

Sales girls stand next to factory workers in the scale of health expenditures. Much was formerly written and said of the injury to the health of shop women through constant standing at their work, and the law requiring seats behind the counter was the result. It is doubtful, however, whether these seats are a sufficient remedy, for during the later hours of the day, when weariness increases, the rush of customers also increases and there is little chance for sitting. Very few report availing themselves of the seats. Some report that the seats are there in compliance to law, but that they are reprimanded by the floor walker for sitting. There is still much complaint of the results of prolonged standing, which very often takes the form of pronated ankles and "flat foot," a painful trouble.

Waitresses and clerical women spend almost the same amount on health. The hours of the waitress are long, but her busy time is frequently short. There is change of air, and certainly exercise in plenty. The clerical woman has usually very reasonable hours and good general working conditions.

The small expenditure for health recorded in the case of the kitchen worker, only 2.52 per cent. of her income, may be due to the fact that her occupation supplies her with food in sufficient quantity and involves no injurious degree of physical strain.

The classification of health expenditures by wage groups shows, first, a marked increase in amount up to the $9 to $12 group; second, a practically stationary expenditure for the next group, of $12 to $14 workers; and, third, a great decrease for the highest group, of $15 and over.[1] This showing indicates that insufficient wages do not permit of essential medical treatment, and that high wages tend to diminish the need of such treatment. The percentage of the income spent for the maintenance of health steadily decreases with the increase of wages, from 5.80 down to 1.89, showing the gradual lessening of this burden with the expansion of earnings.

The use of free beds in hospitals or dispensaries is reported frequently on the schedules. The testimony of the women concerning their treatment in these institutions is interesting in view of the criticism often heard regarding neglect and abuse of charity cases. In every case in which experience in a free bed was reported the investigator questioned the person at some length on the kind of treatment received. The women were usually enthusiastic over the

[1]See Table 2, p. 78.

treatment and the kindness which they met on every hand while in the hospital. A few complained of neglect and careless treatment. The investigator, however, has happened upon sufficient evidence of like neglect in more or less expensive private hospitals to lead to the conclusion that such treatment is an occasional incident of hospital experience in general, and is not a distinguishing feature of charity cases.

TABLE 1.—AVERAGE ANNUAL EXPENDITURES FOR HEALTH, BY OCCUPATION.

| Occupation. | Average income. | Expenditure for health. | |
|---|---|---|---|
| | | Amount. | Percentage of income. |
| Professional | $695.41 | $26.38 | 3.79 |
| Clerical | 499.59 | 12.44 | 2.49 |
| Sales | 357.34 | 19.05 | 5.33 |
| Factory | 382.37 | 23.96 | 6.27 |
| Waitresses | 364.42 | 11.45 | 3.14 |
| Kitchen workers | 342.30 | 8.64 | 2.52 |

TABLE 2.—AVERAGE ANNUAL EXPENDITURES FOR HEALTH, BY WAGE GROUPS.

| Wage. | Average income. | Expenditure for health. | |
|---|---|---|---|
| | | Amount | Percentage of income. |
| $3.00, 4.00, 5.00 | $231.36 | $13.43 | 5.80 |
| 6.00, 7.00, 8.00 | 350.15 | 18.81 | 5.37 |
| 9.00, 10.00, 11.00 | 493.54 | 22.09 | 4.48 |
| 12.00, 13.00, 14.00 | 629.28 | 22.91 | 3.64 |
| 15.00 and over | 885.31 | 16.75 | 1.89 |

## CHAPTER VIII

### SAVINGS AND DEBTS

Information on this subject was obtained with the greatest difficulty. In fact, this was the only variety of information that the investigator found impossible to get from the majority of women. Probably the greater number carrying the burden of debt absolutely denied the existence of anything of the sort. The general attitude was that of "not talking too much," on the principle which rules working women as a whole that the less said about private affairs the less there may be to regret. The figures concerning debt are, consequently, very incomplete. Information about savings was more easily secured, although here, too, it was difficult to push inquiries beyond broad generalities. Increasing suspicion was aroused at once by any interest in the details of the subject. It was frequently difficult, furthermore, to differentiate between temporary and permanent savings. A statement by an eight-dollar-a-week woman that she saves regularly three dollars a week may sound well; but such "regular" savings are frequently regular for only a few weeks at a time and are made for the express purpose of a new spring suit or the winter's supply of clothing.

