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HON. J. B. WHITE, President

Proceedings
of the
Third
National Conservation Congress

at

Kansas City, Missouri
September 25, 26 and 27, 1911



“Let us conserve the foundations of our prosperity”

(Declaration of the Governors, 1908)



Kansas City, Missouri
National Conservation Congress
1912

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CONSTITUTION
OF THE
NATIONAL CONSERVATION CONGRESS
As Amended by the Third Congress.

ARTICLE 1—NAME.

This organization shall be known as the National Conservation Congress.

ARTICLE 2—OBJECT.

The object of the National Conservation Congress shall be: (1) to provide a forum for discussion of the resources of the United States as the foundation for the prosperity of the people, (2) to furnish definite information concerning the resources and their utilization, and (3) to afford an agency through which the people of the country may frame policies and principles affecting the wise and practical development, conservation and utilization of the resources to be put into effect by their representatives in state and federal governments.

ARTICLE 3—MEETINGS.

Section 1. Regular annual meetings shall be held at such time and place as may be determined by the executive committee.

Section 2. Special meetings of the Congress, or its officers, committees or boards, may be held subject to the call of the president of the Congress or the chairman of the executive committee.

ARTICLE 4—OFFICERS.

Section 1. The officers of the Congress shall consist of a president, to be elected by the Congress; a vice-president from each state, to be chosen by the respective state delegations; and from the National Conservation Association; an executive secretary, a recording secretary, and a treasurer.

Section 2. The duties of these officers may at any time be prescribed by formal action of the Congress or executive committee. In the absence of such action their duties shall be those implied by their designations and established by custom. In addition, it shall be the duty of the vice presidents to receive from the state conservations commissions, and other organizations concerned in conservation, suggestions and recommendations and report them to the executive committee of the Congress.

Section 3. The officers shall serve for one year, or until their successors are elected and qualify.

ARTICLE 5—COMMITTEES AND BOARDS.

Section 1. An executive committee of seven, in addition to which the president of the National Conservation Association and all ex-presidents of the Congress shall be members, ex officio, shall be appointed by the president during each regular annual session to act for the ensuing year; its membership shall be drawn from different states, and not more than one of the appointed members shall be from any one state. The executive committee shall act for the Congress and shall be empowered to initiate action and meet emergencies. It shall report to each regular annual session.

Section 2. A board of managers shall be created in each city in which the next ensuing session of the Congress is to be held, preferably by leading organizations of citizens. The board of managers shall have power to raise and expend funds, to incur obligations of its own responsibility, to appoint subordinate boards and committees, all with the approval of the executive committee of the Congress. It shall report to the executive committee at least two days before the opening of the ensuing session, and at such other times as the Congress or the executive committee may direct.

Section 3. An advisory board, consisting of one person from each national organization having a conservation committee, shall be created to serve during that Congress and during the interval before the next succeeding Congress. The board shall report to and coöperate with the executive committee.

Section 4. A committee on credentials shall be appointed, consisting of five (5) members, by the president of the Congress not later than on the second day of each session of the Congress. It shall determine all questions raised by delegates as to representation, and shall report to the Congress from time to time as required by the president of the Congress.

Section 5. A committee on resolutions shall be created for each annual meeting of the Congress. A chairman shall be appointed by the president. One member of the committee shall be selected by each state represented in the Congress. The committee shall report to the Congress not later than the morning of the last day of each annual meeting.

Section 6. Permanent committees, consisting of five members each, on each of the following five divisions of conservation: forests, waters, lands, minerals and vital resources, shall be appointed by the president of the Congress. The committee on vital resources is to consist of six subordinate committees as follows: food, homes, child life, education, civics (including wild life, domesticated animals, and cultivated plants). These committees shall, during the intervals between the annual meetings of the Congress, inquire into these respective subjects and prepare

reports to be submitted on the request of the executive committee, and render such other assistance to the Congress as the executive committee may direct.

Section 7. By direction of the Congress, standing and special committees may be appointed by the president.

Section 8. The president shall be a member, *ex officio*, of every committee of the Congress.

ARTICLE 6—ARRANGEMENTS FOR SESSIONS.

Section 1. The program for the session of each annual meeting of the Congress, including a list of speakers, shall be arranged by the executive committee. The entire program, including allotments of time to speakers and hours for daily sessions and all other arrangements concerning the program, shall be made by the executive committee.

Section 2. Unless otherwise ordered, the rules adopted for the guidance of the preceding Congress shall continue in force.

ARTICLE 7—MEMBERSHIP.

Section 1. The personnel of the National Conservation Congress shall be as follows:

OFFICERS AND DELEGATES.

Officers of the National Conservation Congress.

Fifteen delegates appointed by the governor of each state and territory.

Five delegates appointed by the mayor of each city with a population of 25,000 or more.

Two delegates appointed by the mayor of each city with a population of less than 25,000.

Two delegates appointed by each board of county commissioners.

Five delegates appointed by each national organization concerned in the work of conservation.

Five delegates appointed by each state or interstate organization concerned in the work of conservation.

Three delegates appointed by each chamber of commerce, board of trade, commercial club, or other local organization concerned in the work of conservation.

Two delegates appointed by each state, or other university, or college, and by each agricultural college, or experiment station.

HONORARY MEMBERS.

The President of the United States.

The Vice-President of the United States.

The Speaker of the House of Representatives.

The Cabinet.

The United States Senate and House of Representatives.
 The Supreme Court of the United States.
 The representatives of foreign countries.
 The governors of the states and territories.
 The lieutenant-governors of the states and territories.
 The speakers of state houses of representatives.
 The state officers.
 The mayors of cities.
 The county commissioners.
 The presidents of state and other universities and colleges.
 The officers and members of the National Conservation Association.
 The officers and members of the National Conservation Commission.
 The officers and members of the state conservation commissions and associations.

ARTICLE 8—DELEGATIONS AND STATE OFFICERS.

Section 1. The several delegates from each state in attendance at any Congress shall assemble at the earliest practicable time and organize by choosing a chairman and a secretary. These delegates, when approved by the committee on credentials, shall constitute the delegation from that state.

ARTICLE 9—VOTING.

Section 1. Each member of the Congress shall be entitled to one vote on all actions taken *viva voce*.

Section 2. A division or call of states may be demanded on any action, by a state delegation. On division, each delegate shall be entitled to one vote; provided (1) that no state shall have more than twenty votes; and provided (2) that when a state is represented by less than ten delegates, said delegates may cast ten votes for each state.

Section 3. The term "state" as used herein is to be construed to mean either state, territory, or insular possession.

ARTICLE 10—AMENDMENTS.

This Constitution may be amended by a two-thirds vote of the Congress during any regular session, provided notice of the proposed amendment has been given from the Chair not less than one day or more than two days preceding; or by unanimous vote without such notice.

RESOLUTIONS
OF THE
THIRD NATIONAL CONSERVATION CONGRESS.

The third National Conservation Congress, made up of delegates from all sections and nearly every state and territory of the United States, met at the call of a great moral issue, now in session assembled in the city of Kansas City and State of Missouri, does hereby adopt and solemnly declare the following platform of opinion and conclusion concerning the inherent rights of the people of the United States:

Heartily accepting the spirit and intent of the Constitution and adhering to the principles laid down by Washington and Lincoln, we declare our conviction that we live under a government of the people, by the people, and for the people; and we repudiate any and all special or local interests or platforms or policies in conflict with the inherent rights and sovereign will of our people.

Recognizing the natural resources of the country as the prime bases of property and opportunity, we hold the rights of the people in these resources to be natural and inherent, and justly inalienable and indefeasible; and we insist that the resources should and shall be developed, used, and conserved in ways consistent both with current welfare and with the perpetuity of our people.

We commend the efficient work of the federal forest service, and particularly urge upon Congress the need for more liberal financial provision for protection of the national forests from fire, and the desirability of making the army available without delay whenever needed to supplement such protection.

We also appreciate the forestry progress being made by many states, believing it not only the function, but the duty of the state to safeguard its forest resources by liberal appropriation for fire prevention; by acquisition and conservative management of state-owned forest lands; by encouraging the practice of private forestry on timber lands and wood lots in every way, especially through reform in forest taxation; and by providing for the educational work necessary to secure all these ends.

We commend the increasing effort at better forest management and protection by timber owners themselves, and urge upon all such the study and emulation of the several coöperative systems for this purpose.

We urge the coöperation of public and private educational authorities in instilling the principles of forest economics in the minds of the young of today, who will be the doers of tomorrow.

We are in sympathy with the policy of establishing public parks to be used for the benefit of the people forever, including localities of

scenic, scientific or historic interest, by states and by the National Government, and we cite as an example the Mammoth Cave of Kentucky, one of the wonders of the world; we recommend this policy to obviate the danger of such national heirlooms being held permanently in private ownership and subordinated to private interest rather than the public good.

Recognizing the 900,000,000 acres of well-watered arable land in this country as the chief source of food and clothing for our people, we hold that these lands should be guarded as a natural heritage to be kept in sacred trust for our children and our children's children; that they should be safe-guarded from loss through natural agencies and negligent or thriftless use; that they should be protected from monopoly and private or corporate rapacity; that they should be so cultivated and improved that they may pass to each coming generation with increased fertility and productivity; and that they should forever be used as sites for homes in which the strength and spirit of the Nation may be conserved for the general welfare of mankind.

Approving the withdrawal of public lands pending classification, and the separation of surface rights from mineral, forests, and water rights, including water-power sites, we recommend legislation for the classification and leasing for grazing purposes all unreserved lands suitable chiefly for this purpose, subject to the rights of homesteaders and settlers, or the acquisition thereof under the land laws of the United States; and we hold that arid and non-irrigable public grazing lands should be administered by the Government in the interest of small stockmen and homeseekers until they have passed into the possession of actual settlers.

We favor the repeal of the commutation clause of the Homestead Law, and the disallowance of homestead entries on land chiefly valuable for its timber at time of filing.

We hold that mineral deposits underlying public lands should be transferred to private ownership only by long-time leases with revaluation at stated periods, such leases to be in amounts and subject to such regulations as to prevent monopoly and needless waste; and that in case of doubt as to the availability of such mineral deposits, or while they are waiting exploitation, surface rights to the land should be transferred by lease only under such conditions as to promote development and protect public interest.

Since all successful conservation effort must follow ascertained fact, we agree (1) that there should be in each commonwealth an active conservation commission or equivalent organization; and (2) that such commission should use, and strive ever to coordinate, all agencies, state or national, which have for their object the discovery of exact data and the ascertainment of scientific information in reference to all natural resources and conditions in each of the several states and in the country at large.

We hold that phosphate deposits underlying the public lands should

be safe-guarded for the American people by appropriate legislation, and that export of phosphates and other natural and manufactured fertilizing material should be limited and regulated by law.

Realizing that the productivity of our soil depends on water supply; that one of the chief losses to the farm is destructive soil erosion; that the freshets and floods due to storm and thaw waters are destructive of property and even of life; and knowing through experience in this and other countries that the waste and destruction due to unregulated run-off are largely susceptible to control by appropriate agricultural methods, we hold that the aim of every farmer should be to make his farm take care of the water naturally reaching it; we also hold that allowing ordinary storm waters to carry silt and sand from farms into neighboring streams and rivers works a public injury which may be prevented by appropriate legislation.

Realizing that the strength of the Nation will ever lie in the multiplication of homes on the land up to its full capacity, we approve the successful efforts of the Federal Government to provide for such homes through irrigation of the more arid portions of the country; we endorse and commend the Reclamation Service, and urge its continuance with such increased means as may be found needful; and we urge the immediate extension of the same policy to the drainage of swamp and overflow lands, to be carried forward so far as appropriate through co-operation between state and federal agencies.

We recommend the early opening of the coal fields and other resources of Alaska belonging to the people of the United States, for industrial and commercial purposes, on a system of leasing, national ownership to be retained pending such development of that portion of our territory as to permit the creation of states within its area; and as a means of promoting industry and commerce in Alaska we approve the construction of necessary highways, railways, and terminal facilities by the National Government.

Realizing that the prosperity of the country and its suitability for homes must always depend largely on transportation facilities, we recommend extension of the good roads movement until every community is provided with safe and easy ways to schools, churches and markets; and in developing the necessary road systems, we favor co-operation between townships, counties, states, and the federal government in such manner as to secure the greatest benefits to the entire country at the minimum cost.

Realizing that the current cost of railway transportation is apparently exorbitant, amounting to about \$2,750,000,000 annually, equivalent to a tax of \$150 per family (or one-third the cost of living) or an impost of over \$5 on each acre of improved land in the United States, we urge on the Federal Government appraisal of railway property and such investigation and supervision of railway business as will insure

protection of the public interests; and to this end we recommend enlargement of the powers of the Interstate Commerce Commission.

As a means of reducing the cost of living and promoting the general welfare, we favor the establishment of a parcels post.

Realizing that products of the soil on which our people depend for food and clothing are sometimes diverted from the most direct lines leading from producer to consumer for speculative purposes, and that they are made the basis for gambling transactions, we hold that all dealing in futures and gambling operations involving foodstuffs and materials for clothing are a public injury, and recommend investigation of the matter by authority of the Federal Congress; and in case our judgment is sustained by such investigation, we demand the enactment of law by the Federal Congress prohibiting the sale of these necessities of life by men or interests who do not own them at the time of such sale, under penalties including imprisonment at least for any second offense.

Since noxious insects and plants, including weeds, are a source of public injury, we urge appropriate state and federal legislation tending to their extermination; and we commend the development of that public spirit finding expression from time to time in communities and states in crusades against insect and plant pests in the public interest.

Recognizing in coöperative enterprises an effective means of conserving human energy and increasing the efficiency of our soils in feeding our people cheaply, and thereby affording means for the development of equal opportunity for all, we approve and commend such coöperative organization among our producers and consumers as will tend to promote economy and prevent waste in handling the necessities of life.

Realizing that the interests of our citizens, our states, and our Nation are identical, and impressed by the success which has attended coöperation between state institutions and the Federal Government, we favor continuation and extension of such coöperation as a highly efficient means of promoting the general welfare.

Impressed by immeasurable benefits derived by our people from the work of the United States Department of Agriculture in promoting the use and conservation of our soil and its products, we endorse and commend that department; we strongly urge on Congress increased appropriation for its necessary work; and we recommend the enactment of such state and federal legislation as will enable the state colleges of agriculture and experiment stations to maintain in every agricultural county a capable field demonstrator to aid farmers in practical application of newly acquired agricultural knowledge.

Since all successful conservation effort must follow ascertained fact, we agree (1) that there should be in each commonwealth an active conservation commission or equivalent organization; and (2) that such commission should use and strive ever to coördinate all agencies, state

or national, which have for their object the discovery of exact data and the ascertainment of scientific information in reference to all natural resources and conditions in each of the several states and in the country at large.

Recognizing the waters of the country as a great national resource, we approve and endorse the opinion that all the waters belong to all the people, and hold that they should be administered in the interests of all the people.

Realizing that all parts of each drainage basin are related and interdependent, we hold that each stream should be regarded and treated as a unit from its source to its mouth; and since the waters are essentially mobile and transitory and are generally interstate, we hold that in all cases of divided or doubtful jurisdiction the waters should be administered by coöperation between state and federal agencies.

Recognizing the interdependence of the various uses of the waters of the country, we hold that the primary uses are for domestic supply and for agriculture through irrigation or otherwise, and that the uses for navigation and for power, in which water is not consumed, are secondary; and we commend the modern view that each use of the waters should be made with reference to all other uses for the public welfare in accordance with the principle of the greatest good to the greatest number for the longest time.

Viewing adequate and economical transportation facilities as among the means of conservation, and realizing that the growth of the country has exceeded the development of transportation facilities, we approve the prompt adoption of a comprehensive plan for developing navigation throughout the rivers and lakes of the United States, proceeding in the order of their magnitude and commercial importance.

Recognizing the vast economic benefits to the people of water power derived largely from interstate and source streams no less than from navigable rivers, we favor public control of water power development; we deny the right of state or federal governments to continue alienating or conveying water by granting franchises for the use thereof in perpetuity; and we demand that the use of water rights be permitted only for limited periods, with just compensation in the interests of the people.

We demand the maintenance of a federal commission empowered to deal with all uses of the waters and to coördinate these uses for the public welfare in coöperation with similar commissions or other agencies maintained by the states.

We recognize the great service that has been, and can be, rendered in the conservation of our mineral resources, by developing and mining in large units with adequate capital, and approve the encouragement of such development under proper regulation.

We heartily approve of the work of the United States Government in improving sanitary conditions and in lowering the death rates of

Cuba, the Philippine Islands, and the Canal Zone. We are especially pleased that in 1911 the National Government, through its wise provisions for the maneuver division of the United States Army operating in western Texas, demonstrated that the achievements in health and life security found possible in Cuba, the Philippine Islands, and the Canal Zone, are possible with Americans on American soil. We therefore call on our municipal, state, and national governments, to accomplish these same results for the people of the United States.

Our National Government in the Canal Zone of Panama has demonstrated that Caucasians, properly directed, can work in the tropics without loss of efficiency, and we express our opinion that this is one of the monumental discoveries of the age.

The Hook Worm Commission is demonstrating another possibility in increasing efficiency; and we endorse the efforts of this commission, and all other efforts, governmental and extra-governmental, for increasing human efficiency through promotion of physical welfare, and call on our governments—municipal, state, and national—to increase their activities along these lines.

We favor a child welfare bureau under, and as a part of, each municipal and state government.

Inasmuch as nearly all the states and most of the cities have health departments as coördinate branches of administrative work, we endorse the plan of bringing together as a department of health the various human health activities of the United States Government as a coördinate branch of its administrative work, divorced from the impediment of being a part of other administrative work of entirely different character and conducted for entirely different purposes; this in order that the efficiency of the service may be increased to a point in some degree commensurate with its importance.

We protest against the present neglect of health, life-security, and work for physical efficiency by the municipal, state and national governments, and we ask that they be given that study and care that have proven so broad an economy in the case of live stock and farm crops.

We are of opinion that municipal, state, and national governments should pass proper laws, and provide proper means of enforcement of such laws that there may be prevented, (1) blindness, (2) birth accidents, (3) infant mortality, (4) labor by immature children, (5) communicable diseases of children, (6) occupational diseases, (7) occupational accidents, and especially mine and transportation accidents, (8) communicable diseases of adults, (9) bad ventilation, and (10) physical inefficiency.

We deplore the practice of disposing of sewage and manufacturing waste by dumping it into the streams, lakes, and coastal waters of the Nation, thereby polluting the chief sources of water for drinking and domestic purposes, destroying fish and crustacean life, rendering the

waters obnoxious to sight and smell, and losing beyond hope of recovery vast quantities of elements essential to plant life.

We earnestly advocate the employment by communities and manufacturing concerns of such methods of sewage disposal as will render their waste products innocuous to health and utilize them in the restoration of soil fertility, and to this end we urge the enactment by states of stream-pollution laws, and by the Federal Government of such legislation as will prevent the pollution of interstate and coastal waters.

Deeply concerned at the rapid disappearance of wild life from the continent of North America and the large economic loss that the continued destruction of that life is bound to entail, we call upon the people of America to adopt more stringent measures to stop the excessive killing of birds, quadrupeds and fish, and to enact more drastic and far-reaching laws for the protection of the remnant from the extermination that threatens it.

We realize that the tremendous importance of our fishery resources is underestimated, and that this great asset is threatened with serious diminution. We urge upon Congress and the states to provide more liberally for fish propagation and preservation, in the interest of the conservation of this food source so important at present and vital for the future.

The problem of the preservation of migratory birds, fishes and quadrupeds is inter-state; therefore, we emphatically endorse the resolution of the second National Conservation Congress to the effect that the National Government supplement the laws of the states with comprehensive national laws for the protection of migratory animals.

The losses of life and property from fire in the United States are enormous and abnormal, amounting to 1,500 human lives annually, and with the cost of prevention amounting to nearly \$400,000,000 of property, or ten times that of any other civilized country of the world. Such losses may be largely prevented by economical treatment, and we recommend to the Congress of the United States a national investigation of this subject under government supervision, the collection, classification and analysis of data concerning the causes of such fire losses, and the relation of fire insurance rates thereto, to the end that a permanent department of government be established to collect and furnish to the United States and the people thereof reliable information in relation to life and property losses and practical means for their prevention.

The children of the United States are recognized as the most precious resource of this Nation, and the Federal Bureau of Education as the best agency for collecting, publishing and distributing educational information throughout the country. We therefore urge that national appropriations for studying problems involving the welfare of the Nation's school children be made comparable in amount with those annually made for studying problems involving the welfare and conservation of the Nation's material resources.

In a system of free schools all the children should be trained for good citizenship and for the useful industries; owing to the rapidly changing and increasingly complex social and economic condition in all sections of the Union, our public schools should make ample provision for instructing the youth of the land in the more important occupations in which our people are engaged, and the parents and teachers should counsel together to determine if possible for what vocation each child is best adapted. We recommend that the schools should be so organized and conducted that the great purposes for which this Congress exists may be realized through the work and lives of men and women who have been trained in health, home-making, citizenship, and industry.

We urge upon all who are concerned with the actual work of conservation, whether in the state or Nation, that they secure quickly as possible through unprejudiced scientific investigation exact knowledge concerning our various resources and the conditions which affect their development, and we urge that all constructive conservation policies be based upon such exact information.

As this notable Congress draws to a close we, the delegates, desire to express our hearty appreciation of the many courtesies and the warm hospitality extended to us by the citizens of the city and state in which we are assembled. We desire, especially, to proffer warm thanks to His Excellency Herbert S. Hadley, Governor of Missouri, and to Honorable Darius A. Brown, Mayor of Kansas City, for their words of welcome, borne out later by actions.

We desire also to express a special acknowledgment of the courtesy, energy and ability and good will of the Commercial Club of Kansas City, as manifested particularly by its accomplished president, Mr. J. C. Lester, and its highly capable secretary, Mr. E. M. Clendening. We appreciate our obligation, too, to the local board of managers, and to Chairman Neal, for their efficient service.

We also acknowledge a debt to the clergy of Kansas City for their coöperation in several sessions and for the spirit emanating from them which has done so much to temper and ennoble the deliberations of the Congress.

We, the delegates, desire also to express appreciation of the devotion, eminent fairness, tireless energy, and endless good humor of retiring President Wallace; we acknowledge no less indebtedness to the highly efficient chairman of the executive committee, Mr. John B. White, now president of the Congress.

We also note our debt to the efficient executive secretary of the Congress, Mr. Thomas R. Shipp, without whose untiring efforts the Congress would have fallen short in the accomplishment of duty; and we appreciate, too, the efficiency of Recording Secretary Gipe.

We desire to signalize our appreciation of the notably efficient service of our worthy sergeant-at-arms, Colonel John I. Martin, who has

not only maintained perfect order under trying circumstances, but has smoothed the practical working of the Congress by his courtesy and good humor.

Finally, we acknowledge a special obligation to the press of Kansas City for the notably full and fair reports of our proceedings from day to day, and in equal degree for the preliminary publicity which contributed so much to the success of this Congress.



DR. HENRY WALLACE, President 1910-11

THIRD NATIONAL CONSERVATION CONGRESS

OPENING SESSION

The Congress convened in Convention Hall, Kansas City, Missouri, on the morning of September 25, 1911, President Henry W. Wallace in the chair.

President WALLACE—The convention will come to order and will be opened with an invocation by the Rt. Rev. Thomas F. Lillis, Bishop of the Roman Catholic Diocese of Kansas City.

INVOCATION

In the name of the Father, and of the Son, and of the Holy Ghost, Amen. Our Father, Who art in Heaven, hallowed be Thy name; Thy Kingdom come, Thy will be done on earth as it is in Heaven; give us this day our daily bread, and forgive us our trespasses as we forgive those who trespass against us. Lead us not into temptation, but deliver us from evil. Amen.

President WALLACE—An address of welcome will now be delivered on behalf of Kansas City by its Mayor, the Honorable Darius A. Brown. (Applause)

Mayor BROWN—Mr. President, Ladies and Gentlemen: In the very brief time in which I have to speak to you, if there is one fact of which I want to convince you it is that I am absolutely not responsible for the condition of the weather this morning. Convention Hall, the walls of it, have probably enclosed many important conventions and congresses, but I do not believe in the entire history of the institution, or of Kansas City, that there has ever gathered here a congress or convention whose deliberations and conclusions are of such vital importance to the great mass of people as that which will soon convene here this morning. We have had all sorts of conventions for the purpose of discussing ways and means of pursuing their public avocations, and how to best carry on the business in which they are engaged, but this is a Congress which is not gathered for the purpose of determining how it is best to make money or to carry on business, but for the purpose of solving some of the great problems which are necessary to be solved in order that we should go forward in the way in which this Nation should go forward.

Beginning with a strong desire to prevent waste of some of the lands and natural resources of this country, the principle of conservation has

been so extended and its scope so widened that today it is only limited by the bonds of human activity, and this principle of conservation is certainly of vital importance to the great cities of this country, and it has lately come to be given a practical application in the saving and preventing from waste of the valuable rights which the people of great cities have in their streets and public thoroughfares. For a long time past when private individuals sought certain valuable rights in the streets and thoroughfares of our great cities it has been the custom to give them for the asking, but now has come a time when the minds of the people are turned to the principles which demand that none of these things should be wasted or granted away unless there is a fair and just return to the people for the rights which are granted. There is another application of this principle of conservation in the life of our great cities. Conditions have arisen and exist today, and have existed, the cause of which has not yet been definitely determined, whereby the lives and the health and the morals of the people are being wasted; and so the thinking patriotic people of every city in this country are directing their minds, not so much to anything that is the result of these conditions as to get directly at the cause and prevent the results which are flowing from the causes which have existed. And the officers of this Congress have become so saturated and so imbued with this principle of conservation that the secretary, in sending out his notices to those who have been selected to deliver these addresses of welcome this morning, inserted therein a clause wherein he said there will be five addresses for the morning session, and therefore all of them will necessarily have to be brief; and the secretary was right. And it is absolutely right that it should be so, for many reasons, particularly two: Because there will assemble here this morning and during the days of these sessions some of the most distinguished, able and learned men of the United States, men who have shown their right to speak authoritatively on these great subjects; men who have devoted their time, energy, their lifetime, to the study of the proper solution of the great problems of American life; men who are coming here with a message to deliver to the people of this Congress and to the people of this great country; and therefore it is not right and proper that their time and the time of the people who have come here to listen should be wasted by an address of welcome.

And it has been suggested that on account of the fact that possibly some of those who are to deliver these addresses of welcome have caused considerable delay, that they ought to be abolished altogether. There is another reason why no time should be wasted in hearing addresses of welcome. I do not know why this custom has grown up in this country that when any considerable body of citizens of one part of the country gathers in another part that it is necessary for some high dignitary or executive of the city to deliver an address of welcome. Perhaps it came from the older countries of the world, where the provinces and the municipalities and states were clutching at each other's throats, and they built

great walls around the city, and when one man wanted to visit another community it was necessary for him to go to the gate and rap on it and have some high dignitary bid him enter. In this great country of ours we have been drawn so closely together by the influence of the newspapers, the magazines, the railroads, telephone and telegraph that today we are one great common people, actuated by the same great motives and inspired by the same high ideals, and so a citizen of one portion of this country today is just as welcome in another portion of the country as the rising sun in the morning. (Applause) And so I say it is not necessary for any representative of the city to say to this gathering that they are welcome in Kansas City, or to say that the arms of the people of Kansas City are extended in a hearty welcome, because we believe that the result of the deliberations which you will hold here and the conclusions which you will reach will not only be of lasting and vital benefit to the people of this city, but to the people all over this country. And it is an encouraging sign of the times that in every branch of human endeavor the people are gathering periodically, yearly or monthly, or biennially, for the purpose of discussing the questions which affect them in their peculiar avocations. It has been said a great many times that perhaps democracy is a failure, that the people all have shown themselves incapable of governing themselves. But the most prolific cause of that opinion has been that in the past the public servants have been selected and the public questions have been solved by a small body of men, sometimes too many of which are actuated only by a desire for their personal aggrandizement.

And the great rank and file of the citizenship, the individual citizen, has not seen fit to devote any of his time to a study of any of those problems, but has left the whole government of the people to be done by this small coterie of men. The people are awakening to their responsibility as citizens of this country: they are beginning to ally themselves with some such organization as this, which has for its purpose the study and solution of these problems, and day by day, more and more, by enactment of Congress, amendments of constitution, state legislative action, amendments of city charters, more and more of these great questions are being submitted directly to the people for solution, and so I say, when the time comes through this awakening which we have seen, when the individual citizen will come to a full appreciation of his responsibility, and these problems are submitted to them, they will all be solved right and properly. And I want to say in conclusion that I hope, and I express the hope of every good citizen of Kansas City, that this Congress will achieve great things, will do more than has ever been done before to solve these great problems that are clamoring for solution. I thank you. (Applause)

President WALLACE—On behalf of the Commercial Club of this city an address of welcome will be delivered by Mr. John C. Lester, its honored president.

Mr. Lester spoke as follows :

Mr. President and Members of the National Conservation Congress: I bear to you the greetings of the Commercial Club and the other industrial and civic organizations of Kansas City. We find nothing in our annals which is a greater source of pride than our part in bringing this Congress to Kansas City. We are proud to welcome an assembly of men and women who are devoted to the idea of the salvation of the physical resources of the nation, which means the physical salvation of our part of the race. The moral benefit to ourselves of trying to do something for others, is taught in an age-old lesson. What better way of illustrating that principle, and securing that good than by teaching that the spendthrift energies of this generation must be curbed in order that more be left for the vital sustenance of the next. What more inspiring sight than this great audience, drawn from the four quarters of the Nation with minds intent on that one principle? We easily recognize the great impulses and movements for the good of the race. They stand out in history like mile-stones. Among them the cause of your meeting, the cause of conservation is a pillar of fire. You are rightfully appalled by waste and are fighting it as sin. You are fully conscious from the story of life on this earth, of what a proper use of his resources means to man. You are fully conscious of the folly of destroying today what will be needed to save life tomorrow.

Your theme is Conservation. You tremble at conditions and seek a remedy. To you the glory of the harvest, the wealth of the mine, the roar of the falling water, the shadows of the forests, the flow of the streams, means more than the happiness of today: you would also have them the joy of tomorrow. If the world heeds your advice the day of the last man will be put off for countless ages.

The products of the soil and the forest, in seeking a market, seek the sea and its highways as naturally as do the waters of the streams. In obedience to this law, this community is now engaged in an effort to solve one of the great practical problems of conservation—that is, the conservation of power in transportation. We are devoted to the idea of the practical use of the Missouri River as a freight carrier. You have taught us that saving coal means saving life. You have also taught us that the same power required to move 8 tons on steel rails will move 34 tons on water; hence who dares say that our ambition to reach the sea by water with our products is an idle dream, or that the immutable laws of Nature are not on our side? Our critics are fighting the eternal verities! They might as well fulminate against the law of gravitation! The Missouri River is and will be navigated. In this effort we claim kinship with all the sons and daughters of Conservation.

As that eminent Frenchman and conservator of peace, Baron Destournelles, recently our guest, in writing a short time ago about this city and its relation to the Missouri River, pointed out, the river and the railroads have their separate burdens to bear, one class of freight will

always seek the quicker transit of the rails, another class will always seek the vastly cheaper transportation afforded by a water channel.

But I must not anticipate a possible subject of your deliberations. Pardon me, if I feel impelled when addressing conservationists to prove a strong local bond of sympathy!

As apostles of conversation-conservation, you, at your third annual meeting, have made a splendid beginning. You have supported precept by example in that you have selected a place for your Congress, just 125 miles east of the geographical center of the United States. You have thus conserved both the time and money of your members in meeting at Kansas City!—a most excellent centre from which easily radiate all influences for good, either moral or commercial!

It is my part, however, on behalf of all our civic organizations, to supplement and, if possible, strengthen your official welcome. You are thrice welcomed; first, because we are proud to honor as great a nucleus of brains and character as ever assembled under Convention Hall; second, because we know your purpose and your work and believe in them; and, third, because we expect to learn from you how to conserve the health of our children, how to conserve the purity of the streams from which we must drink, how to conserve the fertility of our soil from the exhausting wastes of ignorance, how to conserve the happiness of the country home, and turn the tide back from the cities—all save this one perhaps—and in all things to live in and enjoy this world so that the generations that come after will bless us and the great doctrines of conservation.

We are honored by your presence.

May we all follow the banner bearing your motto, "The greatest good for the greatest number for the longest time."

President WALLACE—An address of welcome will now be delivered by the Honorable Herbert S. Hadley, Governor of Missouri, on behalf of that great state. Governor Hadley. (Applause)

Governor HADLEY—Mr. Chairman, Ladies and Gentlemen: His Honor, the Mayor, and the President of the Commercial Club have made welcoming on my part a work of supererogation. I know, of course, that you are welcome, and you know are welcome, or you would not be here. The President of the Commercial Club has referred to you and to himself as apostles of conversation as well as apostles of Conservation. And so it is upon that suggestion, I suppose, that in making speeches of welcome, we are making speeches in discussion of the subject that has brought them here. I take it, however, the explanation of my presence on the program this morning, is not for the purpose of welcoming you here to the State of Missouri, because you were welcomed here when you decided to come. I am here among these apostles of conservation and apostles of conversation simply for the purpose of giving a little variety to the program. It seemed well to

those who were managing this Congress that on an occasion when the people gathered together from all the states in the Union to consider the important question of a proper conservation of the soil, that it would be well to have at least one farmer among those who were gathered together for the purposes of that discussion. (Applause) And so they came down to Jefferson City to ask me to turn aside from my executive and agricultural pursuits long enough to come up here and lend a little variety to the program this morning, because to those who come from other states it may be necessary to impart that although I have been regarded and referred to upon various occasions as something of a political curiosity, I am far more than that in that I am the first farmer Governor of the State of Missouri in over a half a century, and I think the first Governor in the entire history of the state who became a farmer after he became Governor. (Laughter and applause). So consequently I represent in and of myself both the principles of conversation and the principles of Conservation. Consequently, what I have to say to you this morning will be along the line of congratulation that you have come to a state that has such a splendid example, not only of the necessity, but of the practical results of the application of that great national policy that you are gathered here to consider. As has been suggested by the remarks of the Mayor, and the President of the Commercial Club, this question of conservation is a question which has so many sides, and has so many practical and important applications that you have, Mr. Chairman, to come to a great state like the State of Missouri, with its diversified interests and resources, in order to see just exactly how great a question you are dealing with. (Laughter) So I congratulate you upon the wisdom that you have displayed in selecting your place of meeting. I say this advisedly, because Missouri, which is the oldest of those states lying wholly west of the Mississippi to have been admitted to the Union, is one of the youngest or most undeveloped states between the Mississippi and the Pacific.

Even before the territory where we meet today had become a part of the American Republic, the hardy pioneers, hunters, trappers and traders who had carried English civilization across the Alleghanies and into the valley of the Mississippi had pushed westward even to the banks of the Missouri. Following the acquisition of the Territory of Louisiana and our organization as a territory and admission as a state, Missouri stood for forty years as an outpost of civilization, reaching out to the unknown and the undiscovered West. And from her borders stretched those two great highways of commerce, the Oregon Trail, and the Santa Fe Trail, along which, in turn, were to march the soldiers, hunters, trappers and traders who were to bind the Trans-Mississippi country to the United States by ties stronger than those of treaties and of laws. The Missourian became the pioneer of the West. And in practically every state that lies in that vast empire between the Mississippi and the Pacific the sons of Missouri have felled the forests, dug

the mines, cultivated the soil, written the constitutions and laws, held the offices and directed the commercial and industrial activities.