The problem of thrift in general is a very different one among women from what it is among men. The whole attitude of women toward saving for the future is peculiarly discouraging. There is, first of all, a general apathy, the result of generations of accustomed reliance on man as the provider. Even in the case of women who have been forced out into industrial life and who are self-supporting this inherent sense of dependence is seldom outgrown. It is always there, acting, consciously or unconsciously, as a dead weight which prevents any real initiative in saving for the future. With younger wage-earning women there is always the expectation of marriage. Work is merely a makeshift until marriage comes. Moreover, in the case of women in industry where the wage is comparatively small and the demands of living and the craving for small extravagances far greater with women than with men, the possibility and the duty of putting aside a part of the income for the future seem less urgent to the individual.

It is true that many women who are now carrying economic burdens for others ought to be expected to develop a certain sense of foresight for the future. But the fact that such women look forward to less responsibility as the years go on, because these burdens usually mean the care of parents or of other older relations, brings in a new element not conducive to saving for the future. On the other hand, men who have persons dependent upon them must expect the economic responsibilities of later life to become more and more exacting. That is to say, man's burden is going to grow, while woman's decreases. In one case there is the imperativeness of saving for the future, in the other there is the utmost present tax on the income with hope of abatement in later years.

A report of the Women's Committee on Savings Bank Insurance of Boston, March, 1910, sets forth some significant facts concerning the extent of saving among women workers. The study is based on interviews with over 1300 women. According to this report, "17 per cent. of working women may be said to have a satisfactory amount of savings." Further, it appears that 11 per cent. of the women interviewed carry two insurance policies, and 47 per cent. carry one policy, while 38 per cent. have savings in some form other than insurance. Regarding the relation between savings and earnings, the report states:

"The most important result of this section of discussion is the light received on the wage question. It is *not* the earner of a wage under six dollars—whether living at home or not—who is saving; we do find the six dollar to nine dollar, or nine dollar to twelve dollar wage-carner saving, according to the type of work or worker; and we find both the woman twenty to twenty-five years of age and the woman under twenty years of age saving. But it is only when the highly skilled worker is receiving the twelve to twenty dollar wage that sufficient saving becomes more common, 29 per cent., and that an *attempt* at saving is seen among half or more than half of the workers."

The committee concludes that "saving among wage-earning women is proportionately small," and suggests the following reasons for their general unwillingness to save:

(*a*) The lack of responsibility, due to the fact that so many women turn all the earnings into the family exchequer, and thus no sense of self-dependence is developed.

(*b*) This is accompanied by the low wage at the beginning and continued for a longer time than a proper apprenticeship, due to the early age of entering industry and the lack of training for the industry.

(*c*) The seasonal character of much of the work in which women are employed, and the ignorance in the younger years as to supplementary occupation, or the lack of certainty as to permanence of position, and hence uncertainty of ability to make payments.

(*d*) The fact that such a large number have one or more insurance policies, although usually carried by parents, creating a feeling of satisfaction or at any rate an aversion to an investment-carrying insurance.

(*e*) The unfamiliar idea of deciding for oneself as to any investment. The continued custom of economic dependence in judgment upon the opinions of the men, the family or acquaintances; and the fact that men do not regard the girls of the family as either competent to decide or likely to be compelled to carry the burden of economic independence.

(*f*) The greater acquaintance with co-operative banks and savings banks for investment, and the unattractiveness of the idea of insurance.

(*g*) The fact that so very large a number live at home, and have therefore the feeling of dependence in judgment, and the lack of the necessity of being self-supporting, although actually, perhaps, contributing more to the family than the equivalent of their own expenses.

The tables at the end of this chapter show that the professional woman saves the most and has the highest average debt.[1] The latter may be explained by the fact that several from this group have borrowed money for their education, expecting to pay it off little by little from their own earnings. The next highest average of savings is that of the clerical woman, who also has the highest average surplus remaining after the average debt is subtracted. The next highest surplus is that of the kitchen workers, who stand third in the savings column and last in the debt column. This is possibly because the greater age and heavier responsibilities of this class make them more cautious of incurring debts which they may have great difficulty in paying off. Waitresses and factory women save

[1]See Table 1, p. 83.

about the same amount and carry about an equal burden of average indebtedness. Saleswomen save the least, are less in debt than any other group, excepting kitchen workers, and have the smallest surplus.

The classification by wage groups shows that savings, as might be expected, increase pretty regularly from an average of $8.96 a year in the lowest division to $135.91 a year in the highest.[1] The figures for debt exhibit no tendency to rise or fall with any regularity and cannot be made the basis for any deductions, as the returns on which they were based, as already noted, were incomplete and untrustworthy.