MISSOURI'S UNDEVELOPED RESOURCES.

So bounteously, in fact, has Missouri contributed of her citizenship to the development of other states and territories that she has left undeveloped many of her own natural resources and uncultivated almost one-half of her soil. Of the 44 millions of acres which constitute the State of Missouri, little more than one-half has ever been touched by a plowshare; and of her 20 millions of acres of uncultivated soil, there are 17,500,000 acres of woodland awaiting the stroke of the woodman's axe. Of lead and zinc, we produce more than any state in the Union, yes, more than all of the states of the Union combined, or any nation in the world. And yet the geologists tell us that greater stores of mineral wealth lie beneath the surface of our soil than have even been discovered by the drill of the miner or the pick of the prospector. We have within and along our borders 6,000 miles of navigable rivers, a larger number of miles of navigable waterways than any inland state in the Union. By the cultivation of one-half of our 44 millions of acres we produce over 100 million dollars worth of corn each year, nearly 1 million dollars in value of this product for every county in the state. Missouri lies in the very center of the American corn belt, and there are no corn lands superior to those found in this state. One farmer in Missouri grows more corn each year on his farm than is grown in the nine States of Utah, Oregon, Washington, Arizona, Idaho, Montana, Rhode Island, Wyoming and Nevada combined. Three counties in Missouri grow more corn than nineteen other states, in which is included all of New England. These three counties grow more corn than do the states of New York, Maryland or West Virginia. Three times as much corn is produced in Missouri each year as is produced in all of South America, three-fifths as much as in all of Europe and nearly one-half as much as is produced in the whole world outside of the United States. The average yield of corn in Missouri per acre is forty bushels, a higher average yield than in any state in the Union, and yet by the proper application of the principle of conservation in the use and cultivation of the soil, this production could doubtless be increased 25 per cent. And by the proper use of the uncultivated corn lands of the state, our production could be made greater than any state in the United States, and probably greater than the entire corn production of Europe.

The same thing is true as to our other important crops. Our average wheat crop sells for 30 millions of dollars, which is also the average value of our crop of hay which is sold upon the markets, not including the immense acreage of blue grass, clover and timothy pastures.

THE OZARK REGION.

The character of our soil, as well as of our climate, is peculiarly

favorable for the growing of grass. Grass is not only the greatest of all agricultural products, but its production under most favorable conditions is an indication of the most desirable place of habitation for man. One of the early travelers who investigated the conditions in the Trans-Mississippi country, who was also much of a philosopher, made the statement that the best place for human habitation is in that country farthest south where grass grows well. And the country farthest south where grass grows well is to be found in the Ozark region of Missouri. When the first Spanish explorers crossed the Mississippi, they found the largest herds of buffalo, elk, deer and antelope feeding upon the splendid pastures of blue stem and of blue grass in what is now the southern half of Missouri. Prior to the coming of the white man, this region was a vast upland prairie, noted for its splendid growth of grass and favorable hunting ground. And so long as the Indians remained, the growth of trees, except along the rivers and the streams, was prevented by the burning of the grass each year. But with the coming of the white man and the driving out of the Indian, the growth of the timber extended back from the rivers and the streams, and what was once the greatest pasture in the country is now covered by a growth of timber.

Through the proper application of the principles of conservation, this timber can be cleared in such a manner as to restore the growth of blue grass and of blue stem to make this region the most favorable for dairying and the raising of live stock that the country affords, and at the same time preserve enough of the trees to give the natural commercial advantages to be derived therefrom.

Of our 20 millions of acres of uncultivated soil, three and one-half million consist of swamp and overflowed lands to be found in the valleys of our great rivers. If this land were reclaimed by the application of the principles of conservation, so as to produce a certain annual harvest, it would produce enough of agricultural wealth each year to feed all of the people of Missouri, and leave the balance of our 23 millions of acres for the production of surplus products.

In support of this statement, let me refer you to facts of history, for Egypt, during the palmiest days of her civilization, never had under cultivation to exceed six millions of acres in the Valley of the Nile. And yet these six millions of acres supported a population of 10 millions of people. Holland reclaimed from the sea two and one-half millions of acres of land which supported a population of 8 millions of people. And yet the swamp and flooded lands of Missouri are as rich as the reclaimed lands of Holland or the Valley of the Nile.

THE NEED OF SWAMP LAND RECLAMATION.

The reason why these lands do not now produce a certain annual harvest is largely due to the fact that the National Government does not keep within their banks the waters of its navigable rivers. During

the course of the last ten years, the National Government has spent 125 millions of dollars to put water on to three and one-half millions of arid lands in the West. I am confident that there is no one present here today who objects to the policy that has been followed by our National Government for the reclamation of the arid lands of the West by the conservation of our waters for the purpose of irrigation. Though mistakes may have been made in isolated cases, the general policy meets with national approval. But I feel that the time will come; in fact, I believe it has come, when the national government should be willing to spend at least a small portion of the money that it uses to put water on the arid lands of the West to keep the water of its navigable rivers off of the rich lowlands of the Missouri and the Mississippi rivers. It takes an expense of from \$25 to \$40 an acre to put water on to the arid lands of the West, and yet it is the estimate of engineers that by an expense of not to exceed \$5.00 an acre the water of the navigable rivers can be kept off of the lowlands adjacent thereto.

This question is of importance not only to the people of Missouri, but to the people of the entire country. There are in the Mississippi and Missouri river valleys over 20 millions of acres of the richest lands in the world, which are now impaired for the purpose of cultivation by reason of swamps and overflows. If this land were reclaimed and made to yield a certain annual harvest, it would almost double the agricultural production of the Mississippi Valley. And the reason why it is not so productive is, as I have said, because the national government does not keep the waters of its navigable rivers within their banks. By doing so the reclamation of this swamp and flooded land would not only be made possible, but by such a policy our navigable rivers would be improved and made more dependable as a means of inland transportation. And it little profits us to increase the production of our fertile fields unless that production can be carried from the farms to the market in such a way and for such a charge as will adequately compensate for the labor thereby expended.

And if the principles of conservation were given a practical and effective application in improving our rivers by the keeping of their waters within their banks, by using in a proper and a scientific way our uncultivated soil, the railroads would be unequal to the task of carrying such an immensely increased agricultural production from the farm to the market. Then the question of water transportation would become a necessity and, in my judgment, a satisfactory progress in the improvement of our inland waterways for the purposes of transportation will not be made until our agricultural production is increased to such an extent that existing railroads are unequal to its transportation.

THE PROBLEM OF ADEQUATE PRODUCTION.

I have outlined to you, in a most general way, some of the important phases of the question of conservation which find a practical

application to the conditions existing today in the State of Missouri. Experts tell us that over 40 per cent of our farm lands are being cultivated in a way which tends to decrease, rather than to increase, their productivity. Such a policy must inevitably result in the impoverishment of the Nation; because when you destroy the productivity of the soil, then do you strike at the very foundation of national prosperity and happiness. Agriculture, the oldest of occupations, is clearly the most important. The value of that which is produced from the soil exceeds the value of all other products of human labor. Up to the present time in this country, we have been peculiarly fortunate in that our production has exceeded consumption and the supply has always been greater than the demand. The result has been that the American people alone, of all the people of the world, have eaten the same kind of food. And no stronger influence could exist as against the creation of classes and castes in our population than for all of the people to eat the same kind of food.

But with the consumption increasingly more rapidly than production, and the consequent increase in the cost of the necessities of life, there shall come a time when many will not be able to secure the same kind of food that is enjoyed by others. Then will there come a disturbing and dangerous influence which will threaten our society and our institutions. Statistics tell us of a constantly decreasing surplus of production. Our balance of trade is rapidly becoming confined to the exports of cotton. And if the present tendency continues, in a few years we will consume all of the products of our grain and of our live stock and have none to sell in other lands. And when this condition is followed by a time that it will be necessary to import the necessities of life, then will exist conditions which will be the cause of concern, as well as a reflection upon the American people for their capacity to use in a proper manner the great natural resources with which nature has endowed them.

I feel, however, that the American people have demonstrated most impressively their capacity for self-government by the effective manner in which they have taken up this important question of conservation. Ten years ago, the term was hardly known outside of the laboratory of the scientist and the class-room of the agricultural college. Today it is almost a household term. Under the inspiring leadership of that great American, Theodore Roosevelt, the American people have taken up the consideration and the practical application of this important national policy. And this splendid Congress today, assembled in this progressive and developing city, is an evidence of the fact that the interest in this question is by no means subsiding.

I welcome you to Missouri and voice the sentiment of her people when I say we hope that your deliberations and discussions will contribute to the practical and effective application of that great public policy that you are gathered here to consider.

President WALLACE—This is a right good looking audience. We want it to go down in history, and if you will just be quiet, we will have a flashlight picture taken before I respond to this eloquent address to which you have just listened.

[After the flash light picture was taken the Congress proceeded.]

President WALLACE—I assure you that it is a great privilege as well as pleasure to respond in behalf of this Congress to the cordial address of welcome of the Governor of the great State of Missouri, the Mayor of Kansas City and the President of the Commercial Club. The people of the West generally know Kansas City only as they see it from the stations, and have no proper conception of the magnificence of its buildings, the beauty of its streets and surroundings, and still less of the remarkable enterprise of its citizens. I confess that all this was a great surprise to me on a recent visit here.

The real greatness of your city lies in the agricultural resources. With the great State of Kansas on the west, with the great State of Missouri on the east, with Oklahoma and Arkansas with their undeveloped resources on the south, its future greatness must be largely measured by the development of agriculture in these great states, in the great corn state lying farther north and in the great cotton states farther south. Kansas City can lay its hand on more possible agricultural wealth than any other city on the map of the United States. Hence it was early recognized by the officers of this Congress as the best possible place to inaugurate a campaign for better farming, better business and better living on the farm.

The actual prosperity of any city is largely measured by the foresight, the breadth of vision and energy of its commercial club. A modern city may have vast resources; it may have a form of government almost ideal; and that government may be acceptable to the people and free from any breath of scandal; but if it does not have an organization of its ablest and best business men, who can make a careful study of these resources, who work together—and that, too, often at great personal and pecuniary sacrifice—for the good of the city as a whole, these resources are likely to remain undeveloped. The citizens of your city and the whole state may well be proud of your Commercial Club. Its members are the eyes through which the citizen sees the possible, and the hands through which the possible becomes the actual. They are the ears that recognize the unspoken needs and aspirations of the busy masses, and the voice that gives them authoritative expression. Without an active Commercial Club, such as you have, in which the masses of the city have perfect confidence, you could not realize your possibilities.

I am no less glad to respond to the cordial greeting of the Governor of Missouri, a state of magnificent resources of soil, in mineral wealth of several kinds, and in climate. As "no man liveth to himself," no state liveth to itself; but Missouri could better afford to be fenced

off by itself than any other state in the Union. It could feed itself, clothe itself and enjoy itself, and all from its own resources in field, forest and mine, "without the aid or consent of any other nation on the face of the earth." Its Governor and its citizens may well be proud of its advance in educational lines and in the development of its many and varied resources. Kansas City, Missouri, is therefore a fitting place for the conservationists of the United States to meet and discuss the greatest of all present problems; how to conserve the greatest of the resources of the Nation, the fertility of the soil and the life of the people who live in the open country. I am sure I voice the sentiment of this Congress as a whole when I return its most heartfelt thanks and full appreciation of the hearty welcome given by the Mayor of Kansas City, the President of its Commercial Club, and the Governor of the State of Missouri.

THE DRIFT OF POPULATION.

It will be my object in this address not to discuss any phase of the conservation movement exhaustively, but to outline briefly two drifts of population: the drift from the farm to the city and the drift from the city toward the land, and the work of this Congress as related thereto.

Even before the daily press had begun the crusade "back to the land," the movement toward the land had already set in. When Oklahoma was opened to settlement the land seekers stood, sterried ranks of horsemen, waiting for the signal gun; and that great state of undulating prairie, heretofore only a great pasture, was converted in a few weeks into a state of farm homes. Congress did not dare to repeat the experiment; but when other Indian reservations were opened, provided for the distribution of land by lot, giving the prize to the lucky man rather than to the one with the swiftest horse and most accurate knowledge of the country. Every opening since reveals the fact that only one in a few can gain the coveted prize, so great is the land hunger of the American people.

This land hunger is not peculiar to any class of people nor to any state. The merchant, the banker, the railroad official of New York and Boston, each longs for a farm, possibly only as a summer home, but is willing to pay for it in investment, in improvements and cost of management, more than it is worth in dollars or ever will be. He, too, is bitten by land hunger. Many small business men of our cities, who cannot hope to secure a farm and live on it, invest greedily in acreage in the suburbs. The workman in the factory aims to secure two or three acres on which he can build himself a home, have a garden or cow pasture or place for poultry, or at least a playground for his children.

The growth of large cities has ceased to be in the business or even in the old residence sections, and is entirely in the suburbs. The same holds true abroad. According to the census for 1909, London in the ten

years previous increased about three-quarters of a million. Yet the population of the old town, "Old Londontown," decreased very heavily; the administrative district just outside that did not quite hold its own; and the entire growth and twenty thousand more was made in the outer circle or the suburbs. If men cannot have country life in the country, they are constantly aiming at "*rus in urbe*," in other words, to get as much as possible of the country in the city.

As interurbans stretch out from the cities, farm after farm on their lines is divided up into acreage; and thus while the steam railroads tend to concentrate population, as they have from the beginning, the trolley lines tend to lure the people back toward the country. Even our foreign population, the men who dig our coal, mine our ores and swelter in our furnaces, aim to have a few acres which they can call their own, where they may live cheaply and die in peace and quiet, when the great interests have used up their best days and cast them off.

In fact, latent in the heart of nearly every man, be he man of business, clerk or other employe, or laboring with his hands, there is a yearning desire to have a piece of land to call his own. Perhaps they do not consciously reason it out. It may be a revival of the instinct of the primitive man, or it may be an instinctive fear of industrial wrath to come and a feeling that, should it come, should our whole industrial system be shaken to its very foundation, the family that has a few acres of its own can at least live in comparative comfort and safety.

THE MOVEMENT TO THE CITY.

Alongside of this movement, back toward, if not always to the farm, the counter movement from the farm to the town, which has been going on for fifty years, continues with increasing and accelerated force. Farmers all over the older West move in great numbers or retire to the country towns; and notwithstanding all this constant influx of population, these towns, as the late census reveals, have barely held their own and often have lost population, the natural increase of the towns themselves pouring into the larger towns and cities, in which the majority live with less comfort than the farmers who remain on their farms. Vast numbers of boys and girls fall a prey to the alluring vices of the city; and many of them eventually take their places with "the down and out." Comparatively few succeed and become well-to-do. The children of these few become wealthy; their grandchildren usually spend gaily the fortunes they never earned; and naturally the family dies out, at least, so far as force and power are concerned, in another generation or at most two or three. The city uses up men and families as it uses up horses. And this is true not only in this, but in the older countries as well. All Ireland, for example, except Dublin and Belfast, has lost population in the last ten years, as has also nearly all of Wales and Scotland.

I regard it as important that you should understand as clearly as possible the conditions that have caused this world-wide movement from

the farm to the city, as only in this way shall we be able to foresee and describe the conditions that will cause and are even now causing a return flow or movement back toward the land.

This movement toward began with the use of improved machinery, or the application of science to the operations of manufacturing and distributing the things necessary for the supply of our ever-increasing human wants. It has increased in proportion to the success of the inventions and discoveries. The power loom put all other looms out of business. The spinning jenny sent the spinning wheel to the attic. The small industries—the wagon shops, the blacksmith shops, the grist mills and carding mills found in and around the county seats and smaller towns fifty years ago—“folded their tents like the Arab and silently stole away,” when it was found that a large plant and improved machinery, coupled with transportation facilities, could supply human wants at less cost.

THE DEVELOPMENT OF THE CORPORATION.

What followed? Large capital was required for the larger plants. The individual gave place to the firm; the firm eventually became a corporation, and finally a trust. At last the workman could no longer own his own tools, and became an employe. Large numbers of employes were soon necessary, and for self-protection they formed the union. The organization of labor followed logically the organization of capital and gave us one of the greatest and most difficult of modern problems, that of labor unions.

In the factory we no longer aim to supply local demands, but state interstate, national and even international. For this there must be transportation, and therefore we have now a railroad problem closely intertwined with the labor problem, intimately connected with the whole process of manufacturing and distribution. The products of these great factories must be used by consumers living at long distances. Hence we have the problem of distribution, or the problem of the middleman, and all the direct results of the application of science to industry. Since the world began the like has never been seen before. We have gone into this troubled sea without chart or compass. Problems are evolved, for the solution of which we have neither precedent nor guide.

While all this was going on, an empire of virgin soil, the counterpart of which exists in such mass nowhere else in the world, was opened for immediate settlement, and that settlement was powerfully stimulated by the homestead law and immense railroad grants. As a result the Old World and the New were literally slushed with food for man and beast at the bare cost of mining the soil fertility, the storage of unnumbered centuries. Had this Mississippi Valley been covered with forests like Pennsylvania and Ohio, and opened slowly as the world needed food, our history would have been written differently, and the problems to be met would have been of an entirely different character.

With corn at from 20 to 25 cents, wheat 50 cents, oats 15 cents, the

manufacturer could afford to pay higher wages than the farmer and give shorter hours. The city could furnish plank walks, then cement, paved streets, light, amusement, society—the joy of living. Is it any wonder that the farm boy and girls fled to the cities, away from the old-time isolation of the farm, from bad roads, from lack of society, when offered better pay and shorter hours? Better pay; shorter hours; larger life; amusements for all, whatever their tastes might be; what boy or girl could resist all this?

THE EVOLUTION OF MACHINERY.

The farm itself finally began to use improved machinery. The farmer hung his scythe in a tree and bought a mower; hung up his cradle and bought a binder. He used more horses, better tools, and grew more crops with less than half the labor. All this was natural, logical, inevitable. The older farming sections do not have so dense a population as of old, simply because they do not need it as they did when farming under old conditions. They could not use it with profit when they had to compete with town wages and town hours.

What then followed? Inevitably, soil impoverishment. The nineteenth century farmer was, speaking generally, no farmer at all, but a miner, a soil robber. There was a good farmer here and there, a good settlement here and there; but, speaking generally, there was no farming, nothing but mining. The nineteenth century farmer sold the stored fertility of ages at the bare cost of mining it. With his gang-plow and his four to eight-section harrow, he could do more soil robbing in five years than his grandfather could do in his whole lifetime. The evidence of it: The now general use of commercial fertilizers from the Atlantic to the Pacific, which means that the farmer of today is paying good round sums for the fertility his father literally gave away; and the disappearance of crops which grow during a short season, and therefore must have fertile land. Our flax crop, for instance, is now disappearing up into Canada, spring wheat closely following, and our oats crop preparing to follow.

We are now nearing a point where we will need practically all our grains to provide for the wants of our own population. Our export of corn is merely a dribble; in our last census year 100 million bushels less than the average ten years before. Our exports of meats and dairy products have shrunk in ten years over 50 per cent. We sent abroad last year only about one-third the number of cattle we sent ten years ago. There is not the slightest indication that this decline will be checked. If checked at all, it will be but temporarily, due to an industrial crisis. Were it not for over 500 million dollars' worth of cotton that we send abroad each year, the country would be drained of its precious metals to settle our foreign obligations, and we would be on the verge of national bankruptcy.

THE PRODUCTION PER ACRE.

Is it not amazing that, mainly since our Declaration of Independence, 135 years ago, we have been able to so waste our fertility that we produce less wheat per acre than any people of the Eastern Hemisphere, except Russia and India? Lands in England that have been farmed for more than a thousand years produce more than twice as much wheat per acre on the average as we do in the naturally better lands of the Mississippi Valley. That demonstrates the difference between farming and merely mining the soil fertility.

This condition has been greatly hastened by our statesmen. The gift of an empire of land to railroads to enable them to furnish speedy and cheap transportation for a vast continent, together with the enactment of the homestead law, so excessively stimulated agricultural production that the farmer was often, and in fact generally until about twelve years ago, forced to sell his products at and often under the cost of production. This gave the world cheaper food than it will ever see again, and made possible the wonderful growth of great cities the world over.

The anxiety of the farmer to find a home market instead of having his prices fixed in a foreign market under competition led to the continuance of the system of high tariffs long after the reason for it had ceased to exist, thus wonderfully stimulating the growth of the cities of our own land, cities which with all our boasted ability we have never been able to govern decently. When this undue stimulus is removed, as it will and must be sooner or later, our manufacturers will have to take the same medicine which sickened the farmers in the 70's, 80's and early 90's.

Inasmuch as there are no more Mississippi valleys to be opened, we are now nearing the turning of the lane. We must from henceforth learn how to farm. We cannot greatly increase our acreage; will, in fact, be compelled by the return of normal climatic conditions over our western territory to reduce it. The only thing left to do is to grow more grain per acre, better stock in greater numbers per quarter section. Only in this way can we reduce the cost of living.

HOW TO PRODUCE FOOD CHEAPLY.

Our great problem, as I said to this Congress a year ago, is how to produce food for our own people at prices which they can afford to pay. But how? Partly by putting more brains into our farming. There is a great deal of agricultural labor wasted simply because many farmers do not have even an elementary knowledge of the forces with which they have to work. It is hard to convince them that the fertility of the soil is not inexhaustible. Farmers of this class have been soil robbers too long, and they continue to grow the same crop year after year, trusting to luck. It is hard to get the farmers of this class

to understand the philosophy of crop rotation, of the natural movement of water in the soil, or of the ideal seed bed, or the fitness of certain soils for certain crops; in short, of the requirements of plant or animal life, or to persuade them to active coöperation with each other, or to get them in actual touch and sympathy with the new agriculture. This is an educational process, and therefore slow, even when there is a disposition to acquire the knowledge. Many farmers have more faith in moon signs than in agricultural colleges and experimental stations; more faith in ordinary politicians than in college professors and scientists; more faith in yellow journals than in the best agricultural papers.

For this reason we now grow on an average two-thirds of a pound of corn to the hill; whereas the good farmer often grows on no better land originally two pounds per hill of three stalks, and three pounds are possible. We grow fourteen bushels of wheat per acre (this year but twelve and a half), while on land no better naturally, and often not so good, England grows thirty-two and Germany twenty-eight bushels. We are now passing through a stage through which English farmers passed when they grew but twelve and a half bushels of wheat per acre. The new agriculture has lifted the English and the Danish farmer out of the rut. It will lift us when we begin to use our brains. Before this Congress adjourns we will have some illuminating discourses on this branch of the subject, addresses by men of national reputation, who have devoted their lives to some particular phase of the problem of conserving and restoring soil fertility. I would not, even if I could, anticipate what they will say and say so well.

The farmer complains that he cannot employ labor necessary to grow full crops on his land, and therefore that he cannot now engage in intensive farming. There is just ground for his complaint. The factory, the store, the railroad, the trolley line outbid him for the labor, even that which is farm born and farm bred. He cannot use the cheap labor of Southern Europe, nor the hobo or tramp, nor the ne'er-do-well of the city, because the farm with its improved machinery and its live stock requires skilled labor, and a kind of skill that can be acquired only on the farm. He can use Russian and the Japanese in the beet fields. He can use the emigrant from Southern Europe in the vegetable garden, in digging ditches or making roads; but he cannot use this labor in modern farming operations. He dare not employ an unskilled man in milking, nor in feeding his cattle, nor entrust to his care the management of either improved machinery or team.

BOYS AND GIRLS AND THE FARM.

Therefore the very root and kernel of our modern farm problem is how to retain on the farm all the boys and girls born there, who are fit to be farmers or farmers' wives. This can be done only by making farm life worth living. Making money or owning a farm is not all of farm life. We have but one life to live on this earth, and we should

get out of it all that is possible. In many sections in the country, with bad roads, poor schools, poor churches and no social life, farm life is not worth living. That proof of this is seen in the fact that farm boys and girls flee from it, and the farmer himself, as soon as he thinks he is able to live in town.

The farmer himself is to blame for much of this. He has played on the roads under pretense of working them. He has hired the school teacher at the lowest wage and starved the preacher. He has accepted the town ideal of life, regarding himself as "only a farmer." His school has not been a rural school at all, but a poor kind of city school moved out into the country; and its teacher gaining at his expense the years of experience, while teaching farm children in terms of the town instead of the farm and in the spirit of the farm, that will enable her to get a position in the city. His preacher has been hoping he would get a call to a city church. If the farmer has got on in the world, his wife, if she is very foolish indeed, is inclined to boast that her society is not in the country, but the town. He allows the politician in the city to fix up a slate and tell him how he must vote.

All that is needed to convert the farmers of the West into peasants is to continue this policy for another generation. Fortunately this policy will not continue. All over the country there is the beginning of a great social and industrial awakening. The farmer is beginning to "magnify his office," to cut loose from partisan bias, to do his own thinking and act for himself. He is paying better salaries to his school teachers, and insisting that the teaching have some relation to the life of the farm. He is buying his own automobiles, and paying cash for them. He is beginning to realize that farm life is essentially different from the life of the town. The man who steps high because accustomed to walking over clouds and has the far away look of one who studies the clouds, is a different type of man altogether from the man who glides along the pavement and to whom the weather is a matter of little or no immediate concern. The man who glances over the headlines of his daily paper while he sips his coffee is a different character from the man who reads and studies the editorial of his weekly paper. This farmer's wife is now organizing her own clubs and giving her town sisters lessons in club work. The movement to organize life clubs is spreading. The boys and girls are organizing for games. The country church is beginning to realize its mission, and in several states country preachers are taking short courses in agricultural colleges in order that they may teach morals and religion to farmers in terms of their daily life.

The conservation of the life of the farmer, using the word in its broadest sense, is essential to the conservation of the fertility of the soil; and for that reason the executive committee of this Congress has invited some of the leaders, men whose hearts are in this work, to discuss before you its various phases. You have a real treat before you.

In conclusion, permit me to say that the ultimate prosperity of the

city, its ability to govern itself wisely and well, depend on the development of rural manhood. More than that, the very permanence of our republic will depend on the development of the manhood of the farm. Rome ceased to be a republic shortly after the farmers moved to town and left their lands to be tilled by mere hirelings and slaves.

We keep the best wine to the last always, and the last address of this morning will be a response by Hon. J. B. White, of Kansas City, chairman of the executive committee of the National Conservation Congress. Mr. White. (Applause)

Mr. WHITE—Mr. Chairman, Ladies and Gentlemen of this Congress: It is not necessary that I should reply to the address of welcome, the ground has been so fully covered by the President of this Association. I feel like endorsing from my heart everything he has said, but as a matter of form, because it is expected that the chairman of the executive committee will have something to say, I want to join as a private citizen of Kansas City in welcoming the farmers and the conservationists of the entire country here today, and as the chairman of the executive committee I want to thank the good people of Kansas City for the admirable and perfect preparation that they have made. I want to thank the board of local managers. I want to thank the Secretary of the Commercial Club, Secretary Clendenning, personally, and the organization of which he is the main worker. I want to thank him for the great work which they have done in making this Conservation Congress possible. The Commercial Club of Kansas City has been well spoken of as the eye and the ear of the people of Kansas City, and it is truly so.

Now, this Conservation Congress was called here because it was thought there ought to be special attention given to conservation of farms—to the conservation of soil. And it was thought that Kansas City was in the center of the greatest agricultural district in the world. I suppose, going two hundred miles in either direction from Kansas City, another piece of ground naturally so fertile is not to be found in the world. It takes in a part of Iowa, and it takes in the State of Kansas, a large part of it, and nowhere is there a better. If it were formed into one state it would be the greatest state agriculturally in the world. I am a farmer and a lumberman, and there was a time not long ago when conservation was thought to apply only to forestry, and that the lumberman was the great and ruthless destroyer of the forest. It was a matter of sentiment that went all over the country, and they thought conservation ought to begin by saving the trees. Now, we have passed beyond that. The lumbermen of the State of Missouri paid thousands of dollars to help endow a chair of Forestry in Yale College. I see before me one gentleman here who paid \$4,000 toward that cause, and my company has paid a great deal of money towards a chair of Forestry, and we have done everything that we could. We invited the students

of forestry of Yale College into our forests. One season I had forty for two or three months, and thirty-five for another season in my forests. We built them cabins and furnished them men and horses, and everything we could do to help them study forest conditions was done. We began it in Missouri over twenty years ago, and later, as lumbermen, we have taken the greatest interest in practical forestry and the conservation of the forest, but we found it true that conservation of the soil must come first, because it is of the greater importance. There are substitutes for wood for the purpose of shelter, but there are no substitutes for food, and he that make two blades of grass grow where one grew before is doing his utmost for this and future generations. I notice that my friend, Mr. Wallace, touched on politics. Now, I am not certain whether it was politics, because the line drawn is so fine. It is so hard to draw a line between conservation economics and real good politics. I remember I got my foot into it one time; I used to belong to the Grange—thirty-five years ago. In order to organize a grange you have to have at least fifteen members, and four of them must be women, because it was supposed that in any like proportion, four women to eleven men, gives the women the majority, and wherever four women, or of that proportion, get into a convention they are always in the majority. I got up, under the good of the order, addressed the master of the Grange, and began to tell how I thought benefit might accrue to the members of the Grange. I stated some of the benefits that we were then enjoying; that we had 6 cents a pound protection on lumber, and 6 cents a pound protection on cheese, \$4.00 a ton on hay, and \$1.50 protection on straw, and 15 cents a pound protection on butter. And then I had a complaint, because just then they had taken the tariff off of lumber, and I said, "I own a saw mill and I don't think it is fair to let in lumber free." (They did it at that time, back in 1878.) One sister got up and replied, "We can stand 6 cents a pound on butter, and 6 cents a pound on cheese, and \$4.00 a ton on hay, and 15 cents a bushel on potatoes, but, Good Lord, we ought to have something free, and I think it ought to be lumber." And they ruled I was talking politics and I could not go any farther. That was the situation. It summed up a good deal like this, that we want protection on everything we produce, and we want everything to come in free that we have to buy, and I think that is good economics. That would not be politics.

Brother Wallace sees a great deal of good in everything, and he can draw his lesson and illustration to prove conclusively any point he entertains. I found that out. Why, I did not know that Samson was a saint until I attended a church here in Kansas City four weeks ago yesterday, and I listened to one of the best sermons I ever heard. It was shown conclusively that Samson was a saint, and that it was so recorded in the Scriptures. There were good reasons for his being a saint; the chief of these reasons was that he was the best material they

had at that time to make saints of. My friend, Uncle Henry Wallace, delivered that sermon, and it is the only sermon that I ever heard where politics and religion were not touched upon at all. And I am sure that he will preside at this Congress with that same justice; that there will be no complaint that there has been any offensive politics entertained upon the floor. I want to thank you again that you are here. And I want to say before I sit down, that a session of the executive committee, of which I am chairman, will meet at room 1111 Long Building tomorrow morning at 9 o'clock. We will get here at 10 o'clock, having an hour to confer and pass some important resolutions and make some suggestions as to matters that will be presented to this Congress. (Applause)

President WALLACE—Please be seated just a moment. I wish to announce the appointment of the following committee on credentials: Prof. George E. Condra, of Nebraska; Dr. H. E. Barnard, of Indiana; Mr. Ralph H. Faxon, of Kansas; Mr. E. T. Allen, of Oregon, and Mr. W. E. Barnes, of Missouri.

Col. John I. Martin, of St. Louis, representing the City of St. Louis, Lakes-to-the-Gulf-Deepwaterway Association, and the National Rivers and Harbors Congress, has been selected as the sergeant-at-arms for this Conservation Congress. He has accepted the office and is now in charge of its affairs, and you will do just what he says, and do it with great pleasure, and with great profit to yourselves.

The secretary has some announcements to make. Before he makes them let me say that the meeting this afternoon will be at 2 o'clock, which is sixty minutes past one and sixty minutes before three. This afternoon's meeting will be a conference of governors of states and their representatives, and the presiding officer will be Honorable Herbert S. Hadley, and tonight we shall hear the President of the United States. (Applause)

Secretary SHIPP—All delegates or committees that have any announcements to make are requested to send them in writing to the secretary, so that they can be read from the platform, and posted at the information bureau.

The delegates from each state are requested to meet immediately upon the adjournment of the morning session, and organize by selecting from each state delegation a chairman and secretary, and a member of the committee on resolutions, and a vice-president to represent the state at the next Conservation Congress. The names of those selected should be handed in writing to the secretary at registration headquarters at the south entrance of the hall, or on the platform.

All state conservation commissions, and other state conservation organizations that have reports to make to the Congress, are requested to be ready to report this afternoon. The reports will be made as the roll of the states is called. In view of the number of reports to be presented, it is suggested that no report be more than ten minutes in length.

The delegates from all national organizations represented at the Congress are requested to assemble at some time during the day and organize by the selection of a chairman and a secretary, and choose a representative for membership on the proposed advisory board of the Congress. If only one representative of a national organization is present, that representative should send in his name to the secretary.

Reports from national organizations are to be the first order of business Tuesday forenoon. In order that proper provision may be made for these reports all national organizations that have reports are requested to notify the secretary, either at registration headquarters, or on the platform, giving the name and address of the representative who is to make the report.

All delegates or committees that have announcements to make are requested to send them in writing to the secretary so that they may be made from the platform, and posted on the bulletin board at the information bureau.

President WALLACE—I forgot to mention one of the greatest features of this afternoon will be an address by the Honorable Ben B. Lindsay, of Denver, Colorado, on the "Country Child versus the City Child."

Recording Secretary GIPE—The chapters of the Daughters of the American Revolution of Kansas City will give a reception in honor of Mrs. Matthew T. Scott, president general and the vice-president, from four to six this afternoon at the Coates House. All visiting and resident Daughters of the American Revolution are invited.

The club women of Kansas City have established a rest room within the convention building, to which all women delegates and visitors are cordially invited.

Delegate J. T. BAUMGARTNER (of California)—In addition to the announcements that have been made, I wish to ask the California delegates to meet at the Standard immediately upon adjournment.

President WALLACE—The Congress is now adjourned to meet at this place at 2 o'clock this afternoon.

SECOND SESSION.

At 2 o'clock in the afternoon President Wallace called the Congress to order.

President WALLACE—The Congress will come to order, and the Divine blessing will be invoked by Rev. Dr. R. M. Kerr, pastor First United Presbyterian church of Kansas City.

INVOCATION.

Our Father and our God, we pause at the opening of this meeting this afternoon to ask Thy blessing upon the National Conservation Congress in this and its other sessions, in all of its undertakings. We are asking of Thee the wisdom that is beyond the mind of man, and we come only to Thee. We are dealing with affairs of national interest and import, and we dare not come to any one but Thee, because we believe that in Thy power this land has been made, and in Thy Providence it has been discovered. And that our forefathers in Thy fear have established a nation which has often realized Thy signal blessing. We would recognize Thee as the God, and the giver of every good and perfect gift. Thou hast locked up in the mountains, hidden away in the soil of this country those elements that have made possible our material welfare and prosperity. We ask Thee this afternoon that Thou wilt grant unto the officers of this Congress, unto these its delegates and all of the people in this land interested in these problems the wisdom that will rightly enable us to appreciate Thy gifts, and rightly conserve them, to use them for the greatest good of the greatest number concerned. And we ask for Thy blessing to be upon our President, and his cabinet; upon the legislative bodies, state and national, upon all the courts of this land, that as the people of this country through these officers are striving to enact and execute just laws, they may do so in Thy fear, and that the righteousness of a Christian civilization may become more and more a reality. We would pray today that Thy material blessings to us have chief value in relation to human life and human deeds, and human development, and may the conservation movement that is on foot in this country always be broad enough and high enough to include the conservation of human life, the integrity of manhood, the virtue of womanhood, and the beauty and the innocence and the true worth of child life. We believe that these blessings will mean the highest good to our beloved country, and mean the advancement of Thy kingdom here in this earth, and we ask these favors through Jesus Christ, our Lord. Amen.

President WALLACE—I take great pleasure, Ladies and Gentlemen, in announcing Governor Hadley of Missouri as the presiding officer this afternoon. Governor Hadley. (Applause)

Governor HADLEY—Mr. Chairman and Members of the Congress: I was selected to preside this afternoon in the expectation that this afternoon would be distinguished by a conference of governors. I say distinguished advisedly, because nowadays when governors confer there is distinction to be passed around on all present, and some for others. However, there were a number of governors here yesterday who were unexpectedly called out of the city, but who will return during the sessions of the Congress. There are some who will be present who have not yet arrived, and consequently it has been decided by the officers in charge of this Congress that upon this afternoon prior to

the address of Judge Lindsay, there will be a call of the states, upon which call the representatives of the various states who are here, other than the governors, will speak for a few moments in reference to the general question of conservation in their respective states, and the conference of the governors will be held later. After this call of the states you will have the pleasure, I understand, of listening to the address by Judge Lindsay. In calling for the representatives of the several states, those who are here representing the governor, or those who may have been selected by the delegates from any one of the states to speak in reference to the situation in their state relating to the general policy of conservation will arise, and either speak from the floor, or come forward to the platform. The representatives of the press, whose requests are always entitled to consideration, if not to be followed, request that the representatives come forward so that their names and their remarks can both be heard and preserved. I will now ask the secretary to proceed with the call of the roll.

Recording Secretary GIPE—Alabama. Is there a representative from Alabama present? (No response) Arizona. (No response) Arkansas. (No response) California.

Chairman HADLEY—Mr. J. C. Baumgartner of the State of California will speak for that state.

[Mr. Baumgartner's speech will be found in the supplementary proceedings at back of book.]

Chairman HADLEY—I am certain we are all glad to know that though California may be a little short upon water, it is not short on good society, the possibility of good development. The secretary will proceed with the call of the states. The secretary calls my attention to the fact that the number of the states makes it necessary to somewhat limit the statements from each, and they will be limited to five minutes. The chairman, however, has a slow watch, so govern yourselves accordingly.

Recording Secretary GIPE—The next state on the roll is Colorado.

Chairman HADLEY—Is the State of Colorado represented here?

Recording Secretary GIPE—Connecticut. (No response) Delaware. (No response) District of Columbia. (No response) Florida.

Chairman HADLEY—Is the representative of the State of Florida in the hall? Go ahead.

Recording Secretary GIPE—Georgia.

Professor E. L. WORSHAM, of Georgia—I am not the speaking representative from Georgia, but I will make a brief report as to what conservation is doing in that section of the United States, or what we

are doing along conservation lines. I regret very much indeed to see so many vacant seats in the audience from the states to the far south. This is a very busy time with the people in the south, as most of you know, and there are a great many conservationists who would like very much indeed to be present at this meeting, and I think it is safe to say that the fact that they are not here does not mean that the South is not interested in conservation, and that they are not doing something along those lines. Mr. Chairman, and gentlemen, it is true, however, that the people of the southern states are not quite as active in the conservation movement as the people of the North and West, and why, I cannot see, because there is no doubt but that in the beginning God smiled more sweetly on this section than on any other section of the American continent. He did more for those people than all the rest. He endowed us with resources more wonderful than those of any of the other sections of the United States. Those good people have gone on from time to time not realizing what these resources meant, until they are gradually passing out of their hands. I cannot speak for other states, but for Georgia, Mr. President, I want to say that we have enough water to supply California, and a good many other Western states. That is the least of all of our troubles. As to water power, we have water power enough running waste to run every spindle in the southern states. It is simply awaiting the hand of the developer, and we want to see it properly developed, and not gobbled up as it has been done in many of the western states. This is one of the big problems that the State of Georgia has on its hands today. It is a natural section for manufacturing interests of all kinds, and you can get the cheapest power on earth on account of this wonderful water power that is stored up in its mountains.

We have coal enough to run Georgia and California a thousand years. We have rich stores of iron that run higher in per cent of iron than those of the Birmingham district, and very few people know its value. I understand the State of Georgia supplies three-fourths of the asbestos output of the United States. Our marble speaks for itself in monuments like that beautiful capital of Minnesota. Our granite speaks for itself in buildings like the federal building in San Antonio, Texas, and other buildings which I could point out. Our rich stores of boxite many of you know about, but, there are numerous other things of this kind, Mr. Chairman, which I could mention, but I don't care to dwell on them at this time. The main thing that we are here to discuss is the conservation of soil fertility, the conservation of agricultural resources. We of the South are an agricultural section. You take away from us our agriculture, and while we are rich in minerals and various other things, in a measure we would be helpless. It is the only spot on earth, you might say, that has a monopoly on the greatest crop on earth, and that is the cotton crop. This I consider by far the most interesting, the most valuable phase of conservation.

The people of the South, while their soil is extremely fertile, or was in the beginning, have allowed the rain to wash it down in the valleys, and it has washed into the sea. They had thousands and thousands of acres of land that would produce anywhere from 25 to 100 bushels of corn per acre, and from one to four bales of cotton per acre, if it was simply cared for in a proper way. I have visited the spot which holds the record for the greatest cotton yield on earth, which produced four bales per acre. In the beginning it was the poorest, reddest soil you ever saw in your life. It was taken over by a man who knew his business, and in the course of three or four years he had it up to a point where it produced almost anything. And there is another thing, Mr. Chairman, we have a section there that will produce almost anything under the sun in the way of crops. There is only one other state in the union that can compare with Georgia in that respect, and that is California, and, as the gentleman has just stated, they have not water. Our sections, from blue grass to oranges, will produce all of the various things in between.

Mr. Chairman, we of the South have got the biggest problem on earth to solve, as I see the problem. The problem of conservation of soil fertility, the conservation of agricultural resources in general, are undoubtedly among the important questions confronting this Congress, but we have the biggest part of that problem. Why? It is because of the much discussed negro problem of the South. There are a thousand and one solutions of this offered, but the question remains unsolved, and will pass on to future generations. As long as we have the negro we are deprived of having other classes of labor, which you have here in the North. (Applause) Because of his presence, we, of the South, are dependent on the negro, and he knows it. We have got to get along in the very best way we can, but we need a better class of labor. I don't know what we are going to do. That is the reason that this is such a grave matter to the people of the South. Mr. Chairman, I see I am taking up too much time here, but I do want to get back to Georgia, and the part she is playing in conservation. (Cries of Go on. Go on)

Since the Congress met one year ago, at St. Paul, the South has had a conservation congress, and I think I can say that it was a success. There are a number of speakers on this program that were there, and noted the interest that was manifest in this meeting. Following that meeting the Georgia Conservation Association was organized, and it is taking up a number of these problems which we are so anxious to solve. The president is a distinguished man in Georgia, Judge John C. Hart. He is a man who went before the Supreme Court of the United States and presented on behalf of the State of Georgia one of the most famous cases in its history. The State of Georgia filed an injunction against an immense copper plant in the northern part of the state, which was responsible for a great deal of destruction of prop-

erty, of vegetation in general. This company had, at an expense of millions of dollars, put in this plant, and I understand it is the largest of its kind in the world. At that time copper was the plant's main output and the state filed an injunction requiring these people to consume the fumes that were destroying vegetation. The case was carried to the Supreme court, and the injunction sustained, and at a cost of five millions of dollars the Ducktown copper plant put in a consumer from which they produced sulphuric acid, and, today, it is one of the largest sulphuric acid plants in the world. There is one of the solutions to the problem which your able president presented this morning in the fact that you have, throughout the West, as well as the South, to fertilize. Georgia, as a result of that injunction, saved two million dollars last year in its fertilizer bill. The representative of the State of Georgia Conservation Association framed a bill creating a state conservation board, not a commission, but a board that was to be created by special act, taking up all lines of conservation. This bill was unanimously passed by the senate, and unanimously recommended by the committee of the house, and will come up for passage at the next session of the legislature.

We passed a bill protecting bird life, and wild life generally in the state, a very strict law, which we have needed for many years. The state, as a result of the conservation work, has enacted a drainage bill, which, I think, will result in great good to the people in the southeastern part, in the drainage of swamp lands, which will make perhaps the greatest agricultural land on earth.

Mr. Chairman, I cannot go into details on any of these problems. Other states in the union, every state in the union has agencies working for conservation. In the first plant, the United States Department of Agriculture is working wonderful results in the different states along lines of agriculture. The state colleges of agriculture are doing great work; the experiment stations are doing great work; the various state departments of agriculture are doing great work, but there is a certain class of work which these agencies cannot do. There is a great work for the independent organizations, such as the State Conservation Association in the different states, and I would urge each state that has not organized to get busy at once, and begin to take up these problems. (Applause)

Chairman HADLEY—Instead of a statement of the resources and developments in the various states, I would suggest that this call of the roll is particularly designed to accomplish a statement of what is being done by public or official organizations in dealing with the question of conservation in the several states. I think it is a very satisfactory indication of the modern trend of conservation that this work is now being done by the people of the several states instead of the national government. It is an indication that the people do not intend

that their state governments shall sink to a lower level of efficiency. They intend to exercise every power which they possess under the federal constitution.

Recording Secretary GIPE—Idaho.

Chairman HADLEY—I have the pleasure to introduce to you Mrs. Holland C. Day, who will speak for and represent Idaho.

[Mrs. Day's paper will be found in Supplementary Proceedings.]

Chairman HADLEY—I am very glad indeed in listening to the interesting speech of Mrs. Day to note what a serious attraction a state might have for a woman by reason of having woman suffrage and caused her to transfer her allegiance to the Governor of Idaho. I would suggest, however, that she should not, in her enthusiasm for the horticultural possibilities of the State of Idaho, forget that she still belongs to a state that is distinguished as the state of the "Big Red Apple."

MRS. DAY—I will also say that the female suffrage movement is going right straight along in Missouri. (Applause)

Chairman HADLEY—I do not want to start a discussion right now. This, being a conservation congress, is a peace conference. I will now call on Col. Isham Randolph, who will speak for the State of Illinois.

[Col. Randolph's speech will be found in Supplementary Proceedings.]

Chairman HADLEY—I am certain that every person interested in the general question of Conservation, and particularly the state ownership of its water power, is interested in Colonel Randolph's statement as to what they are doing in the State of Illinois. And I know that all of you, and all other friends of Conservation, will be glad to have Colonel Randolph convey to Governor Deneen the best wishes of the Congress. I would suggest that on account of the fact that there are a number of speakers, and Judge Lindsay, whom you are all anxious to hear, that the speakers will please confine their statements to the official activities of their various states in dealing with this question of Conservation.

Recording Secretary GIPE—Indiana.

Chairman HADLEY—Mr. Harry Everitt Barnard, chemist Indiana state board of health and state food commissioner, will speak for Indiana. I now have the pleasure of introducing to you Mr. Barnard.

[Mr. Barnard's speech will be found in Supplementary Proceedings.]

Recording Secretary GIPE—I have a telegram from the Mexican Ambassador:

"Washington, D. C.—Accept sincere thanks for kind invitation. Regret exceedingly that official duties here prevent me from accepting hospitality; would thank you greatly for minutes of meeting. Gilberto Crespo, Mexican Ambassador."

The next state is Iowa.

Chairman HADLEY—I would suggest that the representatives of the several states yet to be called come up on the platform.

I have the pleasure of introducing to you Mr. Thomas H. MacBride, who will speak for the state of Iowa. Mr. MacBride. (Applause)

[Mr. MacBride's paper is to be found in Supplementary Proceedings.]

Chairman HADLEY—I am certain that the representatives of all of the states present appreciate Mr. MacBride's not speaking of the resources of the state he represents; although he did plead guilty to having a legislature up there, which practically all the representatives of the other states have to plead guilty to.

Recording Secretary GIPE—Kansas.

A. W. STUBBS (Kansas City, Kansas)—Missouri has elected from our state, a native of our state as its mayor, and has also elected a native of our state as its governor, and Kansas has therefore as its representative, to speak for it, a most distinguished educator, formerly of Missouri, now president of the state agricultural college. Kansas has elected today Professor Waters as representative of that delegation, as president. And we would like to hear from him.

Chairman HADLEY—During the sessions of this convention you will have the pleasure of listening at length to a paper by Dr. Waters, but at this time, on the call of the roll of the states, Kansas has selected him to speak for her, and I am advised that during his short residence of a little over one year in that state he has learned to speak the Kansas language. (Applause)

[Dean Water's paper will be found in Supplementary Proceedings.]

Chairman HADLEY—I am glad to see that Dean Waters with a few slight and one noticeable amendments is able to effectively use the speech he used to use about the State of Missouri when he lived here, and spoke to the State of Kansas.

Recording Secretary GIPE—Kentucky.

Chairman HADLEY—I have the pleasure to introduce to you Col. M. H. Crump, of Bowling Green, Kentucky.

COL. CRUMP—Mr. Chairman. I am simply here this evening to say that the president of the University of Kentucky is not here. He

will be here tonight, and I will state that he will tell you tomorrow what we are attempting to do in Kentucky. We started the conservation movement there some thirty years ago with Professor Shaler of Harvard, when he was state geologist. He wrote the first paper I know of in attempting to take care of forestry. It is found in his report of 1873, about the time I came to the state. We are, through the university, through the state colleges, and through the geological survey, making some efforts along that line, and we are doing all the state can do in that way. But there is a subject there that we think is too large for the state to undertake. I picked up a circular when I came in here, which says that an effort is being made to take care of and preserve the forests, and the soil at the head of the Green river. This paper states that some 32,000 acres of timber land, 2,000 of which is virgin forest, the last of a great forest which once covered the Green river, and in the center of which is Mammoth Cave, we ask that the Nation come forward and help to take care of that, because it is too large for Kentucky, and heretofore nothing has been too large for Kentucky to do. (Applause) That is all I have to say. (Applause)

Recording Secretary GIPE—Louisiana.

Chairman HADLEY—Mr. Fred J. Grace will speak for Louisiana.

[Mr. Grace's paper is to be found in Supplementary Proceedings.]

Chairman HADLEY—I know that all true conservationists will be glad to know that Louisiana is looking after the conservation of her shrimps and oysters, and we will all be glad to hear whether Maryland is interested in her terrapin and canvas backs.

Secretary GIPE—The next state is Maryland.

Chairman HADLEY—I have the pleasure of introducing Hon. Bernard N. Baker, president of the first Conservation Congress. (Applause)

MR. BAKER—Fellow delegates. I will only detain you a few minutes. I know you are all waiting to hear Judge Lindsay. The governor limited us to what we were doing to preserve the oyster. Maryland is doing her duty in that respect, and if you will do your part, we shall all enjoy them in using the oyster when it is opened. I know you want to hear Judge Lindsay, and I am going to only speak a word. I thank you for this, and we will wait for Judge Lindsay.

FRED J. BREEZE of Indiana—I move that the report on the call of the states be laid over until tomorrow.

The motion was duly seconded.

Chairman HADLEY—I think the Chair will declare that motion carried, and on tomorrow morning where there is an order on the program for the response of chairmen of organizations concerned in conservation there will be statements of the representatives of the several

states. It is important in the consideration of this question that we should not lose sight of the fact that conservation is a means and not an end, and the real end is the formation and promotion of the happiness and welfare and prosperity of the people. Consequently the most important question of conservation is the question of the conservation of human health and life. There are various phases of this question before the American people today that are of commanding importance; the immense toll that modern industry makes upon its workers amounts to ten every sixty seconds; the number of deaths from unhealthful occupations has presented a record as tragic as any that was ever written in times of war. There is another phase of this question, of conservation of human life, in the manner in which society deals with its deficient and dependents. Any system devised for the prosecution of crime and the protection of society against its enemies that deals only with the question of punishment and revenge is a mistaken system, and does not accomplish anything of permanent results in its benefits to society. They talk of the system in the conduct of penitentiaries and jails and eleemosynary institutes, but unless they send those they heal out into the world better men, women or children, physically, intellectually or morally than when they received them, that system is a mistaken and misguided one. One of the most distinguished representatives of a modern system in the enforcement of our criminal law for the conservation of human life and character is a man who I now have the pleasure of introducing to you, Judge Ben Lindsay, of the State of Colorado, and of the City of Denver, (Applause) who will speak on the subject of the "Country Child vs. the City Child." Hon. Ben B. Lindsay.

JUDGE LINDSAY—Governor Hadley and delegates, ladies and gentlemen: I am sure it is a great honor to have the privilege of appearing here at this National Conservation Congress to consider some phases of the problem of the child. I do not know whether at past congresses the subject of the child has had a part in the program, but I do know that upon this occasion I feel a great deal as I think a particular boy friend of mine must have felt once in a little episode that happened in my own court nearly ten years ago. We found that when we made an appeal to the loyalty, even of the street boy, the state might find a helper and defender instead of an enemy. I recall when a certain policeman could not capture a certain little rascal of the streets. He went by the nickname of "Moochy." He came in one day to say to me that another little imp of Satan, as he was supposed to be, by the name of "Mickey," knew where "Moochy" was, and if he could enlist the services of "Mickey" in the capture of "Moochy" he thought he might save this little citizen. It was with some difficulty that I had to explain to "Mickey" that we were trying to save "Moochy," in order to get him to tell me where "Moochy" was. When he found we had come to save, to help, and not to hurt, that loyalty for his chum turned to

loyalty to the state, and he said, "Judge, I know where the kid is, and I will get him." In about fifteen minutes down in the wing of a cheap theater in our town there was a howl and a growl that somewhat disconcerted the audience. And when they investigated they found it was "Micky" pinching "Moochey," as he called it. With some difficulty my little gamin friend succeeded in getting the delinquent to the court house, coming in to say to me with more or less disgust, "that the kid didn't seem to want to be saved nohow." A newspaper reporter happened to come along to write a story based upon this episode, to be called "The Pinching of Moochey by Mickey." It was not complete, in his estimation, without a picture of the two, and he lined them up outside to take their pictures, when "Mickey" balked. He would not stand to have his picture taken. And I was somewhat puzzled, for I rather feared the outcome of this situation when "Mickey" came in followed by the newspaper reporter, to explain. He said, "Do you tinks I want to get my pictur took wid de little giek," as he pointed to "Moochy" outside? "No," he said. "I don't; I got out of his class two years ago." Then he said, as he pointed to the newspaper man, "If that guy wants to take my picture let him take it alongside of you, put both in together, and I don't kick."

CHILDREN, THE BIGGEST CROP.

When the Conservation Congress wanted to put the child in its work I am certain I am not going to kick, but I am here to avail myself, as best I can of this honor and this privilege. For after all this conference has needed no apologies for including in its proceedings the problem of the child, for there is not any problem that does not, in a measure, have some bearing, some relation to the home and the child in the home. These children are our best and our biggest crop. Without a proper conservation of their welfare there will never be anything else worth conserving.

There should be a bond of sympathy between the problem of the child and the conservation of our natural resources because of the rather interesting fact that the systematic work being developed for both has had most of its growth and development during the past decade, and when the history of the first ten years of the twentieth century shall be finally written the two great revivals recorded will be those concerning conservation and the child. It becomes more apparent each year that the children are the most important factors in whatever the future may hold in store for us.

Another significant fact is that the growth of popular interest in the problems of the children has been almost identical with the amazing growth of urban population for the past two decades.

CONGESTION PROBLEMS.

The cry of "Back to the soil"; the stimulus given by the conservation movement and the various activities that have grown out of it



PROF. E. LEE WORSHAM, Chairman of the Executive Committee

to promote the pleasures, advantages and opportunities of farm life together with all the modern inventions, telephones, electric light, rural mail delivery, the trolley, good roads and the automobile, I am sorry to say have not served to check the onward march to the cities. The proportion of our people living in rural districts declined from 63.9 per cent in 1890 to 53.7 per cent in 1910, and our experts in social economy assure us that in all probability much more than half of our population will be residents of urban communities before 1920. In many of the older states beyond the eastern center of population more than 90 per cent of all the people live in cities and towns with a population of more than 2,500. During the past decade alone, according to the census of 1910, the increase in the urban population of the entire country has been at the rate of 34.9 per cent as against only 11.1 per cent of the rural population. In six states this increase of urban population as against rural population has been over 100 per cent, and while not one state has failed to show a large increase of urban population, the increase of rural population has been negligible in many states and has actually shown a considerable decrease in seven states. Unless some new and unexpected change shall come it is reasonable to assume that the next generation will find more than half the children of this country in urban communities. There is a temptation to follow that diversity afforded by a subject like that assigned me, which may lead us more into the pleasantries that are supposed to be a part of the life of all country boys. The field, the farm, the orchard, the meadows, the babbling brooks; those recollections recalled in the rhymes of a Riley from the jam and the pies over to old Aunt Mary's, to the joys of the old swimming hole or of these fall days when the frost is on the pumpkin and the fodder's in the shock. The pity of it is that most of these legends of the country boy are too much legend and too little reality. If it were not so we can scarcely account for the growing disposition of country boys to flock to the city. I regret to say that I believe that the call to the city that is reaching the country boys of the Nation will prove to be more effective than any call to the country or "back to the soil" movement that has so far been inaugurated. One of the chief complaints we hear on every hand among the farmers of this country is the difficulty of the problem of farm labor and the indisposition of the boys and young men in any such numbers as there should be to become interested in the farm. I remember listening to the almost pathetic story of one farmer of the Northwest, who told me that every one of his five sons had gone to the city, and he had been unable to induce one of them to remain. He said they either complained of the hardships and the lack of opportunity, or pined for the excitement, pleasure and possibilities of the city. The very advantages that we had hoped would make farm life more attractive to the youth of the Nation is also proving to be one of the factors that would seem to emphasize its monotony. The daily newspapers, the magazines,

the trolley cars and automobiles and good roads are bringing the youth in such complete touch with the city that instead of promoting that satisfaction and contentment with the country as we had expected these city advantages would do, it often has just the reverse effect. I am not prepared to say that these modern conveniences upon which we depended so much in the "back to the soil" movement will not in the end increase rather than decrease the numbers of country boys. I recently visited a city of about three thousand population in one of the most rural of states. What did I find? It has its moving picture shows along its Great White Way, limited to two or three blocks, with a roller skating rink, dance hall, and other forms of excitement and amusement—almost a perfect miniature of the larger city. The fact that the youth of the farming community, through trolley cars and automobiles, had convenient access to the city, where before it would have been more difficult, I was assured only whetted the desire in the country boy for the city life. It would seem then that we are booked for disappointment in the hope that the extension of city conveniences to the farm is going to increase the rural population and therefore the number of country children.

COUNTRY AND CITY BOYS.

But except as it shall present difficulties in the growth and evolution of modern civilization, I am not sure whether this condition, if it be the condition, need be viewed with any great alarm. There is a gregarious and sheep-like tendency in mankind to flock together. The phenomenon presented by urban and rural growth must be a natural one or it would not be so. It is simply presenting in the course of its natural growth an occasional difficulty in the body politic as we have an occasional disease in the growing body of the individual. It becomes our duty then, in the one case just as much as in the other, to remedy the difficulty, to direct the growth along natural and wholesome lines, and this calls for work and coöperation among those factors that have to do with the life of the city or country boy—home, school, neighborhood, church and state.

It follows then that our difficulties, as they must develop from time to time, will be with the city rather than the country boy. This is not because the country boy is inherently any different from the city boy—don't forget that—any better or any worse, nor in my judgment because he is capable of greater possibilities. It is rather because of the environment and condition under which a great number of our boys must in the future development of this country necessarily be reared. I once attended a powwow of some Indian chiefs in North Dakota. There was present old John Grass, the successor of Sitting Bull, and Red Tomahawk, the slayer of the same old chief. I asked these Indian chiefs about Indian children in their primitive days, in the days of the real country and the wilderness. Did they lie? Did they steal? These

chiefs assured me that such things were practically unknown among Indian boys in the days of their own childhood which was before the white man came. "But," said one of the chiefs, "when white man come Indian boy he steal, lie just like white boy."

I asked one of these Indian chiefs why it was that in their primitive state stealing was unknown among Indian boys—and surely they were the original country boys. The old chief grunted and a smile actually lit up that otherwise stolid Indian face as he replied: "It is very simple, there wasn't anything to steal. The child's wants were few and he had what he wanted." Neither was there any poverty, any crime. This virtue of the original country boy in America was acclaimed without a taint of pharisaism. For it was admitted that the honest little savage was no better than his dishonest little progeny. It was rather a problem of condition, of occasion, of environment, than one of inherent viciousness. The wants of the little savage were few and generously supplied by nature. There was no temptation, no occasion to steal.

This fact no more favors savagery than it disproves the advantages of civilization. It is the law of nature that men should multiply and populate the earth, and the instinct among the greater numbers to flock together in cities is precisely the same as it was in the days of savagery when smaller numbers flocked together in smaller groups more widely distributed. We must meet the change by doing two things:

HOW TO MEET THE CHANGES.

First. Perfect our system of education. We need to improve our methods of moral training. We must more and more develop heart and conscience that our children may be equipped for moral as well as industrial efficiency. Boys need strength, but most of all the strength that comes from within; self-control, self-restraint; a yielding of more obedience to authority and respect for law and the rights of others.

Second. The application of a system of real justice among men which means an industrial, social and economic world in which every man shall really have an opportunity to develop the best that is in him, and be assured that he shall reap the joys, rewards and profits to be derived from his own honest toil.

This means that the boy to keep pace with our modern civilization must be better supplied with certain opportunities that are now largely denied him.

New conditions necessarily create new problems. It is the law of growth and development. Since these new conditions are to be found principally in the cities, and since most of the boys who need our attention and interest are in the cities, it follows that the problem of the child is largely the problem of the city. But as the country

becomes more closely in touch with the city and many of its difficulties reach into the life of the country boy, we will also in time find the difficulties of the one are the difficulties of the other.

Whatever the city does for the child is done for the community as a whole, for the child cannot profit without equal profit directly or indirectly inuring to the entire community. It is difficult to put any limit on the duty of the community to the child. It is coextensive with that of the parent, if there be no parent, or if the parent be helpless, or the child suffers from the parent's neglect. This duty of the community, once recognized and accepted, is bound to be extended until indeed the community shall become one great family possessing some of the attributes, duties and responsibilities for the child that in original country life were limited to the particular family or family group of the child. The first general and accepted duty of the community towards the child was its education. Then came the demand for playgrounds, natatoriums, baths, trade-schools, recreation centers, medical inspection, visiting nurses, dental clinics, and finally the school free restaurant. That is as sure to come within the next ten years as the playground and the recreation center has come in the past ten years. In a word, there is absolutely nothing that the child needs which the parent for any fair reason cannot furnish, which it is not the duty of the community to supply. This is so because it is simply the struggle of the state for itself. The child is the state; when the child is neglected the state is **neglected**; when the child suffers the state suffers; when the child is lost the state is lost. To say that the child is the chief asset of the state is undoubtedly true, but it is short of the real truth. The child is the state. It is, therefore, futile to oppose the movement going on in this country for the conservation of childhood on the ground that it is paternal. If there is anything in the scriptural injunction that "A little child shall lead them," it is surely making itself felt at this period of our civilization. If we would conserve the real interests of the children of the Nation, we have simply got to be paternal. The state has got to be the over-parent. It cannot escape if it would; it would not escape if it could.

PALLIATIVES AND CURES.

The last decade of agitation in behalf of the boys of the city was for what is becoming more and more to be regarded as the palliatives. We first asked for playgrounds only in certain bad neighborhoods, on the theory that the children in that neighborhood were bad. We know now that the children were no different from other children, and if they need playgrounds, then all children need playgrounds, whether they be country children or city children. The play instinct needs to be wisely directed as much in one child as in another—in the country as truly as in the city.

We first asked for child labor law forbidding children to work in certain industries, and we are realizing more and more that it is not a good thing for the Nation to draw on the manhood of tomorrow by sacrificing the childhood of today. (Applause) The recent report of the National Bureau of Labor on juvenile delinquency and its relation to employment makes perfectly clear the extra hazards and dangers to which children are subjected from being too early forced into economic competition with men. It demonstrates the necessity for not only more stringent child labor laws, but the better enforcement of those we have. It explodes the idea that the working boy and girl under 16 years of age is freer from dangers of delinquency than the non-working child. It would seem indeed that the playing child in the street is much less likely to go wrong there than while engaged in those occupations in which they are mostly employed.

From what is undoubtedly a very thorough investigation and study of 4,839 cases of delinquents (of whom 561 were girls and 4,278 were boys), we have carefully worked out for us interesting tables showing 2,416 working as against 1,862 non-working delinquent boys, and 251 working as against 210 non-working delinquent girls, or a total number of 2,767 working delinquent children as against 2,072 non-working delinquent children. Added to these interesting figures is the further fact that the ratio of working delinquents is very much larger than the non-working in all these cities, varying in different cities from three to ten times as great as the non-working, with the disproportion even more striking among the girls, making it perfectly clear, as one chapter of the report concludes, "that putting children to work prematurely is not an effective method of training them for good citizenship."

THE VALUE OF THE REPORT.

Another interesting fact brought out by the report is that the repeaters or recidivists (those apprehended for the second to the tenth offense as carefully tabulated in the report) are to be found mostly among the working children with the proportions much larger among the younger working children between 9 and 14 years of age. Up to this point the scale in this respect constantly ascends, beginning to descend as the working age approaches maturity.

The report is unusually fair in making every possible concession to a variety of details and difficulties that might discredit its conclusions; but even with all such concessions there isn't any room to dispute its final demonstration that working children not only contribute more in actual numbers but in an alarmingly larger proportion than do the non-workers to the criminal classes, and among repeaters or recidivists the same condition is even more marked. No such interesting or reliable set of tables has ever yet been added to the literature on this subject. It forces upon us the idea that the virtues necessary to good citizenship are not so much inherited as they are to be acquired. It follows that

we are doing hideous injustice to our children in unnecessarily subjecting them to temptations which their untrained, immature souls are not yet able to withstand. These temptations naturally enough are greatest among the six groups of working boys who furnish the most delinquents. They are well known to juvenile court officers. These six groups represent the six classes of occupations yielding the greatest number of delinquents out of the total number investigated. Proportionately they are, delivery and errand boys 491, or 20.3 per cent; newsboys and bootblacks 449, or 18.6 per cent; office boys 46, or 1.9 per cent; street vendors 66, or 2.7 per cent; telegraph messengers 73, or 3 per cent; employed in amusement resorts 51, or 2.1 per cent; or a total of 2,416, more than one-half of the total number of 4,278 cases of delinquent boys investigated. The greatest proportion of offenses among the boys are of course larceny. This one offense constitutes more than half of all the offenses reported. Putting these immature souls to work simply violates the supplication of the Christian's prayer "lead us not into temptation, but deliver us from evil." The temptation of dishonesty constantly besets the working child, much more than the non-working child. The results shown are rather to be expected. The next in order of popular offenses are incorrigibility and disorderly conduct, terms so indefinite as to frequently include larceny. Truancy appears only in the cases of 185, and begging in the cases of only seven. Every juvenile officer will appreciate the more than probable accuracy of these tables, for, with one or two exceptions of minor importance, they are confirmed by their common experience, for which heretofore reliable tables are rather scarce.

A FALLACY EXPLODED.

The tabulations concerning the parental condition of the delinquents show equally creditable work. They are interesting as exploding another popular fallacy (which indeed was long since exploded by Miss Jane Addams and other champions of child labor laws) that most of the working children were sons and daughters of widows. Only 419 boys or 17.3 per cent of the entire number investigated were sons of widows, and only 185, or 8.7 per cent, were orphans; while 1,318, or more than one-half of the entire number, had both parents living. And again, curiously enough, the tables show that proportionately the great majority of these delinquent boys, employed or unemployed, came from average good homes. Seventy-six and two-tenths per cent of the delinquent working boys are recorded as coming from "fair or good homes," and 71.6 per cent of the working and non-working boys (that is, of the total number of delinquents) enjoy the same favorable conditions in so far as their homes are concerned. The results seem to prove, what has often been emphasized by juvenile officers, that a good home is not as complete a guarantee of a good boy or girl as it would

seem we ought to be entitled to expect. The influences of the home—while of course the most important influence and the one that counts most—is by no means the only influence under which a child is placed, especially in that kind of city life that has come to this country: only in the past fifty years and which in every particular is to become more terrific in the next fifty years, unless there be some unexpected changes. It is furnishing in many respects a new kind of environment under which most of our children are expected to be reared. It means we have got to make war against the street, the conditions, the environment, the causes, if we are to perform our full measure of duty to our children.

Forty-four and seven-tenths per cent of the delinquent boys are children of native born parents as against fifty-five and three-tenths per cent of foreign born parents. Considering the far greater ratio of native born parents, this clearly indicates that there is less control over their children by foreign than by native parents.

But I do not wish to be misunderstood. I firmly believe in work even in childhood. By this, I mean the right kind of work. It is not so much a question of work as the amount of work, the kind of work and the conditions under which that work is performed. This need not lessen our belief in happiness in childhood. I want to say very candidly, that there are a great number of children in this country from fourteen years of age upward about whom I feel more alarmed at their failure to do or to know how to do any kind of useful work than of any possibility of their being overworked.

THE DANGER OF IDLENESS.

In our zeal for the protection of our boys subjected to extreme or unnatural conditions, we must not lose sight of the dangers and difficulties of idleness. There are thousands of boys in the cities of this country who, if not employed at some useful thing, are generally on the streets or in the alleys in the downtown public pool rooms and bowling alleys, engaged not always in wholesome play, but too often in idling, cigarette smoking and dirty story telling, with absolutely no thought of work or the serious side of life. They are too constantly occupied with thoughts of "having a good time," and some rather perverted notions of what a good time is. Too many of our boys especially reach the age of moral and legal responsibility without the slightest conception of work. They are too often more concerned as to how much they earn than how well they do their work. In dealing with a certain class of youth in the juvenile court, I say without hesitation that the most hopeless fellow in the world is the boy who will not work—the boy who has not learned how to work, or the value and importance of work. There is always hope for the boy who works, especially the boy who likes to work. I believe in the "strenuous life," and I think its importance should be taught our boys and girls at an early age. There

are too many young people in this country looking for "the life of ignoble ease." I can say all of this to persons sincerely interested in the protection of the children from degradation or unnatural labor, and yet not be understood as depreciating the importance of wise child labor laws and their rigid enforcement for the protection of the children of the Union. But we must be careful, in doing this, never to underestimate the importance of work—the right kind of work, a certain amount of work—in the life of every child, and especially that teaching which inculcates good impressions in the life of every child as to the necessity and importance of labor. On the other hand, my experience is that most boys will work if given any kind of an encouraging opportunity. The lack of a chance is often responsible for idleness. At least 90 per cent of our boys and girls are forced out of the grammar school to fight the battles of life. They must have a chance to earn a living under such reasonably favorable conditions as not to destroy all chance of happiness or else they must become idlers and loafers. My own experience is that our common school education too often fails to equip them for earning more than the most scanty wages. An opportunity between the sixth and eighth grades in our city schools for children of the toiling masses to learn some kind of useful trade or valuable work with the hands—to learn to do what their fathers do—is a reform in our educational system which the champions of child labor must, in my opinion, espouse if they would round out a systematic and consistent plan of battle in this fight for the salvation of the children.