The form of saving differs widely. A popular form among working women is the co-operative savings bank. Investing money in this way necessitates regular saving, as one dollar must be deposited monthly for each share that is taken. Fines are levied for failure to deposit the regular amount, and borrowing on amounts previously deposited is discouraged by charging a rate of interest slightly above that paid by the bank. The plan of stamp savings has been developed to a certain extent, chiefly through the volunteer efforts of the settlement workers. It is to be doubted, however, whether stamp saving really encourages the starting of bank accounts, as is the purpose. This agency is used rather, it would seem, as a convenient sort of "stocking" in which to accumulate money toward the new suit or hat, or the Christmas gifts. Firms employing large numbers of workers frequently have savings organizations for their employes. Probably the most common method of saving among working women is insurance in some form.[2] Among employes' associations this is usually in the form of sickness or death benefit; in other cases the common form is endowment or death policy. The greater number report death policies. Illness and endowment policies are about even in number. Over 40 per cent. of those reporting carry no insurance.

The only permanent saving among working women appears to be that which takes the form of insurance. Savings deposited in banks are usually drawn out to meet the needs of a less prosperous time, and do not accumulate long, while payments toward an endowment policy or other benefit are made, if possible, even while debts

[1] See Table 2, p. 83.
[2] See Table 3, p. 84.

are accumulating. Next to insurance in permanence comes saving through the co-operative banks, in which shareholders are fined for not depositing the regular amount. Lowest in respect to permanence, rank stamp savings, these being used up within a few months, as a general thing. On the whole, savings on any wage below $15 are largely a fictitious, temporary surplus of income over expenses.

TABLE 1.—AVERAGE ANNUAL SAVINGS AND DEBTS, BY OCCUPATION.

| Occupation. | Savings. | | Debts. | | Surplus of savings over debts. | |
|---|---|---|---|---|---|---|
| | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. |
| Professional..... | $130.41 | 18.75 | $95.54 | 13.74 | $34.87 | 5.01 |
| Clerical..... | 88.65 | 17.74 | 27.39 | 5.48 | 61.26 | 12.26 |
| Sales..... | 38.55 | 10.79 | 17.91 | 5.01 | 20.64 | 5.78 |
| Factory..... | 51.20 | 13.39 | 29.36 | 7.68 | 21.84 | 5.71 |
| Waitresses..... | 54.55 | 14.97 | 30.28 | 8.31 | 24.27 | 6.66 |
| Kitchen workers.. | 61.67 | 18.02 | 17.07 | 4.99 | 44.60 | 13.03 |

TABLE 2.—AVERAGE ANNUAL SAVINGS AND DEBTS, BY WAGE GROUPS.

| Wage. | Savings. | | Debts. | | Insurance, yearly. | | Surplus of savings over debts. | Deficit of debts over savings. |
|---|---|---|---|---|---|---|---|---|
| | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | | |
| $3.00 4.00 5.00 .... | $8.96 | 3.87 | $29.09 | 12.57 | $5.73 | 2.48 | 0 | $20.13 |
| 6.00 7.00 8.00 .... | 7.64 | 2.18 | 11.80 | 3.37 | 10.65 | 3.04 | $35.84 | 0 |
| 9.00 10.00 11.00 .... | 31.63 | 6.41 | 38.99 | 7.90 | 12.82 | 2.60 | 0 | 7.36 |
| 12.00 13.00 14.00 .... | 84.72 | 13.46 | 9.75 | 1.55 | 18.96 | 3.01 | 74.97 | 0 |
| 15.00 and over .... | 135.91 | 15.35 | 104.54 | 11.81 | 21.25 | 2.40 | 31.37 | 0 |

TABLE 3.—AVERAGE AMOUNT OF INSURANCE, BY WAGE GROUPS.

| Wage. | Savings. | Insurance. | Percentage of savings in insurance. |
|---|---|---|---|
| $3.00 4.00 5.00 | $8.96 | $5.73 | 63.95 |
| 6.00 7.00 8.00 | 47.64 | 10.65 | 22.36 |
| 9.00 10.00 11.00 | 31.63 | 12.82 | 40.53 |
| 12.00 13.00 14.00 | 84.72 | 18.96 | 22.38 |
| 15.00 and over | 135.91 | 21.25 | 15.64 |

# CHAPTER IX

## MISCELLANEOUS EXPENDITURES INCLUDING RECREATION AND EDUCATION

Expenditure for recreation covers a wide range—theaters and picture shows, excursions and outings, books and magazines, clubs and societies, and innumerable forms of amusement and indulgence. The line between recreation and other kinds of miscellaneous expenditure is hard to draw. In particular, recreational and educational expenditures are often so intimately related as to be practically inseparable, as, for example, in the case of concerts and lectures. Any separate classification here is of necessity more or less arbitrary.

It may be noted that there are many opportunities for recreation and education open to women workers in Boston without charge. Free lectures, Lowell Institute courses, public concerts, municipal gymnasiums, working girls' clubs, and social settlements offer entertainment and instruction in abundance to all who care to avail themselves of these advantages. The investigator was impressed, however, with the fact that these clubs, classes, lectures and other opportunities of diversion and development demand a freshness of mind and body that but few women after the day's work have left to give. The opportunities are there, but the strength to grasp them is not. Long hours and low wages do not supply the surplus vitality demanded for the proper enjoyment of these evening privileges. If the wages were sufficient to provide nourishing food and generally comfortable living conditions, and if the working day were short enough to allow more time for recuperation, the working girl might make good use of these chances for intellectual, physical and social development. But, under existing conditions, it is only those whose work makes light demands on their strength, or who are exceptionally vigorous, who can earn their own living, and at the same time spend their evenings profitably in the pursuit of pleasure or improvement.

As in other forms of expenditures, the professional woman pays the most for recreation, car fares and incidental expenses, and gives the most to church, charity, and the support of others.[1]

[1]See Table 1, p. 88.

On the other hand, she spends little for education, this, presumably, having been acquired and paid for in the past. Clerical women spend the next largest amount for recreation, for car fare and for church, charity and gifts. They also spend the largest amount for education. Sales girls spend for education almost as much as clerical women; they stand third in expenditure for recreation and the support of others. Their incidental expenses are the smallest. Factory women rank third in most branches of miscellaneous expenditure, but fall back to fourth place in recreation. Waitresses spend less than factory women on recreation, almost nothing on education, less than any but kitchen workers on church, charity and gifts, and less than any but clerical women on the support of others.

The percentage tables show sales girls spending the largest proportions for education and recreation. Professional and factory women give away the largest percentages of their income. There are many among clerical and factory workers who regularly give the Biblical tithe, and at each rise in salary conscientiously increase their contributions to a tenth of their income. "I put one-tenth into a box I keep for that purpose," said one woman, "and when a collection is taken at the factory for some one, or when I am asked to contribute to something, I just take it out of that box. When it is gone I haven't any more to give until next salary day, but one-tenth always goes into it whether it is empty or full." Working women as a class are astonishingly generous. Probably the correct reason is the one so often given, that one must have experience in order to sympathize, and must have felt the need, to realize what it means to some one else. They are many of them near to want themselves, and this very fact makes them quick to give help to those a little nearer than themselves.

It will be seen from the tables that working women, as a whole, spend more of the total amount that goes for miscellaneous expenditures on others than on themselves.[1] In only two occupations is this not the case. Clerical women spend about a third of this allowance on others and saleswomen almost one-half; the others spend less than one-half on themselves. Kitchen workers spend the bulk of their surplus money on others.

The expenditure for recreation shows no regularity of increase with increasing wages, as do most miscellaneous expenses.[2] This

[1]See Tables 3 and 4, p. 90.
[2]See Table 2, p. 89.

is due to the difficulty of classifying expenditures for recreation, already mentioned. Doubtless, if all items that really belong under education were included in this class, the figures would show the usual upward tendency. Education expenses increase up to the $9 to $12 group, then decrease. The amount given to church and charity, to clubs, and as gifts increases steadily from $7.58 up to $42.62; that for the support of others also increases from $21.25 up to $193.78. Car fares on the whole increase steadily. Incidental expenses fluctuate.

The amounts spent on others increase from $28.83 to $236.40. On the whole, these figures increase with the rising wage up to the $9 to $11 group. The irregularities come in the groups beyond this. There are a comparatively small number of cases in the two highest wage groups so that the individual irregularities of spending perhaps have a greater effect here than in the preceding groups. However, these individual irregularities certainly tend markedly downward, to bring the average of the $12 group so far below the $9 group. And the average beneficence of the highest wage group, it may be noted, is not materially higher than the $9 group. Evidently the pleasure wants are practically satisfied, then, in the $9 group. It is possible, of course, that what may be called a state of equilibrium is reached at this point. That is, the necessary comforts of living have risen to a sufficiently adequate point at this wage group to render less effective the call of the theatre and the amusement park away from the sordidness of everyday life, and at the same time the amount which may be spent for amusements is large enough to permit of a reasonable quantity. The "for others" column shows a quite different result. In the lowest wage group, the amount spent on others is much smaller than the amount spent on self. In the next two groups, the expenditures are about evenly divided between others and self. In the fourth group the amount spent for others becomes much the larger. And in the highest group, the great bulk goes to others.