PLACES FOR THE BOYS.

I want to see the time come in this country when a boy of fourteen years of age up may be a valuable help to the plumber, the carpenter or the printer at a decent wage, instead of going to the messenger service and the street. I do not believe that juvenile labor should trespass upon the legitimate occupations of men and women, but we must equip these children for some kind of industrial efficiency and usefulness, or enlarge our reformatories and prisons for their care and maintenance. One of the saddest things in my experience as judge of the juvenile court has been the little fellows who have requested me to send them to the reform school in order that they might learn a trade. The principal of a school once said to me: "Judge, why don't you send that boy to the reform school so that he can learn a trade?" On behalf of the boy, I replied: "In God's name, why don't you people on the Board of Education give him an opportunity to learn a trade at home?"

I ask you, is it fair, just or decent that in most of the cities of this country an American boy has no opportunity to learn a trade, to capacitate himself for joyous, useful work with his hands, unless he commits a crime? And yet, I am compelled to say to you, that such is the condition in a very large section of this country.

But there are wonderful changes just ahead of us in our educational system. These changes are bound to come if we are to make progress, and we are making progress.

If the Nation is to do its real duty to its boys—whether they be city boys or country boys, its children, city children or country children—it should pass the bill that has for the last six years been repeatedly offered in Congress providing for the establishment of a children's bureau in the Department of Commerce and Labor.

CHILDREN VERSUS ANIMALS.

It is a kind of protection that is sadly needed in this country, and especially from the government we need a systematic scheme of national investigation of all matters pertaining to the welfare of children and child life. It would in no manner interfere with the activities and agencies provided by the states but, on the contrary, through the help and assistance that would come from the national government, do much to strengthen all such agencies. Such a bureau would be of equal if not superior importance to those now existing in several of the departments. For instance, the Department of Agriculture, where we have a bureau of animal industry, plant industry, of soils, of chemistry, and the like. The Government spends annually millions of dollars investigating the diseases of animals, the inspection of cattle, hogs, sheep, etc., and the results obtained by the able experts are published and circulated generously to the farmers and stock raisers of the country. The work of these bureaus has more than justified the expenditure of money by the Government. If we have a somewhat analogous bureau dealing with the welfare of the child life of the Nation, it would be doing no more for them than we are now doing for cattle and hogs. We have no right to neglect the child crop of this country. It is scarcely necessary to repeat that it is our most valuable crop, for there are born every year in this country over two million children. What the state is, what the Nation is ten, twenty, or thirty years from now depends not so much on our business, our ranches, our great industries, as upon the kind of men we have directing the great industries, the business, the farms, the ranches of this country, and what these men are then depends upon how well we care for our children now. If there are diseases among the cattle of the Nation, or decrease in some of the staple cereal crops of the Nation, the Government immediately becomes interested and its investigators and experts are busy everywhere to ascertain the causes, to furnish the remedies, to cooperate with the people for the protection of the material wealth of the Nation. Now, the child crop of the Nation is not to be measured in dollars and cents for as important as such a standard may be it is insufficient to furnish a scale for measuring the value of soul stuff. Yet if there is a large increase in infant mortality, of the dependency or delinquency of the childhood of the Nation, there is no bureau under the Federal Government that

is even required to become interested in the matter. And, indeed, there are very few states that provide sufficient and adequate agencies to carry on the work that must be done if we are true to our children. It is freely admitted that of the 300,000 little children—out of the 2,000,000 born annually—that die annually, one-half of the deaths are preventable by the knowledge and application of preventive measures. If through the dissemination of proper information about children, such as is disseminated concerning cattle, an appreciable per cent of these children could be saved as they certainly would be saved, such a bureau would more than justify its establishment.

SOME PRACTICAL EXPERIMENTS.

I remember recently, when the Children's bill in England was being considered, receiving a letter, I think, from one of the under secretaries, to get certain facts, and it was simply impossible to provide the information that was needed and expected that this Government could furnish; and I, as a judge of one of the courts of this country dealing with children, felt very much embarrassed that we could not say that our Government was able to furnish such information.

We have found, in our efforts to help these 100,000 children annually that are dependent or delinquent, that nothing is so important as facts. In my humble judgment—I may be wrong, and that is just why we want a bureau of this kind, in order that I may know and you may know whether I am right or wrong—in my judgment there are 100,000 children, dependent and delinquent, coming to the courts of this country every year, and that means 1,600,000 children coming to the courts of this Nation in every generation of childhood. Is this great government of ours, with sufficient facts already gathered in this imperfect way to demonstrate the necessity, going to neglect this opportunity of spreading useful information concerning the children of this country?

I recall a certain city in which I asked the chief of police how many children had been in jail that year. He said 100. When we investigated the records, we found there were 650 boys alone brought to the jail in that city of less than 200,000 people. In another city I asked the jailer how many boys had been in jail, he said five or six hundred. When we investigated the records, we found there were 4,000 arrests in that city among the boys alone under twenty years of age and over 2,000 brought to the jail were under seventeen years of age.

But finally any work for children of the city or country must bring us face to face with many of the social, economic, industrial and political conditions that concern us as a people. There is no real problem of the child that is not also the problem of the parent. We cannot do our duty toward the children of this Nation without attacking the conditions that deform the lives of the children. This must

take us so far afield that I do not dare attempt to follow now lest it take me so far beyond the immediate scope of this paper as to find for it no satisfactory ending.

The fight for the childhood of today is the fight for the parenthood of tomorrow, the manhood of tomorrow; it is after all the supreme battle for the country the city, the state, for justice for all men and women, and that means a day of better things, a happier country, a more perfect civilization; the dawn of a tomorrow, a new day, a new time in which the scriptural promise shall be more than fulfilled, for the little child shall lead, shall teach, shall save the world.

Chairman MADLEY—The audience will remain seated a moment. There are a few more of the states that will be called, and as it is necessary for me to attend to some official duties, President Wallace will now take charge of the meeting.

President WALLACE—The Congress is not yet adjourned, and we have some good things in store. Please come to order as soon as possible. I wish to announce Hon. B. A. Fowler, president of the National Irrigation Congress, of Phoenix, Arizona, as chairman of the committee on resolutions. Now, we want every state that has not appointed a committeeman on resolutions to do so at once, and report to the clerk, and Mr. Fowler will announce when and where that committee will meet.

Another thing. Any of you that have resolutions will please turn them in to that committee at the time and place of meeting. The committee will consider the resolutions and present them and their final report on next Wednesday. It is to be regretted that many of the governors could not be here this afternoon, but some of them have sent representatives.

President WALLACE—I have the pleasure of introducing to you Mr. D. M. Neill, representing the governor of Minnesota.

[Mr. Neill's paper will be found in Supplementary Proceedings.]

President WALLACE—The Honorable George Coupland of Nebraska is here as its representative, and has been asked to speak next. Mr. Coupland.

[Mr. Coupland's paper is to be found in Supplementary Proceedings.]

President WALLACE—When this meeting adjourns, which will be at 5 o'clock sharp, it will adjourn to meet at 8 this evening, and will be presided over by Hon. B. A. Fowler, the president of the National Irrigation Congress. Mr. Condra has an announcement to make.

Professor CONDRAS—I wish to announce a meeting of the credential committee as soon as I leave the stage about ten minutes to 5. Another announcement: There are about a hundred state conservation commissioners present, and they will meet in the white room at the Baltimore Hotel tomorrow morning at 9 o'clock for a conference.

President WALLACE—This Congress intended to get Hon. Woodrow Wilson of New Jersey to address us. He was unable to come, but has sent a representative, Mr. Edward A. Stevens, Commissioner of Public Roads, and he will be heard as soon as the secretary makes some announcements, which will close the program for this afternoon.

After announcements by Secretary Gipe, President WALLACE continued: We will now hear from the representative of Hon. Woodrow Wilson, Mr. Stevens. (Applause)

Mr. STEVENS—Mr. Chairman, Ladies and Gentlemen: I did not come prepared to represent the Governor of New Jersey, or to make a speech. That had been entrusted, I believe, to somebody better fitted than myself. I find in the West the State of New Jersey is considered and known for its mitigation of corporations which do not meet the approval of the United States Supreme Court. But it is not that industry I wish to interest you in, or in fact any New Jersey industry. All I can do today is to give a slight enumeration of the work being done in one of the smallest and most densely populated states of the Union. We have commissions or officers in charge of the following branches of conservation work: Forestry; the oyster industry; the conservation of flowing water; the geological survey of the state (which is one of the most complete and most accurate yet carried out by any state of the Union); of agriculture; of public roads; of inland waterways; the regulation of public utilities; the watching over health by the State Board of Health, and also special institutions for the care of tuberculosis, of epileptic and feeble-minded children. We have a fish and game commission, because with us the ocean furnishes a vast source of wealth in its fisheries. We have besides that a commission for the regulation of factory labor, and especially for the regulation of child labor, for children in New Jersey cannot enter into work without passing an examination and without special permits. I am sorry that I cannot do much more than merely enumerate the branches of activity which the state is undertaking. I am only familiar with one of them, that is public road building. If I can be of any service in that technical line to this Congress I hope I will be considered at its disposal. (Applause)

President WALLACE—Prof. F. W. Rane, State Forester, will speak for the State of Massachusetts.

[Prof. Rane's paper is to be found in Supplementary Proceedings.]

President WALLACE—The Congress now stands adjourned until 8 o'clock, when the conference of the states will be resumed. We will meet tomorrow morning at 9:30 promptly.

THIRD SESSION

In the absence of President Wallace, who was attending the dinner given to the President of the United States, Prof. Condra acted as chairman of the meeting.

Professor CONDRA—Ladies and Gentlemen, your attention: We will continue the program this evening from 8 o'clock until the arrival of the President and his party. We will have reports from a number of the states. The states which are represented should send their representatives to the platform. If I understand it, we are now to hear from Michigan, Montana, New York and a number of other states, and in addition to that we will have a short talk which will please you I am sure. The first thing on the program is a flashlight picture.

After the flashlight picture was taken, the Congress continued as follows:

Professor CONDRA—Are there any announcements to be made by the members of the different committees? Has the chairman of the committee on resolutions an announcement to make?

I wish to announce that there are a good many scientific men present who are representing various bodies and they are going to hold a number of important meetings. One of these will be held in the Coates House, room 244, at 8:30 tomorrow morning. The question is, "What should be the relation of Conservation to Science, to the Discovery of Truth?" We must not divorce the two departments. They are identical when we understand the two. All chemists, geologists, agriculturists, and others who are ready to assist in this work and wish to meet with the scientists are invited to do so tomorrow morning. I understand Dr. Shinnick of Iowa is to preside at that meeting. He represents the American Association for the Advancement of Science.

Another announcement: We have gathered here about one hundred state conservation commissioners. The conservation commissions of the various states are not political bodies, neither are they partisan, but they are men and women who are studying the truth underlying conservation. The conservation commissioners, together with the various scientists, namely, geologists, agriculturists, chemists and others, will hold meetings tomorrow. I ask you to take notice. And representing these various scientific bodies, the meeting of the conservation commissioners and the friends of that kind of work; those who want to get at the details of state conserving, including what we should investigate and give to the people as the basis of conservation activity, how we shall do soil survey, geological survey, what kind of maps must be prepared, what is the truth of dry farming, what is true drainage, how shall we make up the various inventories, what kind of forest study should be made in the state—in other words, in what manner are we to cooperate in the various states, and in what manner are we to cooperate with the Federal Government

in getting at the conservation facts? We ask all of you interested in these subjects to join us in the white room at the Baltimore Hotel tomorrow. We will have talks by such men as Prof. Holden, Dr. Hawarth, W. J. Spillman, of the Department of Agriculture, and I might name a number of others, men practically engaged in this line of work. I would like to know whether there is anyone to speak for Michigan?

At the meeting of last year there was not full opportunity to hear from the men representing the states. We want these men to come forward and tell us what they are doing. Michigan has not responded. Is Montana represented? Is New York? New Mexico? We ask that you will come here to the platform. Will the representative of Pennsylvania please come to the platform? I ask those of you who are scattered here and there in this great building to be as quiet as you can, because there may be some who are not used to speaking before so many persons and it is rather difficult to speak from this position. Mr. Emil Gunther, representing Pennsylvania, and Philadelphia in particular.

Mr. GUNTHER—The chairman has just announced I may have five minutes. Realizing the importance of time, I wrote out my remarks so that I could not speak more than five minutes if I wanted to.

[Mr. Gunther's paper will be found in Supplementary Proceedings.]

Chairman CONDRA—It is quite possible that the people throughout this Middle Western country and all of the western part of the United States may fail to realize the different phases of activity that are maintained in the great empire state of New York. That state has recently established a conservation commission, with three scientists as members, paying those men \$10,000 a year for the difficult task of organizing the various lines of conservation activity in the state. I have the pleasure of introducing one of the state commissioners of New York, Mr. John D. Moore.

[Mr. Moore's address is in Supplementary Proceedings.]

Chairman CONDRA—Is the representative of South Carolina, Dr. M. W. Twitchell, present?

A DELEGATE from Kansas—We have tried to hear two speakers from the East, but in Kansas City, half way across the continent, we have been unable to hear them. If you have any more Eastern speakers, California, perhaps, in the rear end of the hall, would like to hear something they say.

Chairman CONDRA—I would call attention to the fact that people are coming in. I know that those who are here are as quiet as you can be, and I ask that those in the rear on this first floor will call the attention of the ushers to this fact so they may request people to enter more

quietly. We realize that this is a very large building, and you ought not to require every man to speak to all of you. They haven't all got lungs strong enough to make everyone hear, but we hope Dr. Twitchell has.

[Dr. Twitchell's address is in Supplementary Proceedings.]

Chairman CONDRA—We will postpone the reports from the states until tomorrow. The first speaker represents the National Soil Fertility League, who will speak for ten minutes. After that we will have a talk by Bernard Baker, our old conservation friend, the man who was the president of the Congress at St. Paul during its last Congress. If President Taft should enter during either one of these speeches, I ask that the band may start up "America." I think it would be appropriate to sing "America" when the President of this great country enters such a great hall filled with such an audience. (Applause) I understand that the gentleman who is to speak is able to talk to the uttermost parts of the gallery. I now introduce Howard H. Gross, president of the National Soil Fertility League. Mr. Gross, of Chicago.

Mr. GROSS—Mr. Chairman, Ladies and Gentlemen: I want to thank you kindly for the applause, for it may be the only occasion when it would be proper. (Applause) I want to say as president of the National Soil Fertility League that it is an organization formed to do a specific definite work, and to work with this great Congress, and all who are striving for a better agriculture. I have been doing considerable institute work, and I made this observation: that the farmer was very quick to see and demonstrate how some of these half-baked theories that he was asked to subscribe to did not appeal to him, or, in other words, that we are all from Missouri, and it was necessary to be shown. (Applause) We know that we are not getting out of our farms what we ought to get. We know that Europe is getting two or three times as much per acre as we are. So, in the organization of the National Soil Fertility League I felt that two or three things were necessary: First, we must have an organization that would command the respect of the people, and when I give you the names of the gentlemen who make up the advisory committee I believe you will agree with me that they have been wisely chosen, and we are under obligations to them, all of us, for joining in a great work of this kind. On the advisory committee are Mr. James J. Hill of St. Paul, whom I regard as one of the greatest men who it has ever been my privilege to meet; the next is our most distinguished, our first citizen, William Howard Taft (applause); Franklin MacVeigh; Missouri's great son, Champ Clark (applause)—gentlemen, this is not a political convention. Dr. James, of the University of Illinois; William Jennings Bryan (applause)—now, gentlemen, it would not do for me to read the other names if you are going to break over like this. It is against the rules. Mr. F. D. Coburn, Secretary of Agriculture of the State of Kansas (applause); Benjamin Franklin Yoakum; William George, banker and farmer; Samuel Gompers, president of the Federa-

tion of Labor (applause); Alvin H. Saunders of the Breeders' Gazette; J. M. Studebaker, of wagon fame; Samuel Allerton; Henry Wallace, you all know (applause), and W. D. Howard is no less distinguished. The speaker is the only cheap skate in the crowd. (Applause)

Now, gentlemen, the National Soil Fertility League was formed for a definite purpose. It will have a paid organization. We will be Johnny-on-the-spot every minute during the year, doing business. What we propose to do is this: to supplement the great work that is being done by the agricultural colleges, and insist that the state and the nation shall recognize these great institutions with adequate contributions, so that they may do extension work and reach every community in the land from Maine to California. (Applause) We mean to have Congress appropriate a million dollars to start with, and increase it to eight or nine or ten millions if necessary, and every man who has anything to say in Washington is committed to this proposition from top to bottom, and we are going to get the money. Then we propose to have bills introduced at the next meeting of the Legislature in forty-four states, and get the people back of those bills, to the end that the money will be forthcoming to enable the college of agriculture to take up this great work and carry it forward. The plan will be to take a soil chemist, a skilled agriculturist, and put one in every county in the state. That man is responsible to the state university of where the county is situated. He will help the farmer solve the problems of a larger field, coöperating with him, studying the local conditions, to the end that we may establish a permanent agricultural college, and get the largest returns possible and maintain soil fertility. In Europe where they have been farming for a thousand or fifteen hundred years they are raising two or three times what we get, and our land originally was better than theirs. Now there are several problems that are collateral to this. Let me know, Mr. Chairman, when my time is up—and one is farm labor, how to keep the boy on the farm. The new agriculture showing the boy that we can use his brain as well as his brawn, that farming is profitable, far more than he thinks, that he can make dollars out of dimes by proper manipulation, and so he will see that the largest field of opportunity for a man of brawn and brain is in treating with the soil. Show him also that it is a high and noble and splendid business avocation. Also we must have better schools in the country. (Applause)

There is no reason why the boy and the girl on the farm should not have as good educational advantages as those in the city schools. The greatest product that we have on our farm is not cattle, hogs and alfalfa, wheat and oats, but the boy and the girl in the farm home. (Applause) Upon them depends the future of this great country. So let us realize the personal equation and take care of the boys and the girls; give them the education that they want and let them get it at home instead of going to town. Home life is a great deal more pleasant. You must have good roads, consolidated schools, fill your homes with the best there is in the

land, and there is no place on God's green earth where society and civilization can reach a higher plane and a better one than upon the great plain of Illinois and Michigan, Missouri, Kansas, and all these great states. But let the young men realize that they can learn something from the green leaves of the field, as well as from the yellow leaves of the library. When we get to doing business, and we are doing it now, we want you all to help us get the legislation that is necessary, so that we can provide abundant and cheap food supply for the country, and have plenty to ship abroad, without impairing one single dollar of the farmer's income, but make it twice what it is today. (Applause)

Chairman CONDRA—I wonder if you really believe what this gentleman has said? (Sure we do. Yes.)

In the course of my work I have run on a few individuals who have an idea that it is not necessary for the state to be concerned with the materials of conservation, or with the conditions that obtain in those states. I hope that the time will come when the people on the farm, in the factory, all the citizens in the state will realize that an American state that does not have a full survey of its climate, its topography, its structure, its drainage, its resources, is behind the times. I want you people to pledge me, though not orally, that you will go home, return to your places, and stand by the men like Professor Holden, like Dr. Hawarth, like Dr. DeWolf, and those men who are farmer boys who have gone to the land to study the real value that they may give of their knowledge of farm management. Do you believe that? (Sure. Yes, sir. You bet.) Well, suppose as delegates we might bring in a resolution which says that conservation in these states must be based on that basis, on the material, on the conditions, would you vote it down? Would you believe that these men are sincere? Would you think those men are put in a glass case, that they represent a museum curiosity, or would you think that those men that are huskies, those men of brawn, would you think that those men are your friends, that they mean what they say and they know what they are talking about? They are the ones who have seen this thing from the practical side, and they must work with you. Let me sound this note: I make the plea that you may, in the conservation of the various states, stand for conservation based on fact, not on conservation based on dogma without foundation. Will you stand for that? (Applause) I wish to assure all now I am not now making an argument for the man who does the geological survey, the agricultural survey, the nursery survey, the industrial survey; I am making an argument to the people for the people who ought to have the truth of the situation, the benefit of those surveys. We have seen too many concerns floated without basis. We have seen altogether too much promotion without basis. The time is when our agriculture will flourish according to the conditions that obtain. We will not misrepresent for the purpose of drawing a population from one section of our great country to an unfavorable place in another section. We are going to take the land

as it is. We will take the climate as it is. We will take the resources through and through as they are. And the state will place its stamp of approval, based on the fruits, and the people can go here and there according to the light that is found. And we condemn any concern in the state that goes into another state and misrepresents things to the people, taking them to a place for which they are not fitted, and to land which they do not understand. I do not want to discourage you, and here let me clear up a thought. We stand as conservationists for reclamation. We intend to make more of these dry lands, those sandy lands, those wet lands, and the various other kinds, and we want to get more out of these trees, out of that coal, out of that gold, out of that iron.

Let us stand on the basis of truth. Let us stand against misrepresentation. May I sound another warning? There never was a state that misrepresented industrial facts and attracted factories to those unfavorable places, or attracted people to an unfavorable locality, which they did not understand, there never was a state that permitted that but suffered for the same sooner or later. We must take truth as it is. We must abide by the facts. We must, as people of the state, loyal to our state and our country, put our forces against all kinds of misrepresentation, because they end up badly. (Applause) Now you don't understand that, all of you. The farmer gets occasionally into some one of these concerns that ends badly. Then he objects to all kinds of business, and he objects to the railroads, and he objects to the men in the factory, and he thinks all business is illegitimate. We have reached a time in the conservation of our states when we will base our industry on investigation and reliable report, made by one who will not pad the facts.

I ask Mr. Baker to tell us a little about the Panama Canal.

Mr. BAKER—Mr. Chairman, Ladies and Gentlemen: The subject is not one as Prof. Condra said, that covers the subject of conservation to most people, but to me it means a great deal. It means that your government, your people are spending today some four hundred millions of dollars for the purpose of conserving the interests of transportation between the east and the west coast of the United States of all this great country, the enormous commerce that has been absolutely and almost entirely in the control of the railroads for so many years. So serious has this control been that for nineteen years the transcontinental railway pool paid to the owners of the Panama Railroad Company \$1,080,000 a year for nineteen years to induce them not to do business. Think what that means. Not only that, but for many years they paid the United States of Colombia, which formerly and originally was under the Republic of Panama before it seceded, \$10,000 a year to prevent the extension of that line, to deepwater, so as they could utilize that route to develop the commerce of the United States. Your Government, you people, are paying for that. I am going to tell you a little, while we are waiting

for the President. I have just had the honor of being with him at dinner. He was unfortunately detained, but I expect him every moment, and it is not necessary for me to say that when he appears I shall retire.

They started out with that wonderful enterprise—the Panama Canal—by meeting the opposition of all the railroad interests that were determined that it should not be completed. Many, many times able articles, which many of you have read in the magazines, were written and paid for by the most eminent engineers to prove how totally impracticable the building of the Panama Canal was. It was a dream. A long dream, they used to say. It began in the early days of Spain when Columbus came to the Panama Canal. He was the first one to visit it. There was located on the west side of the canal what is known as the Treasure House of Spain. When our Government took hold of it, and employed the engineers to make a thorough survey, the question came up of building an open waterway free right down to sea level. When it was suggested that they build lock canals—and as many of you farmers to whom I am speaking may not understand that, I take a few minutes to explain exactly how they work. You come in on the level of the Caribbean sea, and the ship is elevated about thirty feet by sliding into a lock, the water pouring from the upper lock, sixty feet above, into this lower lock, thirty feet, and on this the ship rises. That occurs three times, until they bring the ship up to a level of eighty feet above the Caribbean sea. There is very little rise or fall in the tide of the Caribbean sea, only about eighteen inches, maximum and minimum. Then it enters into what is going to be—and now when I was there in November, had about twenty-eight to forty feet of water in it—a most beautiful fresh water lake some twenty-nine miles wide and some thirty long, bordered with the most beautiful mountain ranges. The ship will sail through that lake and will come into what you have all heard about, the wonderful Culebra cut, a cut straight through the mountains. One of the greatest difficulties, one that you have heard so much of, is the slides, the land constantly sliding down into that cut, was due to the character of the soil, it being a volcanic ash.

Now, the most wonderful thing has happened, due to modern invention, which has brought to work what is known as the cement gun, a gun that will fire cement into those banks and make them practically solid and prevent sliding. So they can go on and dig the canal without further interruption. There is no question whatever that the waterway will be opened to the people of the United States by the shortest possible route, saving 7,000 miles of water distance between the Atlantic and Pacific oceans, all the way around the Straits of Magellan, by June, 1913. (Applause) Not only have they made the cement gun, but they have made the cement boat. I am an old steamship man of many years' experience. I can remember some years ago when they talked about iron boxes floating as being impossible. Then they came to a steel box floating. Now, ladies and gentlemen, they are floating a stone box there,

and putting on this stone box the gun which will fire the cement. It is made of cement. The steamer will proceed through that large cut, which is covered with the most wonderful vegetation that ever was written about, right in the tropics, within eight degrees of the equator. The ladies here—all ought to go to Panama and see the wonderful flowers, blooms—things that we see here in our greenhouses—there growing as trees—magnificent, wonderful—and the parrots playing through the woods. If you go a little way off you can also see the monkeys playing in the woods. All those things will be open to travel, and there will be the big fine passenger steamers going through there.

When you get over to the other side of the canal you meet first what is called the Pedro Miguel Locks. Peter McGill was an Irishman, but they called him, in Spanish, Pedro Miguel. A number of things down there are named after him. A short distance below you come to two more locks, lowering you to the level of the Pacific Ocean, which has a rise and fall of nearly eighteen feet. That is known as the Miraflores Lock, or many flowers. Now you have reached the Pacific Ocean. I want to go back just a moment, however, and tell you why it was necessary to make this lock canal. An old steamship man's ideal way is simply to sail through without any destination whatever, but there is a river down there, you know, the Chagres river. Up to the time I was last down there they never had yet found the source of the river. The vegetation was so rank it was almost impossible to get through. That river has been known to rise sixty feet in forty-eight hours, and yet I have seen it when you could almost walk across the river bed. Imagine that kind of a flood being taken care of in an open waterway constituting a ship canal. I would not like to be on the ship that undertook to go through a canal that might possibly meet that condition of floods in Panama. I want to tell you another thing that to me is the most wonderful work I have ever seen, and that is the way everything is managed and controlled by one man, Col. Gilfos. He is a wonder. You can go among the engineers, the laboring men, constituting all the nationalities of that part of the country, a great many of them Jamaicans and West Indians, Spaniards, and everywhere you will hear, "We are working for Col. Gilfos." No mistakes of any importance have been made. They all live there in the most perfect socialism, if I may call it in the true idea of socialism, the brotherhood of man, having everything in common.

When a lady wishes to give a dinner, she asks by telephone—Government telephone—for a carriage to be sent. It is a mule wagon generally, by the way. But now they are getting some automobiles. It takes her down to the commissary headquarters. She picks out what she wants to entertain her friends with, and she uses no money. It all comes up promptly just at the hour, and many times at prices which it would be impossible today to duplicate in some of our Western and Eastern cities. When the baby is sick she sends for the Government doctor. Everything is done in that way by the United States Government. Why,

they even run the most wonderful hotel in the most wonderful way, the Hotel Tivoli. It is a beautiful place, a marvelous place, and a remarkable arrangement they have there. If you stay one week it is a fixed price per week. If you stay two weeks it is at proportionate reduction, and three weeks again a reduction, so as to encourage people to come there and stay in the hotel. They are now adding to the Tivoli a very large \$500,000 addition, just to accommodate travelers, and everything is run by the Government. You never hear a word of complaint, never any differences. There seem to be no social bickerings or differences among the people. One goes everywhere and finds absolute social enjoyment. I never in my life have seen such a marvelous community. There is where we ought to raise our children. Little figures running about with very little on them, there is so much bright sunshine and beautiful weather they do not need clothes, and they seem to be perfectly healthy. When you think of it, an old saying used to be that when they built the railroad across there every tie cost a human life. Disease was terrible. For five years there has never been a case of fever—yellow fever—and it is the statistical record that it is one of the healthiest places today in the United States.

Of course it is not in the United States, but compared with any place in the United States. There was, by the way, one death, I understand, in Panama that was due to the curiosity of one of our dear women. She came down as a nurse, a trained nurse from New York, and did not believe that the mosquito could possibly convey fever. In the physical laboratory of the hospital at Ancon were a number of them in a glass case for experimental purposes. Talking to some of the other nurses when the doctors were not about, she put her finger in and allowed one of the mosquitoes to bite her. She was bitten all right. In five days she died of fever, proving beyond any question that the mosquito was the one thing that made all this unhealthfulness in the past. But not satisfied with that, the Government has drained in the most effectual way all the entire canal zone of some fifty miles long and ten miles wide. At the head of every small stream where there is any possibility of drainage or stagnant water producing mosquitoes, they place a small barrel of oil, with a drip. That drip is regulated just in proportion to the flow of water. Now today it is one of the most pleasant places in fair weather I ever saw. There are few or no flies on account of this strict sanitation, which includes also the removal of garbage. Everything of that kind is done by the Government in the most sanitary and most effective way. All the houses belong to the Government—they have single men's apartments, and married men's apartments, and houses for the different officers. There is provided a special can for the removal of all the garbage and refuse from the houses. If anyone leaves that open they are fined very promptly. No one does. An inspection officer is going about. So today I know of no more pleasant place in the world to spend a month or so than at the Hotel Tivoli, Panama.

Another curious thing may possibly interest you. The first time I went over to Ancon, which is on the west, the Pacific side—and I might explain about Ancon—there are three towns. There is the town of Panama, which stands on the Bay of Panama; a little distance off and connected with it, you can hardly tell where, is the American town of Ancon, and then across over a big hill is Balboa, the part in which the United States is making all its improvements—getting ready to take care of the transportation question. Now when I got down there, and I arrived rather early in the evening, I had a beautiful room assigned me. All the rooms have balconies. I went out and sat on the porch and looked at the Pacific Ocean. What, to my surprise, did I see? I didn't know what had happened, but I saw the moon rising out of the Pacific Ocean. Now take that in if you can. It was in the east—the Pacific Ocean was to the southeast of Panama, and the moon was rising out of the Pacific Ocean, as the sun did the next morning. I was completely turned around. The Isthmus of Panama almost describes the letter "S." We do not realize that unless we take an atlas and put it before us. If you ever see a drawing or illustration of the great work going on down there you will see how they always place Panama on the right-hand side of the map as you look at it. It seems all wrong. It ought not to be there. It did to me when I first saw it. I think I have talked about Panama long enough, and you must be tired, and I am quite sure the President will be here in the next few minutes. He is trying to get here as rapidly as possible. What he will tell you about conservation will be so much more than I can do. I thank you very much. (Applause)

Chairman CONDRA—I have a note from the director of the band saying that they can sing a certain song to be dedicated to the President. Dr. Hiner, have you the soloist there? Can you favor us with the song? It is to be sung next Saturday at Sedalia, I believe, and it has been dedicated to the President by his permission.

After the singing of the song, the President entered, accompanied by his official party and members of the Commercial Club and others, the audience rising and singing "America," after which long and loud cheering took place for several minutes.

President WALLACE—Ladies and Gentlemen, Members of the Conservation Congress: It is my high privilege and duty to introduce to you tonight, Hon. William H. Taft, President of the United States. (Loud applause and cheers)

ADDRESS BY THE PRESIDENT OF THE UNITED STATES.

President TAFT—Your distinguished President, Dr. Wallace, a month or two ago wrote me and asked me to come before this Congress and advocate and talk about the conservation of the soil. If that subject does not address itself to you as a proper one in this Congress, you must blame your president. If what I say is not orthodox, you must blame him, because he called on me. But I am going to read you the best view that I can make from the consideration of the best authorities that I can find on that subject. And if you will bear with me, I will promise not to keep you long, for the reason that my knowledge on the subject will not consume a great deal of time.

At last year's convention of this Congress I had the honor and pleasure of delivering an address on the subject of conservation of our national resources, and therein attempted to state what the terms "conservation of our natural resources" meant, what were the statutes affecting and enforcing such conservation, classified the different public lands to which it would apply, and suggested what I thought was the proper method of disposing of each class of lands. Nothing has been done on this subject by Congress since that time, but it is hoped that the present Congress at its regular session will take up the question of the conservation of government land containing coal and phosphates or of furnishing water power, adopt some laws that will permit the use and development of these lands in Alaska and in continental United States, and evolve a system by which the Government shall retain proper ultimate control of the lands, and at the same time offer to private investment sufficient returns to induce the outlay of capital needed to make the lands useful to the public. The discussion did not invoke the consideration of any question which directly concerned the production of food.

Tonight, however, I wish to consider in a summary way another aspect of conservation far more important than that of preserving for the public interests public lands, that is, the conservation of the soil with a view to the continued production of food in this country sufficient to feed our growing population.

We have in continental United States about 1,900,000,000 acres. Of this the Agricultural Department, through its correspondents, estimate that 950,000,000 acres of this are capable of cultivation. Of this, 873,729,000 acres are now in farms. The remainder, about 1,000,000,000 acres, is land which is untillable. It is reasonably certain that substantially all the virgin soil of a character to produce crops has been taken up. It is doubtful how much of the part not included in farms can be brought into a condition where tillage will be profitable.

The total acreage of farms in the last ten years, although the pressure for increased acreage by reason of high farm prices was great, was only about four per cent, or about 32,000,000. There are upwards of

25,000,000 acres that will be brought in under our irrigation system, and perhaps more, and the amount of lands which can be drained and made useful for agriculture will amount to about 70,000,000 acres.

The total improved farm lands in the United States amount to 477,448,000 acres, which is an increase in the last ten years of 62,949,000, or fifteen and two-tenths per cent. The product per acre actually cultivated increased in the last ten years one per cent a year, or ten per cent. The total product increased in ten years nearly twenty per cent.

INCREASE OF POPULATION.

The population in this same time increased twenty-one per cent. If the population continues to increase at its present rate, we shall have in fifty years double the number of people we now have. It is necessary then that not only our acreage but our product per acre must increase proportionately so that our people may be fed. We must realize that the best land and easiest land to cultivate has been taken up and cultivated and that the additions to improved lands and to total acreage in the future must be of land much more expensive to prepare for tillage. The increase per acre of the product, too, must be steady each year, and each year an increase is more difficult. Still, even in the face of these facts, there is no occasion for discouragement. We are going to remain as a self-supporting country and raise food enough within our borders to feed our people. When we think that in Germany and Great Britain crops are raised from land which has been in cultivation for one thousand years, and that these lands are made to produce over two and three times per acre what the comparatively fresh lands in this country produce in the best states, it becomes very apparent that we shall be able to meet the exigency by better systems of farming and more intense and careful and industrious cultivation. The theory seems to have been in times past that soils became exhausted by constant cultivation, but the result in Europe, by which acres under constant use for producing crops for ten centuries are made now to produce crops three times those of this country, shows that there is nothing in this theory, and that successful farming can be continued on land long in use and great crops raised and garnered from it if only it be treated scientifically and in accordance with its necessity. There is nothing peculiar about soils in Europe that give the great yield per acre there and prevent its possibility in the United States. On the contrary, there is every reason to believe that the application of the same methods would produce just as large crops here as abroad.

One of the great reasons for discouragement felt by many who have written on this subject is found in the movement of the population from farm to city. This has reached such a point that the urban population is now forty-six per cent of the total, while the rural population is but fifty-three per cent, counting as urban all who live in cities exceed-

ing 2,500 inhabitants. This movement has been persistent, and has made it very difficult for the farmers to secure adequate agricultural labor, with an increase in the price of labor which naturally follows such a condition. Still we ought to realize that enormous advances in the machinery used on the farm have reduced the necessity for a great number of farm hands on each farm.

THE COST OF FARM PRODUCTION.

Mr. Holmes, of the Department of Agriculture, in the Yearbook of that Department of 1899, points out that between the years 1855 and 1894, the time of human labor required to produce one bushel of corn on an average declined from four hours and thirty-four minutes to forty-one minutes, and the cost of the human labor to produce this bushel declined from thirty-five and three-fourths cents to ten and one-half cents. Between 1830 and 1896 the time of human labor required for the production of a bushel of wheat was reduced from three hours to ten minutes, while the price of the labor required for this purpose declined from seventeen and three-fourths cents to three and one-half cents. Between 1860 and 1894 the time of human labor required for the production of a ton of hay was reduced from thirty-five and one-half hours to eleven hours and thirty-four minutes, and the cost of labor per ton was reduced from \$3.06 to \$1.29.

In 1899, the calculation made with respect to the reduction in the cost of labor for the production of seven crops of that year over the old time manner of production in the fifties and sixties, shows it to have been \$681,000,000 for one year. But while it is possible to say that there may be in the future improvements in machinery which will reduce the number of necessary hands on the farm, it is quite certain that in this regard the prospect of economy in labor for the future is not to be compared with that which has been effected in the last thirty years. Hence we must regard the question of available population and available labor in that population for the cultivation of the fields as an important consideration. My impression from an examination of the figures is that the change in this last decade from farm to city has not been as great in its percentage as it was in previous decades, and if this be true, it indicates that there is in the present situation an element that will help to cure the difficulty. Farm prices are increasing so rapidly and the profits of farming are becoming apparently much more certain and substantial. While the acreage of the improved land only increased 65,000,000, or fifteen per cent, and the total acreage only four per cent, the value of the farms in money increased from \$20,000,000,000 to \$40,000,000,000 in ten years—an enormous advance. This, of course, was due somewhat to the investment of additional money in the improvement of land, and somewhat to the increase in the supply of gold which had the effect of advancing all prices, but the chief cause for the advance is in the increase in the price of farm products at the farm. So great

is this increase that the value of the average farm has now gone from \$3,562 to \$6,440, while the average value per acre has increased from \$19.81 to \$39.09. In addition to this, comfort of farm life has been so greatly added to in the last ten years by the rural free delivery, the suburban electric railway, the telephone and the automobile, that there is likely in the next ten years to be a halt in this change toward the city, and more people in proportion are likely to engage in gainful occupation on the farm than has heretofore been the case. Such an effect would be the natural result of the actual economic operation of the increase in the value of the farm product, and the increase in the certainty of farming profits. It is the business of the country, insofar as it can direct the matter, to furnish the means by which this economic force shall exert itself along the lines of easiest and best increase of production. Of course the Government by furnishing assistance in irrigation increases the amount of tillable land, and the states, if they undertake the drainage of swamp lands, will do the same thing. The cost of such improvements will be considerable, and will affect the farming profit, but the result generally in such cases is to yield such great crops per acre that the farmer can well afford to pay interest on the increased investment. Increased acreage from any other source is likely to be, however, in more stubborn land, calling for greater effort in tillage and producing less per acre. We may reasonably infer from the high prices of the decade immediately passed that everything was done by those who owned land to enlarge the acreage where that was easy or practical, and that what is yet to be brought in as tillable land presents greater difficulties and greater expense. The way in which the states can help to meet future increased demand is by investigation and research into the science of agriculture, and by giving to the farming community a knowledge which shall enable them better to develop the soil, and by educating those who are coming into the profession of farming. It is now almost a learned profession.

CONSERVATION OF THE SOIL.

The first great step that has to be taken in reformed agriculture is the conservation of the soil. Under our present system the loss to the farms in this country by the erosion of the soil is hardly to be calculated. Engineers have shown how much is carried down the great rivers of the country and is deposited as silt each year at their mouths. The number of cubic yards staggers the imagination. The question is how this can be prevented as it must be because the soil which is carried off by this erosion is generally the richest and the best soil of the farms which are thus denuded.

Of the rain or snow which falls on the land, a part evaporates into the air; a second part flows down the slopes to the streams and is called the run-off. The third part soaks into the soil and subsoil, and thence

into underlying rocks, perhaps to reappear in springs or seepage into streams. This is called ground water. The fourth part is absorbed by organisms, chiefly by trees, grasses and crop plants, either directly through the tissues or indirectly through the roots penetrating the moistened soil. Erosion is due to the run-off, and its quantity is dependent on the slope of the farm and also the nature of the soil and its products. Any reasonable slope, and any full cover of forest or grass with an abundant mulch, or a close crop on a deeply broken soil, or a friable furrow slice kept loose by suitable cultivation, will absorb rain and curtail the run-off, or even reduce it to slow seepage through the surface soil which is the ideal condition. Now the ground water is the most essential constituent of the soil, because solution, circulation and organic assimilation are dependent on water. All the organisms and tissues are made up of this element of water, and it constitutes a large percentage of the bodies and blood of men and animals. The question of the amount or ratio of ground water in the soil is a vital one. If it is excessive it makes a sodden mass, sticky when wet, but baked when dry, so that there is no possible absorption further into it, and it sends on the water that falls on it to erode easy slopes.

The erosion begins on the farm and should be remedied there. Deep cultivation tends to absorb the product of each rainfall and to reduce the run-off. Deep cultivation brings up fresh earth salts to the shorter rootlets, but carries down the humus and mulch to thicken the soil and feed the deepest roots. In flat lying fields and tenacious soils, tile drainage is the best method of relieving the farm from the danger of too great run-off. Deep drainage permits both soil and subsoil to crumble and disintegrate and through mechanical and chemical changes to become friable and capable of taking on and holding the right amount of moisture for plant growth, while the water which runs out through the drain is clear without carrying the soil with it, and therefore without erosion. Of course different farms require different treatments. Certain farms require what is called contour cultivation, by which each furrow is to be run in such a way as to level and to hold the water. On hilly lands, strips of grass land are grown, called balks or breaks, separating zones of plow land, and they should curve with the slopes, and the soil being carried by the water will be caught by them and constitute them a kind of terrace without effort. The use of forests, of course, in foothills and deeply broken country is essential and should be combined with grazing. They will prevent the formation of torrents by making the mulch and soil deep and spongy. Of course over all mountain divides, the retention of forests greatly helps to prevent the carrying off of the good soil to the valleys below. The proper selection of crops has much to do with the stopping of erosion.

I gather these facts from the reports of the Secretary of Agriculture as to the best method of preventing erosion. They are simple and easily understood, but they need to be impressed upon the farmers by

education and by reiteration. Then the productivity of the soils might very well be increased by more careful use of commercial fertilizers. In 1907 \$100,000,000 was expended in fertilizers, but the Agricultural Department is of opinion that one-third of this was wasted for lack of knowledge as to how to use it.

Careful crop rotation is essential because it has been found that the remains of one crop has a poisonous effect upon the next crop if it is of the same plant, but such remains do not interfere with the normal production of a different plant. Then a kind of crop should be selected to follow which will renew that element in the soil which the first crop exhausted.

FARM ORGANIZATION.

Then there is the organization of the farm on plain business principles by which the buildings and the machinery are so arranged as to make the movement of crops and food and animals as easy and economical as possible. A study as to the character of the soil and the crops best adapted to the soil; the crops to be used in rotation for the purpose of strengthening the soil—all these are questions that address themselves to a scientific and professional agriculturist, and which all farmers are bound to know if the product per acre is to be properly increased. We have every reason to hope, from the forces now making toward the education and information of the farmer, as to the latest results in scientific agriculture, that the country will have the advantage of improvement in our farming along the proper lines. Further agricultural development is to be found in the breeding of proper plants for the making of the best crops, while the growth of live stock is made much more profitable both to the owner and to the public by improving the breed and the infusion of the blood of the best stock.

The improvement in agricultural education goes on apace. All the states are engaged in spending money to educate the coming farmer, and this system is being extended so that now we have the consolidated rural school, the farmers' high school, and the agricultural college, and one who intends to become a farmer is introduced to his profession soon after he learns to read and write, and he continues his study of it until he graduates from his college and applies for a place upon the farm.

The land-grant colleges established by the Federal Government have vindicated the policy in making the grant. Now the department employs eleven thousand persons, many of whom are engaged in conducting experiment stations and spreading information all over the country. The coöperation between the state agricultural school system and the Federal Government's publicity bureau and experimental work is as close and fine as we could ask. It is difficult to justify the expenditure of money for agricultural purposes in the Agricultural Department with a view to its publication for use of the farmers, or to make grants to schools for farmers on any constitutional theory that will not justify the Govern-

ment in spending money for any kind of education the country over; but the welfare of the people is so dependent on improved agricultural conditions that it seems wise to use the welfare clause of the Constitution to authorize the expenditure of money for the improvement in agricultural education, and leave to the states and to private enterprise general and other vocational education. The attitude of the Government in all this matter must be merely advisory. It owns no land of sufficient importance to justify its maintenance of so large a department or of its sending into all states agents to carry the news of recent discoveries in the science of agriculture. The \$50,000,000 which has been spent in the department, however, has come back many fold to the people of the United States, and all parties unite in the necessity for maintaining those appropriations and increasing them as the demand shall increase.

EXPERIMENTS FOR EACH COUNTY.

It is now proposed to organize a force of 3,000 men, one to every county in the United States, who shall conduct experiments within the county for the edification and education of the present farmers and of the young embryo farmers who are being educated. It is proposed that these men shall be paid partly by the county, partly by the state, and partly by the Federal Government, and it is hoped that the actual demonstration on farms in the county—not at agricultural stations or schools somewhere in the state, but in the county itself—will bring home to the farmers what it is possible to do with the very soil that they themselves are cultivating. I understand this to be the object of an association organized for the improvement of agriculture in the country, and I do not think we could have a more practical method than this. It is ordinarily not wise to unite administration between the county and state and federal governments, but this subject is one so all-compelling, it is one in which all people are so much interested, that coöperation seems easy and the expenditure of money to good purpose so free from difficulty that we may properly welcome the plan and try it. On the whole, therefore, I think our agricultural future is hopeful. I do not share the pessimistic views of many gentlemen whose statistics differ somewhat from mine, and who look forward to a strong probability of failure of self-support in food within the lives of persons now living. It is true that we shall have to continue the improvement in agriculture so as to make our addition to the product per acre one per cent of the crop each year, or ten per cent each decade; but considering what is done in Europe, this is not either impossible or improbable. The addition to the acreage in drainage and in irrigable lands will go on—must go on. The profit to the state or to the enterprise which irrigates or drains these lands will become sufficient to make it not only probable but necessary to carry through the project, and we may look forward to the middle of this

century when 200,000,000 of people will swear fealty to the starry flag as a time when America will still continue to feed her millions and feed them well out of her own soil.

At the conclusion of the President's address, President Wallace declared the Congress adjourned until tomorrow morning, 9:30 o'clock.

FOURTH SESSION.

President WALLACE—The Congress will come to order and be opened with prayer by the Rt. Rev. Dr. E. R. Hendrix, of Kansas City, Bishop of the Methodist Episcopal Church (South).

INVOCATION.

Let us pray. Oh, God, our Heavenly Father, we bless Thee that Thou hast been made known unto us as a God that works, and that Thy Son coming into the world, declared, "My Father worketh even until now, and I work." We know that the gods of the heathen do not work. They idle, they quarrel, they dishonor the very name of a god, and a decent man is better than any of the false gods. But our God is revealed to us as one ever employed, active mind, best and highest motives, noblest, most wide-reaching plans, and honors man greatly by making him a fellow worker. Grant unto us the wisdom to work together with God. Give breadth of view, give clearness of perception of what needs to be done. Give responsibility to the best motives, and give plans that are as wide reaching as the great plans of God. Upon this Congress, upon all its methods and its plans, grant Thy richest blessing, our Father. We ask in the name of Christ our Savior. Amen.

Recording Secretary GIPE—A great number of states have not yet reported their members to the committee on resolutions. I ask for the names of the various states now, and let the chairman of the delegation kindly rise, and give me the name, as I call the state in order that the chairman of that committee may immediately assemble these gentlemen to get to work at once. Alabama; Arizona; Arkansas; Delaware; Florida—this is for the committee on resolutions. There is a delegate here from Florida. Georgia; Idaho; Indiana—

H. E. BARNARD of Lafayette—I have not the report from Kansas.

Delegate POTTER—Kansas is here in force, but her officers are out on committees. As they come in we will see that you have the names.

Recording Secretary GIPE—Do you know who was elected as a member of the resolution committee from Kansas?

Delegate POTTER—I was—Thos. W. Potter from Peabody.

Recording Secretary GIPE—Kentucky is here. Louisiana; Maine; Maryland; Massachusetts.

A DELEGATE—William P. Wharton, of Massachusetts.

Recording Secretary GIPE—Michigan—Is Michigan here? This is the committee on resolutions; we want your member from Michigan, please.

A DELEGATE—He has not turned up yet.

Recording Secretary GIPE—Will you not kindly see that the Michigan delegation meets at once and names its member for the committee on resolutions? The next is Minnesota.

A. W. Guthridge, Minnesota.

Recording Secretary GIPE—Missouri; Montana; Nevada; New Hampshire; New Jersey—New Jersey is represented. New Mexico; New York; North Carolina—they are represented. North Dakota; Oregon.

F. J. Kinney, Oregon.

Pennsylvania—Dr. Henry S. Drinker, president of the University of Pennsylvania, and delegate from Pennsylvania.

Recording Secretary GIPE—Rhode Island; South Carolina; South Dakota; Tennessee; Texas—J. B. Smith, of Texas. Utah; Vermont; Virginia; Washington—Everitt Gregg. West Virginia; Wisconsin; Wyoming.

President WALLACE—Mr. Fowler, the chairman of the committee on resolutions, would like to make an announcement.

Mr. FOWLER—Mr. President and Delegates: I hope you all realize what the work of the committee on resolutions may be. Many states have been called here this morning and no names have been given and no one has responded. This is a conservation congress. There are representatives here from these states, from every state I trust in the Union, and there is not a state in the Union that is not interested in the question of conservation. I hope then that the delegates from every state will see to it that a good man is upon this committee on resolutions. The committee is not near full. Many states are not represented, and you must remember, my friends, that the work of the committee on resolutions is the crystallization of the work of this Congress, and the resolutions speak for the Congress, and speak for all the states of this great Union; hence, we must have some one represent every state. I have had some experience with resolution committees in other congresses, and many of you have had the same, and you know that it is a working committee. It is the committee that is compelled to sacrifice about everything else after the work of the committee begins. Consequently, we

want working men upon this committee on resolutions, men who are willing to give their time and make a few sacrifices of their own pleasures and own enjoyment during the rest of the sessions of the Congress until the work of the committee is done and the resolutions presented to the Congress. (Applause)

Recording Secretary GIPE—Is Prof. Condra of Nebraska here? If so, he will kindly come to the platform.

Sergeant-at-arms—Ladies and Gentlemen: President Wallace desires me to make this announcement: “Cincinnati, Ohio, September 26, 1911. President Conservation Congress, Kansas City, Missouri. Will arrive on Alton, 7:45 tomorrow morning.—W. J. Bryan.” (Applause)

President WALLACE—I would like to make one suggestion. We are going to be very short of time. We are now coming to the call of states. We want every state to be heard from, but we want you to confine yourselves to five minutes, and to tell us, not what your resources are, not what you are going to do (applause), but tell us what you actually are doing in the way of conservation. If you have a conservation association, as you ought to have in every state, tell us about it, or anything that bears upon it. Boil it down to five minutes. We will ring the bell on you if you don't stop at the end of five minutes.

Recording Secretary GIPE—I understand that some of the states reported last night while you were at the dinner given to the President, and I hope, that since I do not have the names of those states, that the gentlemen will advise me when I call the roll. We do not want any duplicates. The next state is Maine. The next is Mississippi. Is Dr. Lowe in the room to respond for Mississippi? Missouri?

President WALLACE—I now introduce to you Mr. George B. Logan, secretary of the Missouri Waterways Commission, who will speak for Missouri. We will hear from him for five minutes.

Mr. LOGAN—The Missouri Waterways Commission was created by an act of the General Assembly in 1909. This act provided for a commission of five members, who were to investigate “the various problems associated with the navigable waterways of the state and the reclamation of land subject to overflow; the construction of levees; the benefits to be derived from proposed navigable waterways, and the reclamation of lands subject to overflow or inundation.” The result of these investigations, together with all obtainable statistics, was to be reported to the succeeding General Assembly. The commission was allowed \$5,000 as expenses. None of the members were to be compensated for their services.

At the time the Missouri Waterways Commission presented its statement to the Second Annual Conservation Congress, the report which was last January submitted to our legislature had been prepared. The com-



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mission was very successful in obtaining information of a detailed nature pertaining to conservation of the state's resources, and from this information extremely valuable statistics have been compiled and were included in the report transmitted to the General Assembly.

Because of the small amount of funds, the commission was forced to do almost all of its investigating by correspondence, inasmuch as original research was not possible, and they were gratified to find a widespread interest in the state which caused its correspondents to answer promptly and fully. The investigations were conducted under four heads into which the subject of water conservation in this state seems to be naturally divided. The uses of the water being in the order of importance: First, water supply in which the water is consumed in maintaining life; second, agriculture in which the water is consumed in the growing of the crops yielding food and other necessities of life; third, power in which the water is employed in aid of, or as a substitute for, human labor, and is not consumed; and fourth, navigation in which the water is used for commerce and is not consumed.

WATER SUPPLY.

Under the first head the commission delved deeply into the sources of the state's water supply, consisting of rainfall and watershed drainage. From this point of beginning, the commission went into the question of water supply of the various municipalities, considering the character of the water used, the state in which it was used, and the available quantity.

In the conservation of human life, which is the ultimate end of all conservation, the commission felt that nothing was more important than the securing of a permanent and proper water supply for the inhabitants of the state. Sixty-five communities in the state have been investigated, and from the findings presented to the General Assembly the commission hopes that much needed and beneficial legislation will result. As was to be expected, the investigations of these communities showed conclusively that the community water supply is nearly everywhere closely involved with community sewage disposal. The legislature will be asked to pass such laws as will encourage or compel municipalities to dispose of their sewage as not to endanger the lives of their own inhabitants, or of those who by geographical location are forced to have the same source of water supply.

AGRICULTURE.

While the quantity of rainfall remains approximately the same from year to year, the effects on the soil, and the subsequent benefits resulting to the soil from the rainfall, change materially. By improper methods of agriculture, hillsides and slopes have been denuded of trees and pasturage with the result that the soil on the hillsides is no longer

absorptive, and the rain falling thereon is lost to it. This is especially true in this climate where a very large percentage of the annual rainfall comes in hard or excessive rains, taxing the absorptive capacity of any soil to its fullest extent. By proper education and agitation it is hoped that this natural fact will be borne in mind by the agriculturists of the state who have it in their power to be leaders in this work of conservation.

The converse of the problem of too little water is found in Southeast Missouri, where a very great area is burdened with an excess of water. The solution of this problem has been drainage which is being accomplished by drainage districts organized either in the county or circuit courts. Already 1,271,470 acres have been thoroughly drained and will be valuable agricultural land as soon as the heavy timber is cleared off. The average cost of drainage has been approximately \$5.00 per acre, which is paid in small annual installments. The increase of the value of the land thus drained has been many hundred per cent, while the benefit to the health conditions has been great. Drainage is being fostered and encouraged by the state authorities, and as fast as the necessity for working laws is shown, these laws are forthcoming from the General Assembly. There is need for further drainage, but the energy and enterprise of the people in the communities where it is needed will probably suffice for the solving of this problem in the future as it has in the past.

NAVIGATION.

Missouri is blessed with magnificent opportunities for vast conservation of transportation cost, by reason of the presence on and within her borders, of the two greatest rivers of this country. Accepting the figures of unofficial investigators, the commission has estimated that the demand for water traffic indicates that the through freight movements between St. Louis and Kansas City alone would amount to four hundred and sixty-eight thousand tons annually, while that through the Mississippi in and out of St. Louis would reach a million or more tons. The surplus products of the soil and mines of this state aggregate fully ten million tons. If even forty per cent of these products could be moved by water at the large water cost of one-quarter that of rail transportation, the aggregate saving to the producers would amount to \$11,250,000.00. This saving, or the adding to the wealth of the state, is too important to be disregarded.

The commission feels that the sentiment among this state's lawmakers is already strongly in favor of coöperating with the National Government in any systematic effort to permanently improve our waterways.

WATER POWER.

From the investigations conducted under this head the commis-

sion believes that herein lies one of the greatest and least understood of the state's natural resources. Only ninety-nine water power sites are in use, and one hundred and twenty-three formerly in use have been abandoned. The abandonment is due chiefly to two causes: First, economic conditions in agriculture have so changed that there is no longer need of a manufacturing or consuming point at the place of production. It is more profitable to ship the products of the soil and buy whatever flour, meal and sugar is necessary than to have these small quantities ground at local mills. Hence, grist mills and sugar cane mills have disappeared. The second cause for abandonment of water power sites is the failure of the streams, due, as mentioned above, to the changed soil conditions. However, the advance in electro-mechanical appliances has created new uses and put a new value on water power sites. The point of application of the power may now be many miles from its point of generation. Sites abandoned years ago have "come back" and have greatly enhanced in value. Properly exploited, the value of resources in this state is incalculable. One of the chiefest aims of the commission in its present work is to sufficiently impress upon the people and upon the General Assembly the great value of this natural resource. While more expensive to produce, undoubtedly the greatest latent power in the state is in the Missouri River. The commission has planned to investigate in detail some site on the river which has the most natural advantages and using this as an illustration to demonstrate what can be done in this state.

At the recent session of our Legislature the report of the commission covering these topics, giving in detail the information meagerly outlined above, was presented to the General Assembly and copies of this report were widely distributed throughout the state. The \$5,000 appropriation for four years has increased to \$17,000 for two years. The resignation of members and political differences arising outside of the commission have temporarily impaired and hindered the work of the commission.

However, since the presenting of its last report the commission has put in the time of its executives in bringing up to date and supplementing the statistics gathered the preceding year. Practically nothing is now lacking in the figures concerning community water supply, water works and sewage disposal. Pending the beginning of actual engineering investigation of a water power site, the commission has studied the water power laws of all the states of the Union to the end that accurate information may be presented to the General Assembly when legislation in this state on these subjects is asked for. The delays and petty hindrances touched upon are undoubtedly temporary, and with the very recent completion of the personnel of the commission we have great hopes and expectations for the work which may be done in the cause of conservation during the coming year.

During the reading of a list of telegrams, Mr. W. A. Beard of Sacramento, California, assumed the Chair as temporary chairman.

Temporary Chairman BEARD—The secretary will continue the call of the roll of states.

Recording Secretary GIPE—Montana; Nevada; New Hampshire; New Mexico; New York; North Carolina; North Dakota; Ohio.

President WALLACE—I now introduce to you Mr. C. P. Dyar of Marietta, Ohio, who will speak for Ohio.

Mr. DYAR—I have no speech to make. Ohio simply sends greetings to this Congress, and wishes it Godspeed and a large measure of success in the work before it. Ohio has always been a great conservation state throughout its entire history; it has had presidential, gubernatorial and senatorial timber, and other minor political timber, sufficient for the entire consumption of the United States. Ohio felicitates her sister states on the scope and energy of this movement and she voices the hope that has been expressed in this meeting, that the lesson of the parable of the talents shall not be forgotten, that conservation shall not be interpreted to mean simply to save, but development through wise use, which creates wealth, not only for the present, but future generations.

Recording Secretary GIPE—Oklahoma.

President WALLACE—I have the pleasure of introducing Mr. Milton Brown, who will speak for Oklahoma.

[Mr. Brown's paper will be found in Supplementary Proceedings.]

Chairman BEARD—We are getting down to business this morning, and I think we are getting the meat out of the cocoanut. These addresses have been directly to the point. I now have the pleasure of introducing a representative of the State of Pennsylvania, Mr. A. B. Farquhar.

Mr. FARQUHAR—Pennsylvania is a state of such gigantic resources it would take all the rest of our session to begin to describe them, a good portion of it, and tell what we are trying to do to conserve them. It is only within the last month or two we created a state branch of the National Conservation Association, and they wanted me to be its president, I suppose because I have been interested in conservation for about twenty years past, and was a director in the National Association.

[Mr. Farquhar's paper is in the Supplementary Proceedings.]

Chairman BEARD—We will now listen to Dr. Henry S. Drinker, president of Lehigh University.

Dr. DRINKER—It would seem that this third National Conservation Congress in ordering its deliberations cannot do so more wisely than in

giving heed to the closing words of President Taft's luminous address at St. Paul last year, when he said:

"I am bound to say that the time has come for a halt in general rhapsodies over conservation, making the word mean every known good in the world; for after the public attention has been aroused, such appeals are of doubtful utility and do not direct the public to the specific course that the people should take, or have their legislators take, in order to promote the cause of conservation. The rousing of emotions on a subject like this, which has only dim outlines in the minds of the people affected, after a while ceases to be useful, and the whole movement will, if promoted on these lines, die for want of practical direction and of demonstration to the people that practical reforms are intended. * * * I beg of you, therefore, in your deliberations and in your informal discussions, when men come forward to suggest evils that the promotion of conservation is to remedy that you invite them to point out the specific evils and the specific remedies; that you invite them to come down to details in order that their discussions may flow into channels that shall be useful rather than into periods that shall be eloquent and entertaining without shedding real light on the subject. The people should be shown exactly what is needed in order that they make their representatives in Congress and the State Legislatures do their intelligent bidding."

It would seem well for us here to take account of stock of what has been done, of the agencies that have been utilized and of those that have been neglected, as well as to exchange views as to what we think that others, or the interests we individually represent, should do.

I have the honor of representing Pennsylvania as a state, and the Lehigh University as an educational organization deeply interested in the promotion of the cause of forestry and of conservation in general. We have an efficient and active forestry association. Pennsylvania, as we all know, has been, and is, famed for her deposits of iron and coal, and for her pre-eminence in the iron and steel industries. The resources in these directions are so great that it would be wearying to attempt even to inflict on you a summary of them in these short talks, but what the state has learned in conservation of mineral resources is of direct and pregnant interest. Forty years ago the movement for stopping the waste in coal was begun at the organization at Wilkes-Barre, Pennsylvania, in 1871, of the American Institute of Mining Engineers, an institution whose membership now runs into the thousands and whose influence for good is world-wide. As a young engineer I had the privilege of attending that meeting. Among the things done a committee was appointed to study the question of waste in the mining, preparation and transportation of coal. This committee was followed by, and, in fact, incited the appointment by the Pennsylvania Legislature of a coal waste commission, which made a valuable and exhaustive report, and we thus see that in one phase of conservation, and a very important one, that of mining, our engineers have been doing their duty, and that forty years

ago work in conservation was being done to which the public is only just awakening. Our government officials are doing most intelligent and good work in pointing out the way.

Perhaps one of the best summaries of this great conservation question now before our people, and in which the engineering profession is so interested, and in regard to which our mining profession has so great a duty to perform, was given by Dr. C. W. Hayes, Chief Geologist of the United States Geological Survey, in an address some time ago at the University of Chicago, when he defined conservation as "Utilization with a maximum efficiency and a minimum waste," and said:

The reform that is needed throughout the country as a whole must gain its motive power not from sporadic instances where true business methods prevail, or from the well-intentioned enthusiasm of the few, but from the well-informed intelligence of the many. The campaign for conservation must be one of education.

There appears to be an unfortunate confusion in the minds of certain advocates of conservation. They have apparently confused conservation of natural resources with destruction of the trusts, and the mixture has resulted in pure demagoguery. * * * Anyone who has studied conditions attending the development of mineral deposits must have been impressed by the fact that those deposits held by large companies are being developed and utilized with a view to prevention of waste, in accordance with the principles of conservation, to a much greater extent than are the deposits held by small companies or by individuals.

I was much struck, as I think we all were yesterday, by the statement of our President followed by that of the chairman of the executive committee, that at this Congress we were to discuss conservation without any infusion of politics, and I take it that we use the word "politics" in its broadest sense, and are to see how we can best use capital and labor, and intelligently directed industry, all to the common end of the promotion of conservation; and that we can and will recognize what I have quoted above from the Chief Geologist of the United States Geological Survey in regard to the proper recognition and utilization of capital in conservation as highly important.

In the report of the National Conservation Commission, made through President Roosevelt to Congress in January, 1909, Mr. J. A. Holmes (now director of the United States Bureau of Mines), in reporting on our mineral resources, said:

In considering the conservation of resources, it should be held in mind that:

- (1) The present generation has the power and the right to use efficiently so much of these resources as it needs.
- (2) The Nation's needs will not be curtailed; these needs will increase with the extent and diversity of its industries, and more rapidly than its population.
- (3) The men of this generation will not mine, extract, or use, these resources in such manner as to entail continuous financial loss to themselves in order that something be left for the future. There will be no mineral industry without profits.

In his message to Congress, 1910, President Taft, speaking of the anti-trust law, said:

It was not to interfere with a great volume of capital which, concentrated under one organization, reduced the cost of production, and made its profit thereby, and took no advantage of its size by methods akin to duress to stifle competition with it. I wish to make this distinction as emphatic as possible, because I conceive that nothing could happen more destructive to the prosperity of this country than the loss of that great economy in production which has been and will be effected in all manufacturing lines by the employment of large capital under one management. I

do not mean to say that there is not a limit beyond which the economy of management by the enlargement of plant ceases; and where this happens and combination continues beyond this point the very fact shows intent to monopolize and not to economize.

Let us consider these questions as business men, weighing the good as well as the evil that the different powers can afford that bear on conservation, and utilizing and encouraging all that will promote the great ends which the conservation movement was started to serve.

President WALLACE—It was expected that the National Grange would be represented on this platform. Neither the president nor the gentleman whom he recommended could come. I have therefore taken the privilege of appointing Mr. B. G. Holden of Iowa, who will give us an address this morning, not on the Grange itself, but on the Grange and other movements that tend to the uplift that we stand for. We will now hear Mr. Holden, who is the evangel of the corn gospel in all these inner states. We will hear him for half an hour.

Mr. HOLDEN—Mr. Chairman, Ladies and Gentlemen, Members of this Congress: You came here to listen to the great people of this country, and you are anxious to hear them, so I will take just as little time as possible, for I have already been warned by the president that I must be brief. I have laid my paper upon the table, and I am going to forget all I can and say the rest to you. I am going to be something like the Irishman who was painting a fence. He was working as hard as he could putting on the paint. A neighbor Irishman came along down the street and said, "Pat, what are you hurrying so for?" Pat kept right on putting on the paint. And he said, "Begorra, I am trying to get my job done before my paint runs out." I am trying to get through before my paint runs out this morning.

SOCIAL LIFE ON THE FARM.

To conserve humanity—to make humanity worth more to itself; to direct human forces so that each person wastes the least possible energy, and accomplishes the greatest good for himself and for others—this is the most vital problem before our country today.

No nation can long remain great whose rural people are oppressed, or for any reason have degenerated.

It was Goldsmith who said:

Ill fares the land to hastening ills a prey,
Where wealth accumulates and men decay;
A bold peasantry, their country's pride,
When once destroyed can never be supplied.

It is not that country life on the farm is bad in the United States, for it is not, but it can be greatly improved, and in my opinion it is the greatest question before the Nation today. I am sure that when history is finally written it will place foremost among the many good things that President Roosevelt did, the inaugurating of the Country Life Movement. Three things are necessary: First, and most essential, is an

awakened and serious interest on the part of the rural people themselves; second, there must be encouragement by both the nation and the states in the way of better laws and financial aid; third, there must be leadership—men and women who are willing to devote their lives to this great work.

Just how is this work of bettering country life to be worked out? In my opinion it must be done largely by the following agencies now in existence:

First. The church, and allied organizations, such as Y. M. C. A., Boy Scouts, etc. Second. The schools, libraries and county superintendents. Third. The Grange, farmers' clubs, and other organizations of the kind which have for their main object the betterment of farm life educationally and socially.

THE GRANGE AND THE FARMERS' CLUB.

The president has asked me to put particular emphasis on the Grange and farmers' clubs as factors in the improvement of the social life of the farm. It is my opinion that one of the most important steps in this great forward movement, especially in the corn belt, is the organization of granges and farmers' clubs in every community. There is need of a tremendous awakening to the importance of organization as a means of agricultural advancement. The effect of these organizations on the community is most remarkable. Men and women in such communities grow up with strong attachments not only for the business of farming and home making, but for the people of the community in which they live. They remain on the farm instead of moving into town or out of the state. But these organizations do more than this. They furnish exactly the social and educational advantages so much needed by the rural communities. They enable young men and women to discover themselves and their powers of usefulness to humanity.

Michigan has nearly nine hundred such organizations, most of them granges, with a membership of 70,000. In each of the forty agricultural counties there is an average of twenty-five live, active organizations. New York granges have a total membership of 90,000. Quebec has nearly six hundred clubs with more than 55,000 members. In strong contrast to this, the corn belt, peculiarly and above all else agricultural, has but a few dozen such organizations scattered throughout the entire area.

President Roosevelt, in his address at the Michigan Agricultural College, said:

Farmers must learn the vital need of coöperation with one another. It is only through such combination that American farmers can develop to the full their economic and social power. Combination of this kind has in Denmark, for instance, resulted in bringing the people back to the land, and has enabled the Danish peasant to compete, in extraordinary fashion, not only at home but in foreign countries, with all rivals.

Few people in the West realize what a tremendous influence the grange and agricultural clubs of the eastern and middle states have ex-

exercised on national legislation directly affecting the agricultural and social conditions of farmers. As an illustration, attention is called to the following laws which either had their origin in the granges and clubs or were enacted largely through their initiative: The Department of Agriculture; the position of Secretary of Agriculture in the cabinet was created; the state experiment stations established; free rural mail delivery provided for; the Grout Pure Food Bill, the Sherman anti-trust regulations, the Interstate Commerce Act, the Denatured Alcohol Bill and the Postal Savings Bank Bills all now enacted into laws.

These organizations through their lecturers, legislative and promotional committees are exerting a tremendous influence in moulding public opinion and crystallizing it into definite form for new laws.

These associations are now urging the election of United States senators by popular vote, national aid for establishing agricultural high schools and the introduction of agricultural and domestic science into the rural schools; the establishment of the parcels post, postal telegraph and telephone service; and national and state aid for highway improvement.

While these influences have been great beyond calculation, yet by far the greatest effect has been in the betterment of the social and intellectual conditions in the home and in the community.