According to these figures, then, the average working woman does not squander her income above the necessities of life on frivolity and pleasure, as is frequently assumed, but, beyond a reasonable amount spent on herself, devotes a much larger sum to the welfare of others.

TABLE 1.—AVERAGE ANNUAL EXPENDITURES FOR RECREATION, EDUCATION, AND OTHER OBJECTS, BY OCCUPATION.

| Occupation. | Average income. | Recreation. | | Education. | | Church, charity, clubs, and gifts. | | Support of others. | | Car fares. | | Incidentals. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. |
| Professional | $695.41 | $32.44 | 4.66 | $19.32 | 2.78 | $34.98 | 5.03 | $205.22 | 29.51 | $33.32 | 4.79 | $22.07 | 3.17 |
| Clerical | 499.59 | 23.22 | 4.65 | 41.78 | 8.36 | 22.80 | 4.57 | 46.15 | 9.24 | 31.99 | 6.40 | 13.17 | 2.64 |
| Sales | 357.34 | 20.33 | 5.68 | 41.56 | 11.63 | 13.17 | 3.68 | 75.57 | 21.15 | 27.34 | 7.65 | 3.53 | .99 |
| Factory | 382.37 | 17.17 | 4.49 | 25.25 | 6.60 | 20.58 | 5.38 | 66.65 | 17.43 | 18.60 | 4.86 | 13.97 | 3.65 |
| Waitresses | 364.42 | 12.66 | 3.47 | 1.75 | .48 | 11.09 | 3.04 | 50.55 | 13.87 | 31.60 | 8.67 | 14.55 | 3.99 |
| Kitchen workers | 342.30 | 6.67 | 1.94 | 0 | 0 | 6.14 | 1.79 | 106.43 | 31.09 | 21.88 | 6.39 | 5.59 | 1.63 |

TABLE 2.—AVERAGE ANNUAL EXPENDITURES FOR RECREATION, EDUCATION, AND OTHER OBJECTS, BY WAGE GROUPS.

| Wage. | Average income. | Recreation. | | Education. | | Church, charity, clubs, and gifts. | | Support of others. | | Car fares. | | Incidentals. | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. | Amount. | Percentage of income. |
| $3.00 4.00 5.00 | $231.36 | $17.17 | 7.42 | 0 | 0 | $7.58 | 3.28 | $21.25 | 9.18 | $24.33 | 10.52 | $3.35 | 1.45 |
| 6.00 7.00 8.00 | 350.15 | 14.15 | 4.04 | $18.91 | 5.40 | 11.88 | 3.39 | 41.50 | 11.85 | 16.44 | 4.70 | 7.98 | 2.28 |
| 9.00 10.00 11.00 | 493.54 | 20.82 | 4.22 | 29.86 | 6.05 | 22.20 | 4.50 | 71.41 | 14.47 | 27.32 | 5.54 | 16.86 | 3.42 |
| 12.00 13.00 14.00 | 629.28 | 13.08 | 2.08 | 12.31 | 1.96 | 28.11 | 4.47 | 63.74 | 10.13 | 34.56 | 5.49 | 9.87 | 1.57 |
| 15.00 and over | 885.31 | 34.07 | 3.85 | 3.93 | .44 | 42.62 | 4.81 | 193.78 | 21.89 | 38.57 | 4.36 | 20.02 | 2.26 |

TABLE 3.—AVERAGE ANNUAL EXPENDITURES FOR SELF AND FOR OTHERS, BY OCCUPATION.

| Occupation. | Spent on self. (Incidentals, recreation, education, and car fares.) | Spent on others. (Church, charity, clubs, gifts, and support of others.) |
|---|---|---|
| Professional | $107.15 | $240.20 |
| Clerical | 110.16 | 68.95 |
| Sales | 92.76 | 88.74 |
| Factory | 74.99 | 87.23 |
| Waitresses | 60.56 | 61.64 |
| Kitchen workers | 34.14 | 112.57 |

TABLE 4.—AVERAGE ANNUAL EXPENDITURES FOR SELF AND FOR OTHERS, BY WAGE GROUPS.

| Wage. | Spent on self. (Incidentals, recreation, education, and car fares.) | Spent on others. (Church, charity, clubs, gifts, and support of others.) |
|---|---|---|
| $3.00, 4.00, 5.00 | $44.85 | $28.83 |
| 6.00, 7.00, 8.00 | 57.48 | 53.38 |
| 9.00, 10.00, 11.00 | 94.86 | 93.61 |
| 12.00, 13.00, 14.00 | 69.82 | 91.85 |
| 15.00 and over | 96.59 | 236.40 |