Mr. G. A. Gigault, the Minister of Agriculture, Province of Quebec, in a letter to the writer makes the following statement:

The Province has today 591 farmers' clubs. Among the members of these associations are to be found the persons the most devoted to and interested in the development of our agricultural resources. Most of the agricultural improvements of such locality are due to the initiative of the officers and members of the clubs. In every new locality where farmers' clubs have been organized, a butter or cheese factory has been erected and other improvements have been made. This organization causes progressive ideas to pervade everywhere, as well as contributing towards the betterment of agricultural methods.

The movement will undoubtedly assume widely different forms in different communities, ranging from local institutes, men's clubs, women's study clubs and reading circles on the one hand, to agricultural clubs and granges on the other. It is to be hoped that this latter form of organization (granges and clubs) will predominate, for it is only when the entire home is represented that we find the highest standards and the greatest progress in the community.

THE PLAN OF RURAL CLUBS.

The plan of operation with which I am most familiar is as follows: The membership is made up of twelve to fifteen families. The meetings are generally held every two weeks in the homes of the various members of the organization or in halls built for this purpose. During the winter months the meetings are held during the day, the program beginning about 10 A. M. At 12:30 tables of planks or boards are prepared on which the lunch is spread. Every family brings a basket of provisions. The family in whose home the meeting is held is not allowed under any circumstances to prepare a dinner, excepting to pos-

sibly furnish some coffee, popcorn, etc., as this would be a serious burden. When the picnic lunch is over, some of the little tots are boosted up on a box or chair, or on the table, to speak a piece or sing a song; thus every member of the family has a part in the meeting.

These organizations are nerve centers of progress. They develop, they educate, they push their members out of the old into the new and better ways. They set their members, young and old alike, to studying their business. This means interest in the daily work, a love for the farm life and the home life. This means a useful and happy life. It means intelligence. It means freedom from drudgery, for drudgery is "labor without thought."

This meeting together, talking together, working together, and acting together for mutual protection and improvement brings us nearer to the great law of "loving our neighbors as ourselves." To know that others are depending upon us, have faith in us, love us, and hope for us, is a tower of strength, of courage and of happiness.

It is not my purpose to criticise our school system. However, our rural schools can and must be improved and redirected. They do not meet rural needs. They do not interest the boy and girl in the things of the farm and home. Frequently the teachers are town girls without farm experience or sympathy. The farm children must either go without high school training or get it in the town or city. Our present system educates away from the business of agriculture instead of towards it.

THE PRACTICAL SIDE OF THINGS.

The following axioms will aid us in a clearer understanding of the failures of the present system and the remedies:

1. Education is that which trains or fits for the duties of life. To illustrate, let me ask what are to be the duties of our girls? Ninety-nine per cent of them must make homes, cook, sew, scrub and nurse. How much are our rural schools doing to equip our girls for this greatest of all duties, home making?

2. The whole boy should be trained, not simply his head.

3. We should teach in terms of the child's life and surroundings—things that concern him and his home. He will then be interested and will like his work, will put the best he has into his work. But instead of teaching in terms of the boy's lifework, our schools teach in terms of brick pavement, bank notes, yards of cloth, foreign exchange, partial payments, etc., etc.

4. Boys and girls should be taught to think in terms of action, of accomplishment. There is a more or less well founded prejudice that our high school and college graduates are impractical and theoretical. They have not been dealing with the real problems of life. At any rate, few of these graduates return to the farm. The agricultural colleges

are helping some through their short course schools, farmers' institutes, literature sent out, etc., but it is a mere drop in the bucket. What we really need is a system of schools suited to rural conditions. We must pay better prices for teachers. This will be done gladly when the school sends back each night to the home boys and girls better fitted for their work and interested in it. Teachers must be especially trained for the rural schools. They must live in the community and be a part of it, helping Saturdays and Sundays to guide, direct and stimulate. Not only this, but the farm boys and girls must get their high school work under agriculture and not city conditions and surroundings. In other words, we must have rural high schools within the reach of every boy and girl on the farm. These schools should become the social and educational center of the rural community.

It is true that the rural church has exercised great influence upon the people of the country socially and morally, helping to create and maintain good standards of life, but it has not kept pace with progress in other lines. It does not measure up to its great opportunity. There must be put into it not only more vitality and life, but there must be a new and broader attitude towards life. The rural church must be as broad as the rural community in which it exists, interesting itself in every question which concerns the life of the people.

THE MINISTER'S DUTY.

The minister, like the teacher, must teach in terms of the life work of the people. The minister should be interested in agriculture, not only *interested* in agriculture, but should really know something about it as well as other questions which concern the community. The minister of the future will be required to take a course in agriculture along with his theological work. He must, like the teacher, be specially trained for his rural work. The field and opportunity of the rural minister is as broad as humanity itself. The minister should help the teacher in her work. He should help organize granges and farmers' clubs and be an active member. He should help with their short courses and farmers' institutes. He should help with the county Y. M. C. A. work and the Boy Scouts' work.

Think of the service a minister can render a rural community, by organizing and directing the amusements and sports of the neighborhood. If he could not direct them in person he could help the boys select a capable, wholesome leader. He could develop or work out in time a plan by which, during a part of the year at least, the boys would be given one-half day every two weeks for baseball and other sports.

As it now is the country boys have no intelligent leadership. While the pastor is preaching a sermon to a small audience in the church the boys have joined the little clique and are taking their first lessons in card playing, smoking, etc.

The pastor must be a leader or he will accomplish but little. One

of the things he should do is to clean up around the church, mow the weeds, repair the fence, set out shade trees and put some pictures on the walls of the church. The pastor should live in the community and become a part of it in every way.

What we need is a rural society that belongs distinctly to the country. Its schools, its churches, its clubs and its amusements must be so directed and organized as to meet the real needs of the people who live in the country.

Many illustrations can be given of the splendid work now being done in various localities and sections of the United States. I wish I might tell you of the work which some of our ministers and their country churches are doing. Men like Rev. M. B. McNutt of Plainfield, Ill., Rev. Clair S. Adams of Bement, Ill., Rev. C. S. Lyles of Logan, Iowa, and many others.

It is remarkable what some of our county superintendents like Miss Jessie Field of Page County, Iowa, have done and are doing through the schools for better agriculture, better homes and better citizenship. There are the rural high schools such as the one at Albert Lea, Minn. How I wish I could tell you of the county Y. M. C. A. work which Mr. Fred Hansen of Iowa is doing with the boys; how he has organized them into clubs and is directing not only their religious work, but also their amusements and sports, and even has them studying corn, stock and other agricultural subjects.

The Country Life Commission has done a great work, but the movement has only begun. We must have more state "Country Life Commissions." There must be national and state aid so that the commissions can bring to the people the knowledge of what has been accomplished in the various localities throughout the country.

President WALLACE—Be patient a moment, and please come to order. We have two splendid speeches to be delivered this morning and I am very sorry to announce that Mr. Barrett of the Farmers' Union, who intended to be here, cannot be here on account of sickness in his family. We will hear a gentleman for five minutes who is about to leave for Europe and must speak now or not at all.

Recording Secretary GIPE—I would like to announce that Mr. R. A. Long will speak as the representative of the wholesale lumber dealers and yellow pine manufacturers.

Mr. LONG—I understand that Mr. Wallace said that I expected to leave for Europe. I am not going to Europe and have no thought of going to Europe. Permit me to suggest this: it is rather an imposition upon you and embarrassing to me to be called on so short a notice to speak in the midst of men who have carefully prepared papers, and yet I want to suggest to you some thoughts that occurred to me, that were put into my mind by the last speaker. We are having many im-

portant problems before us at this time. The problems before this Congress are certainly most important and have to do with the people of today and of the future. We are to have in this city within a few weeks another convention not pertaining to the conservation of the soil or water, or the forest, but to a conservation that has to do with men, and I am wondering whether or not this audience is going to place more stress upon the problems that are involved in this Congress, or the problems that are involved in the one to be held a few weeks hence. That problem has to do with men and religion, and in my judgment no problem on the face of the earth will have more to do with the conservation of all the problems of life, this man and religion forward movement, and I trust that the men and women— (applause) I only have five minutes, don't disturb me—and I trust that the men and women involved in these problems will see to it that these teams which commence the first of October and continue throughout the winter until May of next year are supported with their means and with their presence. The gentleman who just took his seat stated that he would like to preach a sermon on what the preacher ought to do with reference to the child life. I would like to have each of you assembled here this morning ask yourself the question, and answer it if you please, what are you doing in your own home. What are you doing, what is the example that you are setting your children? Sunday morning I imagine the large majority of you, instead of going to the Sunday School and setting an example to your children in order that they may follow out the life this gentlemen speaks of that you ought to live, are remaining at home and reading your newspapers. Bear in mind, my dear friends, fathers and mothers, the school teacher or preacher cannot do that which you ought to do for yourselves. And I want to speak this word on behalf the preachers of our land: when they stand up in the pulpit, when they beseech us to do the things we ought to do, and then we fail to rally to their support, ought we to censure them? Ought we rather not engage with him arm in arm in this great conflict, that has to do with the elevation of mankind, rather than stand aloof and say we want to preach to the preachers? I want you to ask yourselves that question, whether or not you stand arm in arm with your preachers, and carry on that conflict that has to do with the uplift of mankind all over the world. How much time have I got? I cannot take the time to talk about the other problems which I had in mind, connected with the timber interests of this country. But I want to say this to you, that the forests of this country ought to be taken care of better than they are. The reason why the forests are not being conserved better than they are is because of the extremely low price of lumber compelling us who manufacture lumber to leave twenty per cent of the trees in the woods because we cannot get price enough out of it to pay for the labor to produce it, and the transportation, to say nothing about the logs. And so long as we have intense legislation, leading almost to persecution

against the interests, even getting together and talking over the problems pertaining to their industry, so long will the price of lumber be so low as to prevent us from bringing in at least twenty per cent of these trees, thereby prolonging our forests to an almost indefinite period.

President WALLACE—We will now have an address by the Hon. W. A. Beard of Sacramento, California. I have asked him to prepare an address on the subject of "Coöperation," one of the most important subjects that can secure our attention. He will speak a half hour and no more.

Mr. BEARD—Coöperation, as your chairman has said, is a very hard term. It is so hard that I have found it difficult to determine the particular phase of the subject which should be presented for your consideration. I believe I was expected to talk on coöperation among farmers, but upon careful consideration I was impressed with the fact that coöperation among farmers is fundamentally the same thing as among persons engaged in any other pursuit.

It has seemed to me that what should come out of this Congress is not an exhortation, addressed either to farmers or to any other class of citizens, but a careful and complete statement of the facts—a review of the progress made in coöperative development and a discussion of the principles underlying successful coöperation. I shall speak, therefore, of this movement.

I refer, of course, to coöperation in business. By this term, I mean the growth of coöperative societies in which individuals are associated for mutual benefits and mutual profit. The ideal society is one in which the benefits and profits are distributed equitably among the members in proportion to their respective interests.

Coöperation is little understood by the great majority of our citizens; the full measure of its possibilities is comprehended by comparatively few. Because there have been many and conspicuous failures, and because abuses have marked the administration of some so-called coöperative societies, the average citizen is disposed to regard coöperation as an impractical dream, and in consequence, the really excellent progress is being made in the face of distrust that should be removed.

A knowledge of the facts will dispel this impression. Coöperation is a demonstrated success. The movement is a world movement. Coöperative societies are doing business successfully in every civilized country on earth. In this country they are doing business in almost every state. Everywhere the coöperative society, properly conducted, contributes to the material welfare of its members; in most places it is an important factor in social and moral advancement.

The modern coöperative movement commenced less than a century ago and began to assume importance about 1840. The earliest beginnings of coöperative business enterprises as we know them were the establish-

ment of a little store at Rochdale, England, in 1844, and the founding of a coöperative credit society in Germany in 1849. The pioneer in agricultural coöperation was the rural credit society of Germany, the first of which was organized in 1862.

I mention these dates because they were the starting points from which has grown, in the comparatively brief period of sixty-five years, a vast web of coöperative enterprises encircling the earth.

SMALL BEGINNINGS LEAD TO LARGE SUCCESSES.

Each of the movements began in the smallest way. The German credit societies, both rural and urban, were founded for the purpose of providing credit to men who had no security to offer beyond their collective honesty, industry and business ability. The purpose was to help the very poor, and the success attained is attested by the comparative prosperity of German artisans and farmers, and by the present vast extent of the coöperative banking system. The Rochdale society was organized by ten poor weavers with a cash capital of twenty-eight pounds sterling, and from it has grown the great system of coöperative distribution of Great Britain.

THE COÖPERATIVE BANKS OF EUROPE.

The coöperative credit society, or bank, is the most common form of coöperation on the continent of Europe. Following the success of the system in Germany, it has been introduced, in varying forms and with varying degrees of success, in nearly all of the countries of continental Europe, rural banks usually preponderating in numbers and in importace. There are coöperative rural banks in Italy, France, Russia, Switzerland, Belgium, Holland, Austria and the Balkan states, also in Ireland, India and Japan. They have been introduced into Canada, and one such bank has recently been established in the United States.

Mr. Henry W. Wolff, in "People's Banks," says, "The year 1849 saw opened two vastly different roads to wealth—the California gold fields and the principles of coöperative banking."

The advantages of the coöperative bank lie in the fact that it is operated in the interest of the borrowers and its sole purpose is to provide cheap credit. The members are the managers, the borrowers and the recipients of the profits.

It is estimated by competent authority that there are forty thousand of these banks in existence, with a total of more than three million members and assets worth more than a billion dollars.

In Germany more than one-half of the independent agriculturists are members of these banks.

Altogether there are 24,000 coöperative agricultural societies in Germany, of which about eighty per cent are federated in one great organization, and all of which are closely associated with the rural coöperative banks to which they owe their origin.

THE ROCHDALE SOCIETY OF ENGLAND.

The society formed at Rochdale, England, was wholly different from the credit organizations of Germany, which it preceded. Its purpose was not to provide credit, but to furnish the necessaries of life at low cost. Unlike the German societies, which were started by philanthropists for the benefit of the poor, the Rochdale society was started by the poor themselves. The mite of capital employed at the outset was secured by saving of two pence weekly from a starvation wage. Even this small saving meant sacrifice to the Rochdale pioneers, but it paid, for out of it has grown a great system that provides the British workman of today with all he requires at wholesale and manufacturer's prices.

LARGEST BUSINESS IN THE WORLD.

The Coöperative Wholesale Societies Limited, of London, England, is said to be the largest business concern in the world. In 1908 it did a business of 570 million dollars. It is the central federation of the coöperative retail associations, one of which is in almost every village and town in England. It is a producer, manufacturer and shipper, as well as merchant. It owns plantations in various parts of the world; it sails its own ships; its chain of purchasing depots encircles the globe; it manufactures almost every article of household use and supplies the wants of more than eight million people. It is purely coöperative, all of its profits being distributed among the consumers in proportion to their purchases.

We of America pride ourselves on the giant enterprises on this side of the Atlantic. Even while we condemn the systems which have made them possible, we marvel at the genius of the captains of industry and finance who have built them. Yet here is a concern, said to do a business four times greater than the Steel Trust, which is without a captain of industry, a great financier or a merchant prince. It is a product of a system, one of the best features of which is that it does not concentrate great wealth in the hands of a few.

WHERE COÖPERATION IS A NATIONAL TRAIT.

Agricultural coöperation finds its most complete development in Denmark. Almost every Danish farmer is a member of one or more coöperative societies. Coöperation is almost a national trait. So general is the use of coöperative methods in Denmark that some one has said when a Dane wishes to buy or sell anything his first impulse is to form a society to do it.

Yet coöperation is of comparatively recent growth in Denmark. There have been coöperative stores since 1866, but it was not until 1881 that the first coöperative dairy was established, while bacon curing and egg societies date from 1887 and 1895, respectively.

There are more than a thousand coöperative dairies in Denmark; there are five hundred egg societies, and numerous other coöperative producing and selling price associations. Eighty-three per cent of the cows milked in 1909 were in coöperative dairies; 66 per cent of the bacon was cured in coöperative factories.

The coöperative societies are thoroughly organized into federations, and the whole business of production and sale is systematized. The federations exercise the closest supervision over production. High standards of excellence are required and long lists of rules are rigidly enforced. A bad egg is occasion for a fine in a Danish egg society—and there are no bad eggs in Denmark.

In the twenty-five years from 1881 to 1906, Danish exports increased from \$11,840,000 to \$77,800,000. Behind these figures is a story of a nation's progress from poverty to prosperity, a progress in which coöperation has been the principal and dominating factor.

THE COÖPERATIVE PRINCIPLE AMPLY DEMONSTRATED.

To tell, even in merest outline, of the successful coöperative movements of Europe would require more time than is at my disposal. I have cited these because they are the most conspicuous and far-reaching, and because they afford three wholly separate and distinct and entirely different demonstrations of the correctness of the coöperative principle. Coöperation in Europe has been in most cases the resort of dire necessity. It does not follow, however, that coöperation can be successful only under circumstances of poverty and want. If it will raise men from poverty to a competence, it will add to the prosperity of the already prosperous.

RISE OF COÖPERATION IN AMERICA.

The coöperative movement in this country began to assume importance about 1850. Prior to this time there had been many associations for the advancement of various interests, but these were, as a rule, educational in purpose. Real progress in business coöperation began after the close of the Civil War, and may best be described as a series of great movements in which the farmers were usually the principal actors. These culminated in the Grange movement of the early seventies in which millions of farmers, united in a great national society, undertook to revolutionize the existing economic system by taking over to themselves the functions of middleman, merchant, baker and manufacturer, and to form a great agricultural trust that would dictate the price of farm products and combat growing railroad and other monopolies.

THE GREATEST REVOLT IN HISTORY.

This was probably the greatest revolt of farmers in the history of the world. It is simply astounding to read of the enterprises, colossal

in the aggregate, that were launched. Millions were invested in banks, stores, warehouses, implement and other factories, railroads and selling agencies, nearly all of which collapsed within a few years leaving only experience and deficits behind. Of those that survived, the greater part soon adopted the methods, aims and purposes of ordinary corporations. Here and there, however, a coöperative enterprise continued to live, and some of these are doing business to this day.

Following the Grange movement came a number of state, interstate and national organizations, which grew steadily more political in their aims until they culminated in the Farmers' Alliance and People's Party. The adoption of the main planks of these by then older political organizations marked the close of an epoch in agricultural agitation and opened the way for a more strictly economic development of the coöperative idea.

THE FIRST GUN IN A GREAT FIGHT.

While the great movements of the twenty-year period between 1870 and 1890 did not accomplish all that was expected of them, they did accomplish much. They were the pioneers in organized opposition to the growth of monopoly in this country. The organization of the Grange was the firing of the first big gun in the fight against special privilege, a fight which will go on until equal privilege prevails.

The Grange has never ceased to be an active factor in agricultural affairs. It has been a principal agent in the development of agricultural education and in the improvement of agricultural practice, a strong local force in country life, and a constant factor in the later growth of coöperative endeavor.

PROGRESS OF PAST TWENTY YEARS.

Since the period of great organizations, the coöperative movement has attracted less attention, but has accomplished more in the world of business. The results are manifested principally in three classes of coöperative enterprise, stores, marketing associations, building and loan associations. Other forms of these societies that are making progress include industrial plants, supply societies and insurance associations. The coöperative credit society that has attained such proportions in Europe is practically unknown here, but there seems to be an excellent field for it, especially in the South.

In all branches of coöperative activity in this country there is a lamentable lack of coördination. The stores are as a rule isolated from each other or associated in small groups, and they lose the advantage gained by the British societies from the concentration of their wholesale business. The marketing associations are for the most part separate, although there has been some movement toward federation in certain lines.

MOVING ALONG RIGHT LINES.

While federation would, in most cases, work to mutual advantage if well managed, the fact that such federations are rare does not argue against the associations or the movement of which they are a part. On the contrary, it is to the advantage of the coöperative movement that it is developing for the most part in small units, each of which must learn to stand on its own bottom. Federation, with its great advantages, will come when coöperation in this country is ripe for it.

According to a recent bulletin of the International Institute of Agriculture, this country leads all others in coöperative marketing. Coöperative dairies exist in every state where dairying is an important industry; there are six hundred in Minnesota, three hundred in Wisconsin. There are about sixteen hundred warehouses in the grain belt. There are marketing associations in almost every important fruit district. There are insurance societies in many states, coöperative associations for handling cotton and tobacco. Coöperative irrigation has proven so successful in the West that Uncle Sam is building irrigation systems to be operated coöperatively and private capital is doing likewise, some of the largest private projects selling the water system with the land with coöperative ownership and operation by the farmers as the ultimate aim.

The largest and most comprehensive farmers' society is the Farmers Educational and Coöperative Union, a national organization which follows more nearly than any other now in active existence the early idea of development by propaganda. It has branches in twenty-five states and a total membership of about 3,000,000 persons. It is especially strong in the South, where it operates 2,000 cotton warehouses and 6,000 cotton gins. In other sections it owns and operates large numbers of grain warehouses, also fruit handling and marketing agencies, coal mines, fertilizer factories and numerous other enterprises.

THE CALIFORNIA FRUIT GROWERS' EXCHANGE.

We have in California what is probably the largest and most successful coöperative association of producers engaged in marketing a single line of production. This is the California Fruit Growers' Exchange. It maintains what is said to be the most efficient selling organization in the world, having agents in all of the principal cities and many of the smaller points of the United States, also at important centers in Europe. It handles now about 75 per cent of the orange and lemon crop of California and returns to its members, after deducting all expenses, more than \$20,000,000 a year. It has been in business several years and is a demonstrated success in every particular. It has standardized the fruit pack of the state, reducing packing and marketing costs and increased selling values to the growers, and freed the citrus fruit growers from the exactions of the fruit marketing companies.

The exchange is purely coöperative. It is organized under the

corporation laws of California with a capital stock of \$10,000, but no dividends are paid on this stock and no assessments levied. Money for operating expenses is secured by levying an assessment on the growers at the beginning of the season in proportion to the estimated crop of each. When the crop is sold the proceeds, less the expenses actually incurred and paid, are paid to the growers.

The organization consists of a central exchange, which is the marketing concern, sixteen district exchanges and 104 local associations. The locals elect the directors of the district exchanges, which in turn elect the directors of the central body. The fruit is gathered and packed by the local associations, which are independent units and usually own their packing houses. It is shipped through the district exchange. The routing and sale is in the hands of the central exchange.

It is worthy of especial note that the California Fruit Growers' Exchange has succeeded by the merit of its business methods. It does not now and it never has had a monopoly of the California crop. It began with less than a third of the crop, and for some years handled less than half of it. It now ships about 75 per cent of the oranges and lemons grown in the state.

It should also be stated in this connection that there are a large number of men in the business of growing fruit in California, who have had extensive business experience before becoming tillers of the soil. They were not afraid to unite, not afraid to adopt modern business methods, not afraid to pay large salaries for the skill necessary to succeed. I understand that the manager's salary is upward of \$10,000 a year.

Viewed in the large, the coöperative movement in America is making rapid strides. It is handicapped by lack of knowledge of coöperative methods, and by lack of adequate laws governing the organization and conduct of societies.

The most crying need is a more widespread knowledge among coöperators themselves of the true principles of coöperation. There are hundreds of so-called societies in which coöperation is by the many for the benefit of the few. In some instances they are actually controlled by the concerns which buy their products; in many more an excessive profit is secured by a small coterie, usually in the form of dividends on stock.

Stock dividends are the rock on which many promising coöperative efforts come to grief. It has been customary in many states to organize under the corporation laws, the members taking stock. Where no restrictions are placed upon the number of shares which one person may hold, or upon the dividends that may be paid, the tendency is for the stock to concentrate in a few hands, when dividends on stock are likely to be more sought than profits for members. I know of instances where so-called coöperative enterprises have paid as high as thirty per cent per annum in dividends to a small ring of stockholders.

A CALL FOR CONSTRUCTIVE STATESMANSHIP.

Where special statutes are enacted providing for the formation of coöperative societies, there is often a lack of wise restrictions in the interests of the average member. The laws are sometimes excellent in what they permit coöperators to do but inadequate in what they require them to do. The enactment of laws adequately fostering coöperative enterprises and safeguarding the interests of the coöperators calls for the best constructive statesmanship of the Nation.

Among the provisions that should be inserted in every state law authorizing the formation of coöperative associations are the following:

That no person shall hold more than a stated number of shares of a stated aggregate value.

That dividends on stock shall be limited to a fair interest return.

That all profits, in excess of interest on capital and such reserve as is deemed necessary, shall be distributed equitably among members in accordance with business done or work performed.

That an annual report be made to the Secretary of State showing the nominal and paid-up capital, the assets and liabilities, the dividends paid on stock, the profits and how they are distributed.

That the word "coöperative" shall be made a part of the name of any concern licensed to do business under the provisions of this act.

That all concerns doing business in the state at time of this enactment which use the word "coöperative" in their titles shall be required to reorganize under this act or change their name.

A great stride forward will have been made when in every state of the Union there are laws requiring the equitable distribution of the profits of coöperative endeavor, control of societies by members, publicity of all important acts, and confining the use of the word "Coöperative" to concerns that meet these requirements.

Good laws alone will not solve the problem. Some associations are eminently successful under the ordinary corporation laws, some will fail under any legal system that can be devised. The successful conduct of a coöperative society requires intelligence, business capacity and honesty. I know of no plan of coöperation that is "fool proof" nor do I know of any legal safeguards that will render it safe from those whose methods are of the dark lantern and the jimmy.

WHAT A COÖPERATIVE SOCIETY IS NOT.

The coöperative society in its best sense is not a revolt against oppression or unjust exactions. It is a business system. Its purpose is the promotion of the three big "Es": economy, efficiency and elimination of waste.

Coöperation is not a cure-all; it will not solve every problem; it will not solve any problem unless it is handled properly and wisely.

Successful coöperation does not mean monopoly. Few attempts by coöperators to monopolize their product have been successful; I know of none that have been successful for an extended period.

Coöperation is not communism. It does not mean collective ownership of property, but collective activity by individual owners of property.

A coöperative society resembles a corporation in that the capital and services of a number of persons are united for the purpose of carrying on a business. It differs from the corporation in two very important particulars as follows: First, the recruit in a coöperative enterprise is the man and not the dollar; second, the purpose of the coöperative society is not to build a profitable business, but to add to the profit of the individual businesses of its members.

CAUSES OF FAILURE.

Failures in coöperative enterprises have usually been due to too much confidence and too little actual knowledge of the business undertaken. Men engaged in production have undertaken the business of distribution on a large scale without any previous knowledge of distributive methods. In many cases coöperators have expected too much and have been dissatisfied with moderate returns; in others there have been no returns because the business was neither well conceived nor well conducted. In many instances success at the outset has led to unwarranted expansion that spelled disaster. Personal likes and dislikes and petty jealousies have led to disruption; a good manager has been discharged to make room for a favorite of a dominant faction, or a poor manager has been retained because the membership did not know he was a failure. There is a strong tendency among coöperators to resent high salaries, and low grade managers are often the result. Members are frequently disloyal and weaken the society by doing a portion or all of their business with its rivals. Members of marketing associations frequently coöperate as some men pray—only in times of impending disaster.

A coöperative enterprise, to be successful, must be one for which there is a place and an opportunity. Sound business judgment must characterize its management. There must be a responsible head and a definite policy. The manager must be capable and experienced and the one test of his work must be the results he is able to show. There must be a system of accounting that will show these results in detail. Dependence for success must be upon the merits of the methods employed, never upon the mere right of coöperators to do their own business in their own way. Most important of all, the membership must be intelligent and willing, on occasion, to suffer temporary loss for the greater gain to be secured by loyalty to the concern. It must be borne in mind that a coöperative enterprise in entering a competitive field has got to compete, and its strength lies in the loyalty of its membership.

SHOULD BE TAUGHT IN THE SCHOOLS.

The American people need to be educated regarding the principle and practice of coöperation. It should be taught in the schools, espec-

ially in the agricultural schools, as it is now in some of the agricultural schools of Europe. There should be state and national conventions for the discussion of coöperative principles and methods. There should be organizations of coöperators for the consideration of mutual problems and mutual interests. Every great library contains the history of all of the coöperative movements down to the present time, and the experience of the world is available to those who will use it.

What Americans most need is the coöperative point of view. We are accustomed to extravagance and speculation, but the time is at hand when we must practice the virtues of economy. We have been a nation of individualists, each sufficient unto himself; we must learn to unite with our fellows and consider their welfare as a part of our own.

Do we need coöperation? Consider the wide margin between the price on the farm and at the kitchen door! Consider the difference in cost between the boot at the factory and on your foot! Consider the enormous wastes and duplications of our system of distribution! Consider the fortunes that have been amassed by the concentration of profits that would have been widely diffused under coöperation!

We complain of the concentration of capital in the hands of a few; here is a system of business that will keep the profits of the people's business in the people's pockets where they belong.

We are concerned about the resources of Alaska lest they pass into the control of trusts and syndicates and serve to enrich a few at the expense of the many, as well we may be; but here is a wealth more vast, a tangible, visible, present wealth, many times greater than that of all the mines and forests of the Territory of Alaska, that is slipping through our fingers day by day and accumulating in the coffers of those who already have too much. The American citizen everywhere is paying a tribute from which there is but one avenue of escape—the adoption of coöperative methods of doing business.

During the reading of Mr. Beard's paper Mr. J. B. White assumed the Chair.

Chairman WHITE—Mr. B. A. Fowler, chairman of the resolution committee, desires to make an announcement.

Mr. FOWLER—Members of the resolutions committee having been selected, the first meeting of the committee will now be held, and I invite the members selected for that committee to meet in the room back of the platform. This meeting will be for the organization of the committee, and I suggest to the chairman that if nothing has been said on that particular point, this is a working committee, and you get results. Those of you who have resolutions to present should present them at the earliest possible moment. I will leave to you the lateness of the hour when they may be presented, but it would seem as if they all ought to come in to the committee some time today. I also suggest that anybody who desires to present a resolution should

not send it up to the committee unsigned, and in the crudest sort of way; but that you prepare your resolution as you would like to have it presented, sign your name and send it to the committee.

President WALLACE—If I were the chairman of the committee I would not consider any resolution offered after this evening. It is unfair to the committee to throw resolutions at them at the last moment. Now, we must have a report of this committee the first thing after dinner tomorrow. Therefore, get your resolutions in.

We want the members of the committee on resolutions to go up to this room at once.

Gentlemen, we will now hear an address from Mr. Herbert Quick, of Madison, Wisconsin, editor of the *Farm and Fireside* of Springfield, Mass., on the subject, "The Farmer and the Railroads."

Mr. HERBERT QUICK—Ladies and Gentlemen of the Congress: It is rather a difficult task which has been assigned to me, that of following such men as have spoken in the last two or three addresses, and that, too, at a time of day when the imperative calls of bodily sustenance begin to make themselves manifest. I cannot undertake to emulate in the matter of interest, in the matter of inspiration, any of these gentlemen who have just preceded me and addressed you. It is utterly impossible to be very interesting with reference to the subject of the railroads and the farmer unless you trench on the subject of politics, and they are barred here; therefore, ladies and gentlemen, I beg leave to be dull in my talk to you today, very dull indeed. I am, however, hopeful of giving you something to think about with reference to the very important matters of the relation between the railroad and the farmer.

The relations between the farmers and the railroads are not always amicable, but they are always close. When capital was first solicited for the building of our railways the capital that responded was in large measure that of the farmers. Enterprise came from the cities, but before it could successfully appeal to the bond market, it was obliged to show something in the way of local aid. The history of railway exploitation in the Mississippi Valley, and in the whole country at the period of most rapid development in railway building has not yet, so far as I am aware, been adequately written. When it is written, it will show an astonishing array of facts relating to the extent to which the farmers of the land really built the railways—by stock subscriptions, by votes of aid, by donations of right-of-way, and by outright gifts of cash. And a depressing phase of the story will be the tales of bonds issued and upheld by the courts, although no railway was ever built, and of the almost automatic manner in which the farmer's interests were closed out by receiverships. During the time when investments in railway buildings were uncertain, donations of public lands, gifts of rights-of-way, and votes of bond issues in the way of local

aid gave them standing in the money markets. So to a great extent, the farmers built the railways—and were then neatly beaten out of their interests.

That, however, is not the story of the farmers of today and the railways of today. It belongs to the past. Our task relates to the future. In that future, the relations between the railways and the farmers must continue to be close, whether they are amicable or not. The two parties belong to each other. One cannot exist without the other. When the farmers succeed in wresting a good crop from the earth, stocks go up in Wall street. A hot wind in Montana affects Great Northern and Northern Pacific on 'Change; and when the railway fails to furnish cars for the carrying of the crop, that failure affects the notes of the farmer at the bank. For better or for worse, the farmers and the railways are irrevocably wedded. A little careful and dispassionate consideration of their marital relations may assist in the maintenance of that peace which is necessary to happiness—and as a mere outline of the broader principles governing such consideration, this address has been prepared.

The great railway men of the United States have always felt the burden of a duty towards the farmers, even when denying any legal claim back of it. Fifteen years or so ago an enthusiastic believer in the semi-arid West worked out a plan for moisture—conserving farming—one of the greatest steps in conservation ever taken in this country. The management of the Northern Pacific helped him educate the farmers in the principles of his science. The managements of the Chicago, Milwaukee and St. Paul, the Soo Line and the B. & M. in Nebraska also gave him assistance. They foresaw the development which would come to Montana, Nebraska, the Dakotas and all the semi-arid country if “dry farming”, as it has come to be called, could be made to succeed. They saw a duty to the stockholders—saw it clearly; and I believe there was not lacking to their vision a glimpse of the duty they owed to the Nation through ministrations to the prosperity of its farmers.

HOW THE RAILROADS LEARNED.

The management of the Great Northern, though since enthusiastic, could at that early time see nothing in the Campbell method of farming to enlist its sympathy or its dollars, nor could the Northwestern line, though both of these systems ran through hundreds of miles since reduced to the settled state through dry farming. But at that very time Mr. Hill was showing his interest in agriculture through the introduction of improved breeds of livestock along the lines of his system. And the Northwestern officials withheld their aid from Campbell, because it was believed on their part that it was better to leave the semi-arid regions in the condition of unbroken prairie from which they might receive trainloads of cattle, than to encourage its opening to an agri-

culture which was likely to be unsuccessful. Perhaps that was the controlling opinion in Great Northern circles, too. In any case, the railways were exerting an almost monarchical power over farming in their spheres of influence. Nothing, it seems to me, more clearly shows the power of the railways over farms and farming, than these instances of both action and inaction at the critical stage of development. We do not see it so plainly in regions long settled and in agricultural equilibrium, but the power is always there and always exerted for all that.

Beginning, so far as I am informed, with Mr. Hill's livestock activities, and the aid of Mr. J. W. Kendrick to the great dry farming movement, railway aid to agriculture has grown to a fashion. The Pennsylvania maintains its demonstration farms on Long Island; the New York Central strives to bring back to their old time headship in farming the Empire State's half-abandoned farms. Scarcely a railway system can be mentioned which has not run its educational trains for the purpose of bringing agricultural science into touch with the farmers along its line. "Dairy specials," "corn specials," "bacon specials," "fruit specials," and dozens of other special trains have moved leisurely from station to station with agricultural lecturers aboard and cars fitted up as laboratories and auditoriums for the farmers. These are sure to be increasingly frequent as the demand grows on the part of farmers for accurate and authoritative teaching, and as the railway officials come to understand that the most profitable thing to sow along the line is knowledge, and that nothing gives such profitable crops as science. The great Burlington system now hires one of the noted agricultural experts of the world to work with the farmers, and another eminent agricultural college professor has gone into the service of that system which, while it may not reign, rules over the industrial destinies of "The Rock Island States of America." The railroads everywhere, are doing excellent work in educating the farmers. This work is wise, and is sure to bring the results the railroads desire. The introduction of good agricultural methods, like the implanting of truth in any form, is one of those germinal acts that go on of their own accord when once the initial impulse is given. Dry farming will be practiced centuries hence better than now, and the Northern Pacific will carry its tonnage.

THE DOMINANCE OF TONNAGE.

But all these fine things have been done and are still being done with a eye single to tonnage. The railway officials who are doing them would strenuously deny any other motive than that of filling trains with agricultural produce. "What justification," says the old-fashioned stockholder at the annual meeting, "can be given for using money of the railway for such new-fangled flub-dub as this special train filled with college professors and farmers?" "It's a cold business proposition," says the general manager. "If we can get the farmers to grow

steers that will weigh a ton as against the present ones that weigh a thousand pounds, our livestock tonnage is doubled, and at the expense of a few special trains and an agricultural department, we obtain on the present lines all the results of a greater mileage. Better agriculture means more freight. That's the justification, and the only one. It's a plain business proposition!"

We may trust the enlightened selfishness of good business to push this sort of activity to the limit of its profit; and it is a fine thing to think that the railways cannot benefit themselves by spreading the light of agricultural science without benefiting the farmers and the whole nation. Favors of this sort bless him that receives quite as much as him that gives. But does the duty of the railway end with tonnage? Can we ask the railways to do anything for the farms and the farmers beyond the things which mediately or immediately will fill trains of cars with profitable freight? In the great task of conservation do the railways owe any duty to the farms beyond what they are now performing? This phase of the subject has yet to be worked out.

SOME HISTORIC PHRASES.

A few striking phrases have thrown on the screen of history the views of the generation of railway men who denied, and some of them still deny, anything in the way of duty of the sort hinted at. Some of these may be apocryphal utterances, but they tell the truth for all that. It is recorded that a Louisville & Nashville official, on being asked whether or not the people on his lines had any alternative other than to pay what the railway exacted, answered, "Yes! They can walk!" The historic Vanderbilt aphorism is "The public be damned!" It has been related of Jay Gould that his cynical rule for the making of rates on agricultural produce was that the farmers should always be allowed to retain enough for seed. Such opinions as these were the prevailing ones until recently. They were based on the view that the railways were purely private things. Under their sway railway men claimed the right to decide what cities should flourish and what decline, where towns should be built and where not, what shippers should be prosperous and what fail. They claimed these rights and they exercised them. To men of that school the things I shall say will seem like nonsense. They do not see that the control of the highways of a nation carries with it the rulership of the people; or if they do see it, they refuse to recognize the right of the people to say how that rulership shall be exercised, how long it shall continue, and when it shall end. And this is the lesson of the present and the immediate future for the railroads of America. A railway official is of right a public official, and he is nothing else. His duties to his stockholders are important and call upon him for scrupulous fidelity, but they are subject to his duties to the public. For on the highways depend the welfare of the whole people; the stockholders are a part only of the people; and the

whole is greater than any part. In the last analysis, the stockholders and bondholders of the railways must come to a realization of the fact that they have placed their interests in the keeping of the people of the Nation, and that their profits must depend on the sense of justice of that people. Fortunately, there is no reason to expect from the people the slightest failure to respect the real rights of capital. But that modifications of railway policy are likely to be insisted upon, is not only likely, but inevitable. These modifications will be along the line of revisions of rates, the adoption of the principle that the railway must be used as a tool in the development of the Nation along rational and just lines, and not arbitrary ones, and in the conservation of the national resources—among which one of the most important, if not the most important, is the fertility of the soil.

RATES AND LIVING COST.

First, as to rates. There has been a good deal written of late for the purpose of securing for the railways an acquittal of every charge that has been or ever can be brought against them of having anything to do with the increased cost of living. Inasmuch as the cost of transportation is a part of the cost of every article consumed, freight rates may, and doubtless do, conceal much that makes for high prices. A Johns Hopkins professor says: "The claim of the railroads that the rates on foodstuffs are not high enough to enter as a factor in fixing the selling price is fully substantiated by the dealers in such products." And again the same authority says: "The average weight of a carload of food products is 30,000 pounds. If the freight on such a carload be \$300 the rate per pound would be only one cent, and there is scarcely a commodity upon which a freight rate of one cent per pound makes any difference in the selling price."

When one considers the staples on which a cent a pound constitutes from six to twenty per cent of the selling price, these extremely sweeping statements must be admitted to need a lot of verification. Those who feel most keenly the pinch of high prices live mostly on things which sell at from four to twenty cents a pound—of which price an average of a cent a pound freight is a considerable increase. But the efforts mentioned have not been confined to arguments of the sort above quoted. We are called upon to believe not only that no appreciable freight charge is added to the burdens of the consumer, but that nothing worth mentioning is deducted as freight from the prices to the producer. We thus have the great incomes of the railroads very neatly palmed and effectually concealed somewhere between the professor of economics and the Secretary of Agriculture. For Secretary Wilson asserts that:

With approximate accuracy it has been determined that when the farmer receives 50 per cent of the consumer's price, the freight charge on butter is about 0.5 of 1 per cent of the consumer's price; eggs, 0.6 of 1 per cent; apples, 6.8 per

cent; beans, 2.4 per cent; potatoes, 7.4 per cent; grains of all sorts, 3.8 per cent; hay, 7.4 per cent; cattle and hogs, 1.2 per cent; live poultry, 2.2 per cent; wool, 0.3 of 1 per cent.

These things are very convincing. And they are, no doubt, reliable as to averages. The trouble with them is that they are averages, and that they have the merits and defects of averages. One of the defects is that they do not tell the real truth. I have in mind a farmer living at New Rockford, North Dakota. He grows wheat as his staple crop, and about the only crop upon which it is at all safe to depend. His task is to help feed the world. As this is written, his wheat is worth in New York, if for export, a dollar a bushel, if for milling in this country two cents more. In addition to the cost of handling, the New Rockford farmer must submit to a deduction of twenty-four cents per bushel in price for freight to New York if for export, and of twenty-six cents if for domestic use. Something like 35 to 40 per cent of his returns is deducted for freight. It may satisfy the city consumer of bread to be told that this freight does not add "materially" to the cost of his living, but the New Rockford farmer is stubborn, and merely because his freight charge is a third or more of his returns, he is not mollified by Secretary Wilson's statement that all grains "on the average" get to market with a deduction for transportation of three and eight-tenths per cent. In Johns Hopkins and at Washington, the freight charge may not amount to much. It is far otherwise at New Rockford.

A North Dakota station and a low-grade staple are selected for the purpose of putting a finger on the point where the railways and the farmers clash crucially. They clash thus in the heart of the continent where distances to market are long, where there has been no rate structure fixed under competition, and where the farm produces in the main cheap and heavy staples. Whether grain, hay, root crops, or live stock, the case is the same—prices at the railway station are reduced to the point of vanishing profits by freight charges; and the cost of living on the farm is proportionately increased by the same agency.

HOW TO DEVELOP THE REMOTE PARTS.

The greatest transportation fact faced by the American people is the problem of developing the remote parts of the continent under conditions which are new to the experience of the human race. In the past mankind has been content to develop its great civilization near waterways. The sites of Egypt, Greece, Rome, Phoenicia and Carthage were determined by ease of transportation. Whether or not it is possible for the interior of the North American continent to be fully developed industrially by land carriage only is a question which is as yet an open one. It is safe to say that such development cannot take place without the adoption by the railways of some new transportation principles, applied for the express purpose of national welfare. And if

the only alternative—the building of a national system of waterways—be resorted to, the aid of the railways must still be demanded if success is to be attained.

Rates as a deduction from the income of the farmer are even on the face of the averages quoted, considerable; but in the interior and on things produced at a close margin of profit, they are decisive of the matter of agricultural prosperity. On butter they are so inconsiderable as a proportion that the output of Dakota creameries has not infrequently gone on the market under conditions which enabled the Western butter-maker to pay his entire freight bill with the difference in his favor in the matter of quality. On eggs the burden of freight is similarly light. But on potatoes the freight is, according to the figures of the Secretary of Agriculture, 7.4 per cent of the consumer's price, or about fifteen per cent of the farmers' returns, as a national average. It is quite clear that the Montana or Nebraska potato grower must often find the freight, over the great distances to market, decisive of the question of profit or no profit. An acre of onions takes the labor of two or three persons a good part of the season. The cultivation is largely done with hand tools manipulated while the worker kneels and bends his body to the ground. His produce should be about a carload. If on this he pays the railways \$300 freight it is a not inconsiderable contribution on the part of one gardener and one acre of land to the transportation system of the Nation.

Just what is included in these professorial and secretarial calculations is not quite clear. The word "freight" may or may not include such items as the charges for refrigeration and of refrigerator car companies, fast freight lines and the like, and until we know as to these items, we are unable to decide on the worth of the statistics. But one item of expense which through the policy of the railway companies the farmers are obliged to pay is clearly not included—I refer to the charges of the express companies.

The railways of the United States have enormously retarded the agricultural development of the country, and added to the expense of living, by permitting the lodgment in our transportation system of that industrial parasite, the express company. Just what are the financial inter-relations which have contributed to the willingness of the railways to allow parcels carriage to pass from their hands, while sufficiently obvious in a general way, cannot now be detailed. The glaring fact is that the express companies, save for certain services which they have, in violation of the criminal law, usurped from the postal system, perform absolutely no functions which do not properly belong to the railways, and no functions which the railways of other lands do not assume. Every dollar of the huge profits which the express companies make is a burden upon industry which is unnecessary and unjust. But instead of seeking to remedy or lessen this burden, the railways pursue the policy of making it greater. They practically abandon the field of

parcels carriage to the express companies. They allow their agents everywhere to work for the express companies on commission, so that their wages are increased as express business increases, while their interest in the growth of railway business is reduced to a minimum by the receipt from the railway of only a small fixed salary. Thus the railways not only turn over to the express companies the parcels business, but saddle on that business, and on the shippers by express, a good deal of the burden of their own payroll.

THE TOLLS ASSESSED ON AGRICULTURE.

The effect of this policy on agriculture is not to be measured by the amount of express tolls paid on shipments made. That is a great burden, but it is inconsiderable as compared with its injury to the farmers and to the Nation by reason of the immense volume of potential traffic that does not move at all. Under the paternal governments of the Australasian colonies of Great Britain, agriculture is fostered by low railway rates and a carefully studied policy of encouragement to the small shipper. Packages of poultry, eggs, meats and other farm products are collected on the remote railway lines, brought to concentration points, refrigerated, shipped to the world's markets, sold and remitted for to the great benefit of the remote farmers, who otherwise would have no way of marketing their little shipments. But here the trucker and poultryman and the fruit-grower are in most localities relegated by the railways to a third party—the express company—who seems to have no office but the exaction of tolls which the railway itself could not charge, but which it divides with the railway. This is unjust and is rapidly becoming intolerable. The farmer must be placed in such position that he can work up trade in the city and ship in small packages direct to the consumer at just rates. The head of one of our great railway systems has delivered several powerful addresses recently, in which he has asserted that the farmers, and not the railways, are to blame for the spread of from 30 to 75 per cent between the price received by the producer of food products and that paid by the consumer. He advises farmers to "cut out the middleman." Good counsel, but let him follow his own advice. Let him, and let all railways cut out the express middlemen, the private car middlemen, the fast freight line middlemen, and the ordinary farmer will be placed in better position for taking his advice. These agencies have no place in a rational system of transportation. They are parasites, which suck blood and confer no benefit. Transportation by rail should be a simple transaction between the railway and the shipper, and with no third party whatsoever. Whatever there may be in the way of parcels transportation which does not properly belong to the railways should be assumed by the government in the form of a general parcels post.

With the way cleared to simple relations between shipper and railroad, the matter of rate-making in the interests of national develop-

ment may be taken up, and the railroads enlisted in such policies as may be dictated by patriotism. In these the farmers are entitled to so much of special consideration as is commanded by the importance of agriculture as the basic industry of the world—no more, no less. In many schedules the railroads have favored agricultural development. These instances are those in which farming interests have been controlling in the matter of dividends. Perhaps we should expect nothing more of the purely individualistic philosophy of the past, but of the future we must demand much more.

RATES AND DEVELOPMENT.

Instances of the influence of railway policies on agriculture may be found in almost every country of the world. The beet sugar industry of Austria has been built up through the adjustment of railway rates. Huebner says of the German policy in this regard:

With the deliberate purpose of regulating industry and commerce through the powerful medium of freight rates, 63 per cent of the traffic is given rates generally about half as high as classified rates and seemingly unusually low as compared with rates enforced in neighboring countries. These rates are given to build up particular industries, to promote specified districts, to protect German railways against foreign competition, to overcome emergencies, to build up German sea-ports, to promote German export trade, and discourage the entry of specified imports.

We have been told over and over again that the acquisition of the railroads of Germany by the government has been dictated by consideration of military strategy; but the world is just awakening to the fact that it is rather industrial strategy which has impelled the Germans to government ownership. The time is coming when the German railways will be freed from the fixed charges of both bonds and stocks, and German agricultural products will go to market, with her manufactures, at rates based on actual cost of service. The fostering uses of properly adjusted rates as applied to remote agricultural districts in Australia and New Zealand have been known to the world for years. Protection to home industries through tariffs has failed to benefit our farmers in any direct way, and the policy of attempting longer to maintain such tariffs seems to be in process of abandonment; but Van Wageningen has pointed out that agriculture may be stimulated and fostered through railway rates, and given all the benefits which clearly accrue to protected industries through tariffs. It might be no more than fair to the farmers if some of the taxes exacted from them through tariffs in the interests of manufacturers, were returned to them in such freight rates as would develop their agriculture along the intensive lines made possible by nearness to market; but it might be unfair to ask privately-owned railways to do it.

The whole structure of rates as they now exist is devised to favor the long line to and from market, and made up with reference to the demands of certain trade centers, and certain powerful financial inter-



DARIUS A BROWN, Mayor of Kansas City

ests, some of which are closely allied to the ownership of the control of railways. A striking instance of this is to be found in the history of the rates on the border line between the Gulf trade basin, and the territory of the railways running to Chicago and the Atlantic ports. From Kansas and Oklahoma points the distance to tidewater on the Gulf is only from a quarter to a half the distance to the Atlantic. The farmers of that region, and of a great part of Nebraska, Colorado, and much other territory, are entitled to an outlet by way of the Gulf. It is nearer. It is over cheaper track. It is on easier grades. It should be in every way more economical. But when the battle between the old lines and the new began with the building of the roads to the Gulf, it was fought out, not along lines of what was best for the Nation, not along lines of what was best for the farmers whose stake in the controversy was the right to a fair price for their grain, but with sole reference to the interests of the railways themselves, and of the grain trade with which the railways have always maintained so intimate a friendship. Such agreements were made that grain would be as likely to go from Kansas City to the Atlantic as to the Gulf. In other words, the building of the Gulf lines was robbed of its benefits to the farmer. Rates were so adjusted, and still are, as to make the Gulf lines as bad for the farmer as the Atlantic lines, instead of making the old lines as good as the new should be. This is equivalent, as an economic futility, to the plan of handicapping the binder so as to restrict its work to the amount done by the same force in the old days of hand binding. Financially it may be wise—for the elevator trade, and the railway community of interest—but it is an economic crime as much as the breaking of the power looms by the old weavers. The present railway situation is full of such anomalies. One could spend days in their discussion. They are familiar to the shippers of the nation. They are apologized for by the wise men who write great tomes on transportation. But they must sometime be so corrected that trade will go on the railroad which can perform the transportation task most economically, without regard to the historic channels of traffic and the private interests concerned in the use thereof.

“TAPERING RATES.”

I have spoken of the difficulties which confront the people of the deep interior of the continent in working out their complete industrial development. By complete industrial development, I mean that full growth in industry which has come to such seaboard locations as Great Britain, the Netherlands, our Eastern seaboard, our lake regions and the like. One can scarcely conceive such complete development in Iowa, Nebraska, the Dakotas, or Oklahoma. And yet it is merely a question of transportation. The problem of the future relates to the question of the ability of land carriage of any kind to furnish it. If it cannot be accomplished by land carriage, the Nation will have recourse to water-

ways. New Rockford and her sister hamlets will reach the sea, either by the way of the railroads, or by the Missouri river. If the railways are to give New Rockford—and in her I typify all the interior—what it must have if it is to develop completely, they must find some way to compensate the place by means of rates for its remoteness from the sea.

This may be done by what is called “tapering rates”—that is, by rates which increase not with the distance, but on some basis which gives the remote point a less tariff per ton a mile than the nearby point. The railroads have made such rates always when the demands of profit called for them; and their policy has resulted in great benefit to the interior; but the diverse ownership of the different lines and restrictive laws, as well as the lack of a national policy in rate-making, conspire to prevent the full application of the principle. Congressman D. J. Lewis of Maryland has laid down the principle that rates along a line should increase with the square root of the distance, instead of with the distance. Thus, if the proper rate per hundredweight for twenty-five miles is ten cents, for 625 miles the rate should be not \$2.50, which would be the increase directly with the distance, but twenty-five cents, the increase over ten cents according to the square root of the distance. The value of this formula may lie principally in the emphasis of the economic justice, as well as the necessity, of tapering rates for long hauls. As it is, rates taper from New York to Chicago, not according to the square root formula, but in a manner not very much at odds with it; but then they are increased by the fresh start from Chicago as a basing point. Under a national policy in rate-making, these rates would continue to taper to the point at which it would be more economical to ship in some other direction—to the Pacific, or to the Gulf.

The influence of tapering rates on the industrial development of a people may be seen strikingly manifested in Texas, which has long had a rate system peculiar to itself. This system is said to be the fruit of the statesmanship of Judge Reagan, and was devised expressly in the interests of a population deemed to be permanently agricultural. It is exactly the opposite of the general policy which has built up a few great cities at the expense of the rest of the country, and the best or worst example of which is perhaps the case of Chicago. Chicago is fed by livestock shipments which sweep past the very doors of packing houses quite as well equipped to slaughter the stock as any in the Windy City, and the livestock rates are only a sample of the system of tariffs that keep in Chicago's hands the headship in commerce to which in the natural development of things she would not be entitled. Railroad rates keep the great centers great by decreeing that the primary products shall be sold there, and that the supplies of goods ready for consumption shall be bought there. This is done by depriving other trade centers of the natural advantages over Chicago, of their nearness to the farms, while leaving them handicapped by their remoteness from

water transportation. And wherever a great city is found in the United States, the same sort of rate structure is found. The economic result is that long hauls are favored for the railroads, with greater profits to them perhaps; but the farmers are deprived of the benefits of the home markets which nearby large cities afford. The state of Iowa is Chicago's back field; and Iowa's population is shrinking. This fact alone is enough to condemn the rate system which permits it. And Iowa's case is glaring merely because she is an almost purely agricultural state. The farm populations of the other states on Chicago's back fields are shrinking, also. And while I do not think it fair to attribute all this to rate mal-adjustments, I feel sure that if the Texas system of rates had been in effect in the Chicago-St. Louis basin, the phenomenon of decreasing population would have been long postponed, and might never have appeared.

THE TEXAS SYSTEM OF RATES.

The Texas system, as perfected by the Texas State Railway Commission, is based on the theory that many medium sized towns and cities are to be preferred, for the agricultural welfare of the state, to one or two overgrown municipalities with rates made to stimulate their growths at the expense of the rest. This has been accomplished by the establishment of a maximum freight charge, above which there can be no increase, no matter what the distance—with the exception of certain remote points in the cases of which additions are made, not according to the entire length of haul, but according to their distance beyond the limits of the zone which is established about every shipping point. Thus merchandise taking the class rates pays a tariff from any shipping point according to distance, up to 245 miles, beyond which the rate for 245 miles is paid no matter what the distance. The maximum rate on cotton is reached at 160 miles from any station; on flour, grain and hay at 140 miles; on coal, 790 miles; on fruits, vegetables and melons, 180 miles, and thus for all shipments. The result is that the remote truck farmer is as close, so far as rates are concerned, to the city 500 miles away, as to the one 180 miles off—and the principle is applied to all producers, with variations as to distance. This gives him a wide choice in markets and rates, which equalizes conditions so far as rates can do so, between the interior and the coast. And it fosters the small and new city by enabling it to compete in jobbing and manufacturing with the large and old one. Thus, while such places as Galveston, Houston, Dallas, Fort Worth and Waco are among the most prosperous towns of their size in the country, they are constantly meeting the competition of that numerous class of smaller Texan cities the unsuspected presence of which in the interior is such a constant surprise to the traveler from the North. Business is decentralized to an extent nowhere else seen in the United States in an agricultural community. And decentralization, while opposed to the immediate interests of the rail-

ways, is clearly profitable to the farmers, better for the people in general, and in all probability will prove in the end better for the railways themselves. For after all, railroad prosperity must depend on national prosperity.

It may be said that the Texas system has been tried out on a small and a state scale only. On a state scale, truly, but not on a small scale by any means. From El Paso to Texarkana the distance is almost exactly that from New York to Chicago, and from Brownsville to Texline is as far as from Kansas City to Winnipeg. Moreover, Texas has most of the problems which confront the Nation itself in working out a national system of rate-making—a coast well settled and old in development with all the wealth and power that the conditions imply—a hinterland ranging in conditions from fine farming land like that of Iowa, through semi-arid to desert. The Texas rate system may not be the last word in rate making, and probably is not; but it seems to work well, and is certainly worth study. As will be seen at a glance, it is a modification of the systems of tapering rates suggested above—in which rates taper to a point where a maximum is reached, and then cease to increase at all. It is also a modification of the zone system in effect on certain foreign railways, under which within certain territorial limits railway rates are flat, like postage. The economic basis for such rates lies in considerations of national welfare, coupled with the well-known transportation principle that the terminal charge which makes up so large a portion of most shipments, is the same for a long haul as a short one.

THE DECLINE OF NEW ENGLAND AGRICULTURE.

For purposes relating to the fostering of such interests as seemed necessary to the welfare of New England and New England's tonnage, the railroads have themselves put in effect with reference to that section a system of rates which in some ways resembles the zone system of Europe, or the maximum distance tariff of Texas. Cut off by the tariff on imports from her natural hinterland, Canada, the decline of New England's agriculture under the competition of the prairie lands would have brought to her a permanent industrial decline, had she not turned her attention to manufacturing. And even as to that, she was placed at a disadvantage as soon as the development of the Middle States and Middle West brought that great region to the manufacturing stage. For New England's manufactures had to go to market through New York, and most of her raw materials had to be imported from the West and the South. The railways used their powers of rulership in the interests of this whole group of states, as they are constantly doing in the case of cities—they decreed prosperity to New England's manufacturers through a rate system. They made of New England a flat-rate zone for raw materials, with the same rate to all points, and practically the

same as the rate to New York. This applies to all raw materials coming from west of a line drawn from Buffalo to Pittsburg through Wheeling. For out-going shipments, they gave all New England points a flat uniform rate to all points west of a line drawn from Cleveland to the Ohio river. That the wage earners of New England might be favored in cost of living—a feature reflected in low wages—the food products from the West are given a rate practically the same as that to New York—and thus the ruin of the old New England agriculture, already probable, was made certain. Had it not been for these imperial measures, New England's headship in manufacturing would have been lost, first to the Middle States, and then, perhaps, to the Middle West. The expedient differs from the Texas system in the fact that it is applied partially and in the interests of manufactures, with New York as a center, while the Texas system is applied for the purpose of decentralizing business by making every shipping point the center of its own flat-rate zone.

But the most striking illustration of the power of the railroads to foster or to blight industry, lies perhaps after all in the field of agriculture. And it so happens that it is also the instance of the application on the broadest scale of the zone principle in which all rates are the same to all points within certain territorial limits. I refer to the rate structure which has been built up for the transportation of the citrus and other fruits and vegetables of the Pacific coast and the Pacific Northwest to the markets of the eastern half of the continent. While the principle is applied with more or less completeness to shipments of deciduous fruits and truck, it is best studied in its relation to citrus fruits. Oranges and lemons go to all points east of Denver at a flat rate. From Cheyenne, Wyoming, to Eastport, Maine, the rate on citrus fruit is the same. The effect has been most beneficial to the agriculture of the Western quarter of the United States, to the people at large, and to the railways. Whether or not the rates are just, the principle upon which they are made is conducive to the development of agriculture and is, perhaps, essential to such development, when the industry is hampered by land carriage over great distances. And nothing need be said in addition to citing these instances of the determinative effects of our railway rates on the course of prosperity, in spite of the averages which seem to show the economic unimportance of rates.

SOIL DEPLETION.

Thus far, I have discussed the influence of railroad policies upon the farmer as a man engaged in one of the many industries which make up the sum of industrial activities. But there are certain respects in which the farmer represents the everlasting welfare of the race, and certain demands which he may legitimately make on the transportation agencies of the land which are based on every man's heritage in the soil, and interest in its continued fertility. The depletion of the soil

by cropping is largely accomplished through transportation, and its restoration to fertility must be accomplished, where such restoration is necessary, in large measure, through the same agencies.

The soil is a reservoir of plant food. Most of the dozen or so elements used by plants in building themselves up from the soil are found in it in such great abundance that we need take little care for their conservation. Only three—or possibly four—are so scarce as to call for anxiety. These three are nitrogen, potash and phosphorus.

Potash is ordinarily found in soils in such quantities as to render its application unnecessary; and yet there exist localities in almost every state where a marked poverty exists in this element. Peaty soils are always deficient in potash, and as the swamps of the Nation are drained the potash problem will grow in importance. Commercial potash is mostly imported from Germany, where the government's conservation measures have already brought its export into the field of somewhat vexing diplomacy. The German supply would seem adequate for the world's demands for many centuries. The deposit underlies more than a million acres, and in the Strassfurt district, where it was discovered some fifty years ago, the total thickness of the potassium-bearing strata amounts to the astonishing depth of 5,000 feet. It is estimated that this wonderful supply at the present rate of mining will last 190,000 years. It should be remembered, however, that reclamation activities are likely more and more to be directed to swamps as the arid regions are brought under irrigation, and that the drain on the German potash deposits is likely to increase in a geometrical ratio. Our Government does well, therefore, to push diligently the search for potash deposits at home, which it is doing with some prospects of success. In any case, we are not dependent on the German deposits as an ultimate fact; for the waters of the sea are the source from which these great deposits originally came, and there seems no reason to doubt the ultimate feasibility of obtaining potash for all future time from that inexhaustible source, if the geological deposits fail or are denied us. But the matter of getting potash to the land, from whatever source it comes, is a railroad problem in most cases.

IMPORTING FERTILIZERS.

Since the guano deposits of the Pacific islands, and the nitrate deposits of Chili were opened to the agriculture of the world, the carriage of nitrogen to the soil has been a great transportation feature. For nitrogen is often the limiting element in the soil. It exists in the earth in small quantities only, and though all cultivated plants are bathed in a limitless sea of it in the atmosphere, they have not the power of using any except that which is fixed in the soil. They starve for nitrogen, while blown about by winds filled with it. Not all plants, however, are so helpless in the matter of taking nitrogen from the air. The plants

grown as crops are utterly unable to help themselves to the plentiful atmospheric supply, but certain minute plants called bacteria have the power denied to those of higher organization, and it is certain that almost all of the fixed nitrogen in the earth's crust, in the guano beds, in the nitrate deposits of Chili and elsewhere, has been taken from the air by these bacteria, aided perhaps by certain fungi which grow about the roots of plants like the oak, and by the negligible fixation of nitrogen by lightning. These bacteria are coöperators with certain plants of the bean family—clovers, alfalfa, vetches, sweet clover, beans, peas, velvet beans, cowpeas and the like. The microscopic plants grow on the roots of these legumes—and to some extent free, or associated with non-leguminous plants—on the basis of mutual aid. The bacteria reach out into the soil and fix nitrogen for the legumes, and the legumes furnish a host on which the bacteria live, just as we furnish a host for the bacteria of disease. And when a crop of any legume is plowed down into the soil, it is found to have added to the land nitrates to the value, sometimes, of more than twenty-five dollars per acre. Thus by setting in motion the forces of nature, the farmer may draw nitrogen from the very heavens above his farm, without money and without price. This is perhaps the most vital agricultural discovery of the ages.

But how, you may say, is the nitrogen supply a matter of concern to the railroads, if nitrates may be drawn from the air? Unfortunately, there is work for them to do in assisting the farmer to adapt conditions in his soil to the needs of these bacteria. For some reasons, the bacteria of the clovers and their leguminous cousins will not do well in a soil that is acid; and soils tend to become acid through cultivation. Acidity is the bane of the older farms of the United States. When acid phosphates are applied for the purpose of furnishing phosphorus to the crops, the very process of fertilization tends to produce acidity. Most of the prairie soils were originally alkaline, and finely adapted to the growth of the favoring bacteria of the legumes, but plants that thrive on acid soils—especially the sorrel—are appearing in the prairie states of the Mississippi Valley, and wherever they appear, clovers cease to thrive.

THE VALUE OF LIME.

Nature's remedy for acidity in the soil is lime. The basis of the great alfalfa industry in the West and Southwest is the high percentage of lime in the arid soils, which have retained this precious element through that very dryness which, until irrigation redeemed it, made some of it a desert. Now lime is needed over a great part of the United States east of the Mississippi. Even where the soil is of limestone origin, it may have become acid by the dissolving of the lime out of the surface soil. In Wisconsin a great area of otherwise good land has been found to be acid, though a stratum of limestone lies only a few feet below the grass roots. The abandoned farms of New England need

lime. The old farms of New York and Pennsylvania, and all the South, need lime. Wherever the legumes fail to arrive, lime is a prime need. Carbonate of lime is the basis of legume culture, and successful agriculture everywhere—in China, in Japan, in India, in the highly cultivated nations of Europe—is based on leguminous crops. The supply of nitrogen to these states of ours in which agriculture has languished must be restored through lime in the soil and rotations in which legumes shall have large part. And the supply of lime is essentially a transportation question.

Lime is one of the most plentiful of the elements necessary to agriculture. Its application to the land has in some periods achieved such bad repute that there is a maxim among farmers that lime makes the children rich but the grand-children poor. The evils referred to, however, arise, I believe, from the application of caustic lime, and are not necessary to the use of lime. It has now been determined, I believe it is safe to say, that raw ground limestone is the best form of lime in which it can be given to the soil. It may be applied in any amount without injury. If raw ground limestone could be spread an inch deep over the farms east of the Mississippi (and in many localities west of it) it would bring about a condition which would soon swamp the railroads with tonnage; and while there are some favored soils to which it would do no good, it would nowhere do any harm. It would put the East on a parity with the alfalfa lands of the West in the matter of the production of legumes, and would bring hope to the discouraged farmers who strive against the obscure evils of increasing soil acidity.

Limestone occurs along the lines of every railway. It is almost as common and cheap as gravel. It can be ground cheaply, and cheaply shipped. It should be furnished to the farms at gravel prices. Burned lime is sold at almost prohibitive prices, and thousands of farmers who know their needs are deterred from satisfying them because of poverty. This is a problem which enlightened statesmanship should solve in the interests of the Nation, and one to the solution of which a railroad system operated in the interests of the national welfare would surely address itself.

PHOSPHORUS.

Phosphorus is the element which is perhaps most commonly lacking when a soil is infertile. A good soil should contain not less than 2,000 pounds of it in the top foot of ground. Many so-called exhausted soils are reduced to less than a sixth of this amount. A crop of corn of a hundred bushels to the acre takes from the soil of each acre twenty-three pounds of phosphorus; a fifty-bushel wheat crop takes sixteen pounds, a two-bale cotton crop takes thirty pounds, and other crops in like manner subtract from the phosphorus supply. Only about one per cent of the supply is available to the crop of any one year—that is, in their hunt

for phosphorus the rootlets are unable to find more than one atom in a hundred. Thus we see that a good soil provided with 2,000 pounds of phosphorus to the acre within reach of the roots cannot produce a 100-bushel crop of corn. Such a crop must have twenty-three pounds of phosphorus, and the roots can find only twenty—and the next year the supply will be reduced to 1,980 pounds, and the roots will be able to find but nineteen and eight-tenths per cent of phosphorus for the dwindling crop. The 2,000 pounds of phosphorus would be quite adequate to the needs of the fifty-bushel wheat crop, but it would fall short by one-third of meeting the demands of the two-bale cotton crop. As so of all crops. They draw on the supply of a limiting element, and as successive croppings reduce this supply, the crop falls off until we have the four-bushel wheat crop, the ten-bushel corn crop, the third-of-a-bale cotton crop, which marks the ruin of the farmer—and the railway.

There is no way to supply phosphorus to the soil save by carrying it upon the land and applying it. It is not found, like nitrogen in the air. It may be brought back in manure and the bones of slaughtered animals, and the process of depletion retarded, but this game is inevitably a losing one like those gambling games in which there is always a percentage in favor of the house. The fertility flushed into the waters of the earth through sewers, the waste of manure, the leaching of soil by rains—all these are the percentages in favor of the house, and against the players. The players are we—the human race—and the house is the massed forces of nature. There seems to be no way to play this game of life without losing. If the earth ever becomes unable to sustain human life, there is good reason to believe that our doom will reach us through failure of the supply of phosphorus in the soil.

There is no phosphorus in the air, and in the waters the supply is negligible. It is an element, and until we discover the secret of the transmutation of elements we cannot make it. As it disappears from the soil there is no source of replenishment of the supply, except in the phosphate rocks of the earth. And while the failure of the soil to give its increase, and the depopulation of the earth through the exhaustion of this element of plant food may seem remote and speculative, the necessity of transporting the phosphate rocks from the quarries to the farms is an actual and present one. And it is a matter which lies within the relations between the railroads and the farmers.

PHOSPHATE RESOURCES.

Fortunately for the permanent agriculture of the United States, the largest known deposits of phosphorus in nature are within her boundaries. Guano, which is merely the manure accumulated on rainless islands where seabirds congregate, is of very limited importance in the long run, though for so long the source from which most of the world's commercial phosphates were derived. The phosphate rocks of the world are, so far as known, preponderantly in the United States. All the

phosphate rock now mined, I believe, comes from the three states of South Carolina, Florida and Tennessee—whence the rock is now shipped at a rate which will exhaust them about the year 1930. On three Pacific islands are known deposits of high grade rock of about the same amount as that still remaining unmined in these three states—about 60,000,000 tons in each case. These rocks contain from sixty to eighty per cent of calcium phosphate. As they fall off in output, and the need for phosphorus becomes more bitter, the farmers must use rock of lower and lower grade, and the task of transporting it will become proportionately greater.

Indeed, the task of transportation will begin to increase long before it becomes necessary to resort to the low grade rock. For far from the depleted lands, in Utah, Idaho and Wyoming, are the greatest high grade phosphate beds in the world—something like half a billion tons of rock practically in sight (according to Van Hise), and averaging over seventy per cent tricalcium phosphate. The existence of these great deposits, and of the low grade beds known to exist elsewhere, together with the probability that other beds will be discovered, justifies the highest optimism as to the future of agriculture—if transportation facilities can be afforded which will place the phosphates on the ground on terms tolerable to the farmers and profitable to them. This is a railway problem. As a mere matter of tonnage it is potentially greater than any other transportation item, save the one of supplying the fields with lime.

At present this sole supply of available phosphate rock is being carried off to Europe as fast as the mills can grind and the railways carry it to the ships. Nothing is being done to conserve the supply, so far as I am aware, in emulation of Germany's statesmanship in conserving her potash beds. It would be unfair to blame the railways which only act as common carriers in these shipments. But it might not be too much to expect of the patriotism of the men who have these great interests in hand to ask them to reverse the policy which they have adopted as to many other commodities, and to make higher rates for export on phosphate rock than for home consumption. The real remedy for the drain of phosphorus lies, of course, with the Government. We are forbidden by the Constitution to stop shipments abroad by means of an export duty, but we have the right to stop exports entirely, or to limit them. Our ethical right to refuse to divide the phosphate treasures with the needy agriculture of the world may be open to question; but we might surely demand that the foreign deposits be worked first for the foreign demand. The shipment of our phosphates abroad, with the certainty confronting us that at some future time we shall have to re-import the same commodity, involves an economic waste to which the world should not be subjected. And the railroads ought, in their own interests, to adopt every policy legally open to them to keep the phosphate rock for the use of the farms within their own transportation territory.

RATES AND FERTILIZERS.

It has just been suggested that the railways might discriminate in their rates on fertilizers, in favor of the home market, and against the foreign. Most railway men are probably unaware of the extent to which they are contributing to the exhaustion of our soils by their discrimination against the American milling of American grains and in favor of the export of the whole grains instead of the milled product. For generations we have had a tariff on wheat, ostensibly for the protection of the American farmer; and all the time the railways have made rates for export wheat lower than for domestic milling. Flour is largely denied the benefits of water transportation on the lakes, in part because it must go to market over the docks which are to a greater and greater degree controlled by the railways, while the great elevator companies with their terminal houses standing at the water's edge, and many of them provided with their own lines of boats, send wheat and other grains to tide water so cheaply as to make the shipment of flour a thing practically under the control of themselves and of the railways with which they have been traditionally closely affiliated in business interest. The result has been that, while there are mills enough in America to grind all our grain, most of our exports go unground.

This will be intolerable to public opinion when once enlightened upon the subject. The export of flour, of course, constitutes a drain of fertility; but the phosphorus content of the grain is largely concentrated in the bran and shorts. In the bran of every bushel of wheat exported goes phosphorus in its most readily available form of the value, at the ordinary rates paid by farmers for phosphates, of from twenty-five to thirty cents. A system of transportation based on considerations of national welfare would sedulously seek to retain that fertility for our depleted farms. Where grain is milled there grows up a large local use for bran, shorts and middlings—the by-products of milling. These are used in the feeding of dairy cattle and other live stock, furnishing what is needed in animal nutrition to balance the corn ration. Farms to which they are carried for feeding increase in fertility. The fertility of the prairie states has been sapped by fifty years of grain shipments. This era should be succeeded by the golden age of American milling. The wheat fields of Canada stand ready to send us fertility to replace that which we have shipped to Europe; and our transportation system should be used to the end that it should be retained here. The Hudson Bay basin would thus, during its period of soil exploitation, return to the Mississippi Valley what we have sent to the hungry soils of the old world.

RAILROADS AND POPULATION.

The existence of overgrown cities is to a large extent attributable to the policies of the railroads with reference to them. The Texas system has, I believe, shown the power of transportation influences to

decentralize population, just as the history of Chicago, Kansas City, the Twin Cities, New York and almost every large city proves their power in the direction of centralization. As a farming factor, the large city is a drain on fertility. These great towns are flushing out through their sewers the goodness of the Nation's farms. In the carriage of lime, phosphates, potash, cottonseed meal, bone meal, and of all the fertilizers of commerce, the railways as national tools of right living should be used to restore to the lands the fertility of which they have inevitably, in some instances, mistakenly in others, deprived them. But in considering the so-called commercial fertilizers, the coarser manures should not be forgotten. The enormous waste of manure about the great cities should be stopped. A German farmer of my acquaintance told me the other day that he had never sold a load of hay or straw from his farm in all his life. "Often," said he, "I have had more than I needed, but I have held it over, even when the price was high and I needed money. It seemed to me as if that hay and straw didn't belong to me, but to the farm." Under the renting customs of many British and other European localities the tenant agrees that whenever he hauls hay or straw to market he will haul back to the farm an equal quantity of manure.

This custom is based on the highest wisdom. The German farmer was right—that hay and straw do not belong to the farmer, but to the farm. And whenever hay or straw, or any of the vegetable substances which are made into manure, are taken to the city, they should be considered as lent, not sold. Getting them out to the farms—not the identical farms, of course, but the farms—is a railway problem. And it should rest on the conscience of the people and of the railways, as did the similar problem on the conscience of my German friend.

I am aware that the railways of the country are not entirely oblivious to the wisdom of the policies here urged upon them. In some places they are making commendable efforts to get the manure of the cities out to the farms. In other instances, they are making what they probably regard as very low rates on fertilizers and lime. Just recently a railway in Virginia has made a rate of from one-half to three-fourths of a cent per ton mile on lime. But I do not find that they have anywhere made any such heroic efforts to cut down the cost of carriage of fertilizers and manures for the farms, as they have in the case of coal from the mines to the docks on Lake Erie, or grain from the elevators at the foot of the lake to New York, or ore from lake ports to Pittsburgh, or packing house products from Missouri river points to Chicago. In my opinion, true national welfare demands that the fertility of our farms be sustained at all costs, and that no freight is entitled to rates as low as ground phosphate rock, ground limestone, and manures.

THE GREATEST RAILWAY FOLLY.

The demands made here upon the railways may be regarded in some quarters as unwarranted. I am quite aware of their scope and character as innovations. They go deeper than the relations between the railroads and the farmers, and rise to the point of an outline for a national rate policy for our railways. In what I have said I have regarded the railways as public utilities in the strictest sense of the word. I have scarcely more than alluded to the rights of investors in railway properties, and I mention them now for the sole purpose of stating that in my opinion no demands will ever be made in the interests of the public welfare, or should be made, inimical to the rights of investors to a proper return on their investment made for the purpose of serving the transportation needs of the Nation. None of the things which I suggest are at variance with these principles. The railways may properly adopt the policy of hauling, or may properly be forced to haul certain public necessities at or for less than cost, so long as on the whole job of transportation they are allowed to earn legitimate profits. I do not believe that in the long run the profits on the fertilizer traffic should be made directly out of their haulage. I do believe that the time will come when no transportation folly will rank as greater in the eyes of our railway managers than that of allowing rolling stock to remain idle, while there is a chance to get loads of ground lime, ground phosphate rock or manure at almost any rate. I am not unaware of the various private interests which would demand and secure monopoly prices if the railways should transport these things at low rates or even gratis, if that were possible; but this is not the time for the discussion of these things. They must be dealt with by the statesmanship of the future. Institutions must be gradually moulded to the end that the agriculture of the Nation may be enabled to flourish; for on its agriculture and the status of its agricultural population rests in the last analysis the welfare of the Nation and its railroads. It may be urged that the present railway system of the land will not permit of the exercise of the beneficent functions outlined here. If that be so, it is no affair of mine. My task is to follow truth as I see it, wherever it may lead. If the railway system under which we happen to be doing business be at variance with the final demands of national welfare, there is ground for optimism in the historic fact that nothing changes more readily than railway systems. They have been almost revolutionized in the past decade—and these considerations of national welfare of which I am here privileged to speak will take many decades in coming to a final decision.

Mr. Quick closed by reading the following telegram from O. C. Barber of Akron, Ohio:

Regret exceedingly my inability to attend Conservation Congress. I note from several different programs there will be distinguished speakers on the question from all over the states. I hope as a result of the meeting something more than speeches will be accomplished in conservation of the equities of all American citizens.

Things vital for their comfort have been transferred to corporate power by unjust legislation, without adequate legal restraint on corporate power compelling fair play and justice to all interested. A special interest should be elicited to compel a rate of freight on all fertilizers for land from which we all derive our sustenance. Not more than four-tenths of a cent per ton mile should be permitted for long hauls, nor five-tenths of a cent per ton mile for short hauls. Any well managed railroad could haul fertilizer for that price at a profit—referring to all kinds of fertilizer, lime, phosphate, rock, etc. If you would take such action as would accomplish this one thing, you would do more for the good of mankind than all the conservation efforts have accomplished to date. Wishing you great success, I am sincerely,

O. C. BARBER.

President WALLACE—I have appointed the following committee on nominations: C. E. Condra, E. G. Griggs, A. B. Farquahr and H. C. Wallace, and B. N. Baker, Chairman.

Get together and be ready to report nominations promptly tomorrow. Remember, we will have a very busy Congress. I want you to be here at 2 o'clock promptly, because we will commence at 2 o'clock if there is anybody here, and some of you will be. This afternoon, I am very sorry to say, we will not have the privilege of hearing Brother W. H. Page. I have a letter stating that sickness prevents his attendance. Instead of that we will take up the report from conservation committees, and as far as possible from the states. Let me urge you to cut your speeches down to five minutes, or I will shut every man off after five minutes, no matter who he is. Don't tell us about your resources. We know about them. Tell us what you are doing. Make it specific and to the point, and then this Congress will hear you patiently, but they won't hear you after that, and I won't either. We must come down to business. This afternoon we are to have Professor Mumford on the subject of live stock and soil fertility, a matter of immense importance. The ladies will come in after that, and I hope you will all bring your wives and sisters and cousins and aunts. We will have an address on the "Farmer's Wife," who you have heard is the most important person on the farm and the one who bears the greatest burden—by Mrs. Ashby of Iowa, followed by Mrs. J. N. Lewis of Kansas. Tonight we are to have a great treat. Mrs. Moore of the General Federation of Women's Clubs; then the "Church and the Open Country," by Dr. Warren H. Wilson, New York City, superintendent of home missions of the Presbyterian Church, and then finally, to round up, an address by Dr. Harvey W. Wiley, Washington, D. C., Chief of the Bureau of Chemistry, United States Department of Agriculture, of whom you have all probably heard. That will be the closing address this evening. Be here promptly at 2 o'clock. The Congress will now stand adjourned until 2 o'clock.

FIFTH SESSION

Recording Secretary GIPE—Will the Congress please come to order. The Rev. Dr. George Hamilton Combs will pronounce the invocation.

INVOCATION

Almighty God, our Heavenly Father, we thank Thee for this world in which we live; for its beauty, for its adaptation to our needs, for the skies that arch it over, for the grass beneath our feet, for the seasons with their lessons, for all the wonderful stories of life. Thou hast made it for man and Thou art in it now. Help us to realize that this world is instinct with Thy life, and may we see and hear God, not only in the skies and in the singing of the stars, but in the humbler things beneath us, and in that stiller music of all growing things. May we seek this priceless heritage, may we preserve this good world unimpaired, handing it down enriched and beautified, to our children, those who shall come after. We thank Thee for this Congress and for the great purposes and ideals for which it stands, and upon the men and women gathered here we pray Thy blessing, upon their homes while they are absent, that their children, their wives, their all, may be defended from harm. Upon them, in their deliberations here, grant that in wisdom they may plan and in strength they may execute, and that they may have a vision, not only of the day, but of the years that shall come after. We thank Thee for this good work, and oh, do Thou help us that we forget not that while in the pursuit of this material good we do err; that after all and that above all the riches of our people are not in the mines, in its fertile fields, in its forests, but in its men and in its women, and so send us the greater harvest, not merely of corn and wheat, but of charity, of goodness, of the great and patient fidelities of life, and help us all to live that we shall have advanced at least a little the coming of the day when righteousness shall cover the earth even as the waters cover the sea. And so upon this earth of ours may God's sovereign will be done even as it is in Heaven. Amen.

Recording Secretary GIPE—I am asked by Mr. Baker, the chairman of the committee on nominations, to announce that a meeting of that committee will be held at 3 o'clock this afternoon at room 775 of the Baltimore Hotel. I now have the honor to present Governor R. S. Vessey of South Dakota, who will address the Congress and remain in the Chair after he has finished that address. Governor Vessey of South Dakota. (Applause)

Governor VESSEY—Mr. Chairman, Ladies and Gentlemen of the Conservation Congress: I have no set speech to make this afternoon, and I think, if I remember aright, the president said we would be permitted to talk five minutes on what we have done in our state in regard to conservation. So I just want to enumerate a few things that we have done up in our new state, practically only of age, twenty-one years old, in the past half a dozen years. We have reclaimed, by drainage, several hundred thousand acres, and we are reclaiming by irrigation something like a quarter of a million of acres, and nearly one-half of that is a Federal enterprise. We are in all parts of the western part of the state planting newer and similar individual irrigation plants that will develop a large part of the state. We have in the past been endeavoring to conserve the fertility of our soils. We are endeavoring to conserve manhood and womanhood by making them more efficient in the great agricultural work, by sending out into their community and out in their neighborhoods teachers along the line of agricultural and domestic science, and other matters pertaining to make the home more efficient and more

modern. We believe that the time is coming, and that very soon, when every rural district will have a social and educational center for the upbuilding of that community. And when that is done, I look to see the day when the people will not, as soon as they have accumulated some wealth, move into the city for the purpose of giving their children an education, largely so they may enter vocations in life other than the farm life. We believe also that the heart should be educated the same as the mind. A committee of educators in our state has reported, not only along this line, favorably, but they have compiled a text-book and are introducing it into our schools, and we expect that our teachers will be trained along the lines of giving to our students ethical as well as material education. So that we can, at the same time we are improving the mind, build a character that will mean more to us in the future than the accumulation of dollars and cents. We have, I think, a progressive state, and we want to create conditions so that people from the further East and the more congested centers of population will find a haven of rest and a place where they can come and not only better their financial condition but better their social condition as well. I appreciate very much indeed having this opportunity of saying these few words in the interest of the conservation of our resources. I think that we have been looking so long upon the land that has been turned over to us by the United States Government, as something that is only for use for our own material well being. We are beginning to learn that we are only here for a short time, and that if we are going to be honest with those that are coming after us, that it is our duty not to rob that soil, but to turn that soil over to our children, and from them to their children's children, in just as good a state of fertility as it comes to us in its virgin state. And when we do not do this, we are robbing our posterity of something future generations are entitled to, that they are just as much entitled to as they are to our good name. And this, I believe, is a wonderful revelation. And it seems to be taking all over the country, to know that in farming a section of land that I have an obligation to those who may farm it a hundred years from now, and that it should be my intention, that it is my duty, and I am under obligations to keep that in just as good state of fertility when I leave it as it is when I take the responsibility of taking the products that are needed to sustain life from that land. It is a pleasure to meet the people of this Congress, the Third Conservation Congress. Now we will listen to the further program by the secretary.

President WALLACE—I have great pleasure in reading to this Congress a letter from a man you have heard about, commonly known as "Teddy." (Applause. Hurrah for Teddy.) I wrote him a month ago and asked him to address this Congress. He declined to do so, but I would not accept his declination. Then I had a letter from him, a personal letter, which I did not care to read to this Congress without his permission. Unfortunately, I do not have it here, but expect to get it

this afternoon or tomorrow from my office in Des Moines. So I will simply read you the letter giving permission to read another letter which I do not have, but you shall have if I get it in time. Here is the letter:

My Dear Mr. Wallace: I greatly wish I could attend the Congress. You are very welcome to read as much of my letter as you desire, or as much of this letter as you desire. I most emphatically believe that there is no movement in our country at the present time of such importance as the developing of a higher country life. This was the object of the Country Life Commission which I established. What we need most is good citizenship; that is, a good family life, a high quality of individual manhood and womanhood; and above all things, we need these in the country districts, for in the long-run every nation's welfare must primarily depend upon the welfare of those who till the soil. The man is greater than his work. The farm can only be made what it should be by paying chief attention to the securing of the right man and woman on the farm. To develop soil fertility, we must develop rural manhood and rural womanhood. We must have a social life on the farm far better worth living than such life has been in the immediate past. Pray accept my heartiest sympathy and good will. Very sincerely yours,

THEODORE ROOSEVELT.

(Applause)

Recording Secretary GIPE—We are now going to have brief reports from some of the national organizations. Mr. W. E. Mullin of New York will report for the National Board of Fire Underwriters.

Mr. MULLIN—Mr. Chairman, Ladies and Gentlemen: The National Board of Fire Underwriters has been interested for many years in every element of conservation. They believe in the conservation of the soil, the conservation of the waterways, the conservation of the mines, the conservation of childhood and the conservation of our homes. We believe in everything that savors of practical conservation, but they are specially concerned in the conservation of our utilized forces.

[Mr. Mullin's paper in full will be found in Supplementary Proceedings.]

President WALLACE—I must ask a favor. I will not ask the Congress to listen to more than three-minute speeches on these reports, and I wish all the speakers to understand that when that bell rings it is time for them to quit. They must learn to boil down. (Applause) As I said before, we do not care about the resources of your states. We can read that in books. We want to know what you have done in the way of conservation. You can say all you ought to say in three minutes. Moody used to say that a man had no business to pray more than three minutes, that he could ask the Lord all he really wanted in three minutes, and then it was time to quit. (Applause)

I take pleasure now in introducing Major E. G. Griggs, president of the National Lumbermen's Manufacturers' Association, who will give the report for that association.

[Mr. Griggs' paper is in Supplementary Proceedings.]

Chairman VESSEY—We will now hear from Mr. W. J. Rushton, of the American Association of Refrigeration. I have pleasure in introducing him to you.

[Mr. Rushton's paper will be found in Supplementary Proceedings.]

Chairman VESSEY—We will now hear a report from Hon. E. T. Allen, Forester for Western Forestry and Conservation Association, entitled, "Private Conservation on the Pacific Coast."

Mr. ALLEN—The Western Forestry and Conservation Association, for which I report, is a league or alliance of a dozen coöperative forest fire associations maintained by timber owners in the Pacific forest states: Montana, Idaho, Washington, Oregon and California.

These five states contain over half the standing timber in the United States. Already furnishing a fifth of the Nation's lumber, they constitute its great remaining storehouse of future supply. In other words, they contain the mature timber which must bear the burden of bridging national shortage until an adequate new crop is ripe. Because of climatic conditions and rapid growing species, they also contain the deforested land which, by reason of adaptability, most demands encouragement to produce this new crop, to which you must turn in the future for timber as you do to this region for iron and to the South for cotton. This is why you are directly and vitally interested in what every agency is doing to protect and foster these forests of the West.

Believe as you may concerning division of responsibility between state and nation, or policies of controlling the development of natural resources; but never forget that the forest ranger is actually on the job, saving the forests for the rest of us to talk about. If he had not been there for the last ten years, the national forests would be mostly old burns not worth arguing about. We want more, not fewer, of him, and we want Congress to spend more money to hire him and build trails for him to use.

The states, too, are waking up, but progress in this direction seems slow when we consider that of the tremendously important forest resources in the West the majority is in private hands, and that it is the attitude of the commonwealth that governs the ability of the private owner to manage it to best advantage for all concerned.

All these conditions I have hinted at—failure by Congress to give the forest service adequate funds, slow awakening of state responsibility, and realization that the Pacific Coast is both the last and the most promising field of forest industry—have inspired the most vigorous and efficient private movement for forest conservation ever known—the allied coöperative associations of timber owners in the Pacific Northwest. They fully realize that the control of such a stupendous community resource entails grave responsibilities; that their ownership is largely a public trust and that they must account for their stewardship. They also know that no new fields remain and that this is by no means inexhaustible; that to avoid heavy loss they must guard the forests they have,

and to perpetuate their business they must have new ones coming on. Self-interest, more potent than philanthropy, demands abandonment of the wasteful methods prevalent in the past history of their industry.

With this new point of view, the Northwestern lumberman, far from being an element requiring regulation by the public in the interest of forest preservation, has become the leader in reform. It has been chiefly through his aggressive campaigning that state laws have been improved, bearing as rigidly on the careless member of his own brotherhood as upon anyone else. He gives his financial support to educational work directed at both lumbermen and public. He hires professional foresters to help him try such better management as conditions will permit. But particularly, through coöperative associations, he has taken the lead in fire prevention. And admitting his motive to be largely selfish, the benefit to the consumer is none the less. To the man who needs lumber, to keep it from burning up is conservation that counts.

After so much preamble you may wonder what we have actually to report; what we can offer in the way of results. Here are some of them: Last year was one of the worst for forest fires in American history. Loss of life and property was terrific. But the private protective systems allied with the Western Forestry and Conservation Association carried safely through the season fully 16,000,000 acres of forest, containing at least the stupendous amount of 300 billion feet of timber. They kept the loss of private timber in Idaho, Washington and Oregon, the three states hardest hit, down to one-fourth of one per cent. How did they do this? By raising and spending \$700,000 for patrol and fire fighting, and actually extinguishing 5,580 fires.

It was a telegram from the president of the Western Forestry and Conservation Association, with the standing of our work behind it, that caused the ordering out of the United States Army to assist the undermanned forest service on the national forests.

This year's records are not compiled, but will be quite as interesting. Through their alliance the associations turned to account every lesson each learned in 1910, and spread increased patrols equipped with new advantages of perfected organization, telephone and trail systems, supply storage, and automobile and motorcycles where these could be used. Organization permitted close and systematic coöperation with state and federal forces. Every association ranger served as a police officer and one Washington association alone got over thirty convictions. Offending lumbermen were made the first examples. Hundreds of fires were extinguished but not one was allowed to become serious in 1911.

Our association serves as the one and only common meeting ground for all agencies for forest protection, including state and federal as well as private fire officials, and employs a trained forester to collect and disseminate for all information that will assist in solving problems of reforestation, legislation, education and like matters demanding expert

knowledge or central facilities. It thus had the chief responsibility for forest legislation in several Western states last winter and did more than had been done in all preceding Legislatures.

It has published the first comprehensive book on reforestation and forest management in the West ever issued, now used as a text-book by the Forest Service and forestry schools.

It furnishes all newspapers in the Northwest with regular bulletins throughout the fire season, not only giving reliable news but keeping the necessity and method of precautionary measures before the public.

It issues hundreds of thousands of fire circulars and stickers, with a highly perfected system for putting them where they will count. This year, with the aid of state authorities, it put an illustrated folder with simple questions and answers on forest protection in the hands of every school child in the Pacific Northwest, an enterprise requiring the printing and complicated distribution of thousands of pounds of material.

It furnishes state officials and others with practically all the mottoes and catchy material used for posters and other publicity matter in the West. It has even placed this kind of thing in the time folders of every railroad traversing our forest regions.

I cannot take your time to recite the many other activities of our coöperative movement, but these will indicate its scope and method. The Northwestern timber owner is doing his part to protect your resources that he holds in trust. If Congress, state and public will do as much, you have little to fear.

Chairman VESSEY—I now take pleasure in introducing Mr. Ferdinand G. Schwedtman of St. Louis, chairman of the delegation of manufacturers of the U. S. A. I have the honor to present him to you.

[Mr. Schwedtman's paper is to be found in Supplementary Proceedings.]

Chairman VESSEY—The next speaker is William Edward Coffin of New York, vice-president of the Camp Fire Club of America.

[Mr. Coffin's paper is in Supplementary Proceedings.]

Chairman VESSEY—I wish to introduce Dr. George W. Field, representing the National Audubon Society.

[Dr. Field's paper will be found in Supplementary Proceedings.]

Chairman VESSEY—Is Mr. McBrien, representing the National Educational Association, here?

Is Mr. Edward R. Taylor, representative of the Electrochemical Society, here?

Mr. TAYLOR—It is my pleasure to represent the American Electrochemical Society. There are ten thousand chemists in the United States. They are largely concerned in the working out of economic problems

and the best utilization of all substances capable of adding to our material prosperity. Many of these chemists are members of the American Chemical Society, the American Electrochemical Society, the American Institute of Chemical Engineers, and the Society of Chemical Industry, all of which societies are deeply interested in the best conservation of our natural resources and are in full sympathy with the objects of this Congress.

Chairman VESSEY—We will next hear the president of the Iowa Federation of Women's Clubs. Is Mrs. M. H. Weller present? Those who have papers that will take five or ten minutes to read can just speak on a short synopsis of their papers, and have the papers filed. They will be able to say more, so that the people will understand it better than if they only read part of the paper.

Mrs. Weller was not present.

Chairman VESSEY—Is Mrs. Carl Vrooman, representing the D. A. R., here?

I am very much pleased to present her to you. (Applause)

Mrs. VROOMAN—Mr. President, Ladies and Gentlemen: I feel weighted with a heavy weight of responsibility, as I am here to represent 77,000 Daughters of the American Revolution in general, but the chairman of the conservation committee of this organization in particular—a woman who has, I venture to say, done more for the cause of conservation than any other woman of our day—I was about to say than almost any man—since she is the very proud mother of Mr. Gifford Pinchot.

This society of women, "federated and organized"—to quote Mr. Pinchot, "spells only another name for the highest form of conservation, that of vital force and intellectual energy." These 77,000 women do indeed represent a perfect Niagara of splendid ability and force—enough, if intelligently harnessed and directed, to furnish the motive power to keep revolving all the wheels of progress in this country.

But to revert from what we might do and ought to do in general, to what we have done and intend to do in particular, for conservation, a remark made by the Right Honorable John Burns of England, concerning the American people, might apply perhaps with equal force to our two-year-old conservation committee: "The American people," said Mr. Burns, "is a very young colt in a very large field."

The very able first chairman of this committee, Mrs. Amos Draper, inaugurated and carried on during the first year a most energetic campaign, a report of which you had submitted at the last Conservation Congress in St. Paul. The next year, however, illness compelled her resignation, when Mrs. Orton, of Cleveland, O., whose work in behalf of children is well known, took the chairmanship for the ensuing six

months, during which time the committee concentrated its chief energies in efforts to help secure legislation for the protection and conservation of that greatest asset the Nation has—its children.

Now that we are standing well on our feet, a committee with Mrs. Pinchot at our head, with over one hundred women on the National Committee, representing each state, and a state chairman for every state, with every chapter represented on the state conservation committee, we hope we have the country well honeycombed with women who will take an active and intelligent interest in conservation. And aided and abetted by the National Conservation Association, which has promised to furnish us with all the ammunition we need, we intend to carry on an aggressive warfare, or, to speak less militantly, an active campaign of education. For we feel, in the words of our President General, that women today—even without any articulate voice in the councils of state—without the vote that so many are striving for, and think is essential—women today, when thoroughly aroused and awake to their present unquestioned opportunities and responsibilities, as well as to their problematical rights, can wield an incalculable influence, and become most potent and irresistible factors for good in helping create a healthy public sentiment—in stimulating to higher activity that organ of the body politic (so often prone to paralysis) known as the civic conscience.

But since education, like charity, should begin at home, we intend, first of all, to educate ourselves. And, for this purpose, a number of our members have come from different parts of the country to attend this Congress and learn all we can about this problem of conservation.

We are glad to know that an officer of this association has written such a capital book on conservation, and we shall make it a point to advertise Mr. Price's book, "The Land We Live In," among the women of the country.

We hope soon to have a department on current conservation news in our D. A. R. Magazine, giving every month items of conservation interest, which can be supplied later to the local papers.

We expect also to have something to say about the importance of teaching conservation in the public schools—not necessarily as a part of the curriculum, for children are fairly swamped these days with a surfeit of extra studies—but we do feel that conservation as opposed to wastefulness everywhere (especially in the form of domestic economy) should be emphasized and inculcated as are other virtues—such as truth, patriotism, obedience.

Conservation in the kitchen is one of the most important problems in American life, and I believe I am safe in saying that that modern knight errant, Dr. Wiley, and his board of conservation of human health by means of pure food, has the enthusiastic and whole-hearted support of every one of our 77,000 daughters to a unit.

I should like to say in passing that another man we are behind—heart and soul in his fearless fight with the beast in our modern jungle

—is that man who has made it his business and his mission to reclaim not waste lands, but waste lives—that great-hearted champion of the children, and of the people—Judge Ben Lindsey, first citizen of Denver and one of the first citizens of the United States.

I am aware that this is far from being an orthodox report, as it is more prospective than retrospective, and deals rather with what we intend to do than what we have already done, but we are drinking in so much inspiration here, and getting so many new ideas, that next year you may expect from us a *bona fide* report, fairly bristling with businesslike facts and statistics.

May I say just one more word? In addition to this definite program of tangible things we want to carry out, we pledge you something else, which, although it cannot be weighed and measured and appraised at its face value, after all may be as worth while as the sum total of what we actually achieve in a concrete way, and that is our unswerving loyalty to the spirit of what this association stands for—to put it rather pompously—our moral backing and support in this business you have undertaken to help conserve the best interests of our country—a business in which we have no intention of being altogether “silent partners,” although we are women!

We may not, it is true, formulate any new policies for you, or launch any issues, or make any very original contributions to your program, but there is one thing women can bring into a movement of this kind, and that is—to use a very much overworked word—“atmosphere.” Even if women don’t dig down into the earth—even if we daughters don’t actually dig down into the earth, like you horny-handed sons of toil—women may yet bring with them, when they put their hearts, as well as their hands, into a thing, an atmosphere that, like the air and sunshine, is absolutely indispensable to a good crop, to a bountiful harvest, an atmosphere that makes ideas sprout and grow, and ideals expand and develop and take deeper root in the subsoil of the masculine mind!

So, then, we bring today to this Congress our heartfelt sympathy with its ideals—a sympathy that is born of a certain intuitive perception we have—not by any means of all the intricate problems involved in this question of conservation—but a perception of the principles which are at stake, and we promise you our whole-hearted allegiance to those principles, as well as our contagious enthusiasm, in this splendid crusade, to conserve not only the vast natural resources of this country, on which depends our national prosperity, but those ideals of public as well as of private morality, which we realize we must sacrifice for, and defend and conserve and make to prevail, if, in the words of the Athenians, which might well be the motto of the Apostles of American Conservation, “we would transmit our fatherland not only not less but better and greater than it was transmitted to us.”

Delegate BAUMGARTNER of California—I want to extend a vote of

thanks on behalf of the entire audience by your leave, to the Lord High Chancellor of the Bell for not having rung it on the last speaker. All in favor of the motion say aye. Carried unanimously.

Mr. T. L. MCBRIEN—Awhile ago my name was called to speak for the committee representing the National Educational Association. I would like to say that the committee of five representing the National Educational Association met and unanimously selected Professor J. M. Greenwood to speak for our association. We want to call attention to the fact that he is the senior in educational work, having been thirty-eight years at the head of the Kansas City schools, and there is no other who has such a record.

Chairman VESSEY—We have a request from the National Educational Association that it be represented by Mr. Greenwood. Shall we hear from Prof. Greenwood now, or go on with the program?

(Cries of "Hear him now.")

Chairman VESSEY—Prof. Greenwood.

Professor GREENWOOD—I would suggest you go on with the regular order of business.

(Cries of "Greenwood! Greenwood!")

Professor GREENWOOD—Ladies and Gentlemen: The National Educational Association of the United States is the largest educational association in the world. The last session held in San Francisco enrolled 18,000 teachers from all parts of our country, and at the Boston session in 1905 there were 35,000 teachers in attendance. This organization represents in the broadest way the interests of the children of our country, and for more than fifty years it has been endeavoring to solve the great problems confronting our people. It represents the people of the South, of the North, of the East and of the West, and it has been one of the most important factors in bringing our people closely together when they were divided, not only by armies facing each other when homes were destroyed, but sadness was at every fireside. This was the organization that immediately after the Civil war brought our men and women who are working for the interests of our entire Nation together. This organization is represented here by a representative from the State of Arkansas, and by one from the State of Nebraska, and by one from the great State of Iowa, and by another one from the State of Kansas, and by another from the State of Missouri, and we have got to be shown. Mr. President, we will draft and submit a resolution to your committee at the proper time. There are just three things, it seems to me, that a public speaker who comes upon the platform ought to know—what to say, how to say it, and when to quit. (Applause)

Chairman VESSEY—We will now present on the regular program

Dr. Frederick B. Mumford, dean of the University of Missouri, at Columbia.

Dr. MUMFORD—Ladies and Gentlemen: The limits of the time allowed for this subject are such that I shall have no time for the general subject of conservation. I hope, therefore, you will bear with me through this paper. I will confine myself somewhat closely to it, because in so doing I will say what I want to say in the shortest possible time.

[Dr. Mumford's paper will be found in Supplementary Proceedings.]

Chairman VESSEY—Next on the program is Mrs. Harriet Wallace Ashby of Des Moines, on the subject, "The Farmer's Wife." I have the pleasure of presenting to you Mrs. Ashby. (Applause)

Mrs. ASHBY—The conservation movement, of which this National Conservation Congress is the exponent, has for its object the transmission of our natural resources, unimpaired, to posterity.

Any movement for the promotion of the farmer's interest must, if it is to be a success, receive the support not only of the farmer, but also of the farmer's wife. The first problem of the farmer is how to increase farm products through better farming; the first problem of the farmer's wife is how to improve the condition of the farm home. The mistakes of the husband in his sphere during one season may be corrected in the next; the mistakes made by the wife in rearing her children are never entirely corrected.

Believing as I do, that the great problems of farm life as they pertain to us wives and mothers can only be solved through coöperation and organized effort, I wish to advocate the union of farmers' wives in country women's clubs with the object of breaking up the monotonous routine of farm life and for the discussion of anything and everything pertaining to the betterment of farm home.

The salvation of most families depends on the mother; she is the one who does so much to make for the happiness, health and long life of her family. The health of any mother is liable to fail under her responsibilities; the farm mother is especially subject to physical breakdown, for she not only bears the responsibility of rearing her family, but she also shares the anxieties of her husband if, as should always be the case, the farmer's wife is his business partner and assistant farm manager.

The farmer's wife is a most important factor in the conservation of the soil, for she will in a large measure determine the efficiency of the farmer. Then, too, the attitude of the wife towards the farm, and her success in making a happy farm home largely determine whether or not the country boy remains on the farm.

The average country boy is devoted to his mother. How that mother would like to clear the obstacles from his track, and to give him the best

the world affords. If the mother feels that the farm offers no future for her boy, the chances are the farm will lose the boy. The training which the boy reared in the city must secure before he can be an efficient farm worker, and for which he must spend time, money and enthusiasm, is the very training which the country boy absorbs from his infancy, and which makes him the most valuable tiller of the soil.

The farmer's wife has for so many years taken no thought for herself that her now misguided conscience reproaches her if she leaves home when there is work to be done, to attend a club meeting, or if she spends ever so small a sum of money to save herself. A neighborhood club with its exchange of experiences with labor saving tools will teach the folly of expending strength and energy when by spending a little money to secure convenience and ease in work, the farm mother may be conserved to her family, and continue to be a help in the busy world. All farm women have, in a large degree, the same experiences, and therefore they can and should help each other. They should meet to discuss problems of mutual interest; they should organize country clubs with the object of securing the best conditions in their home life; of broadening the outlook of the home; of encouraging a social spirit and of elevating the character of farm life.

THE FARMER'S DAY'S WORK.

One of the most vital problems with which the farmer's wife has to do is how to shorten the farmer's workday. The practice of working from sun up to nightfall and afterwards doing the chores is driving the boys from the farm. If all the farmers in a neighborhood would quit work in time for a 6 o'clock supper, a long stride would be taken towards making the farm home an ideal home. Most business men's work closes with the day, but how about the farmer and his family? When townspeople are at leisure our husbands and sons are milking the cows, bedding the horses, and doing the rest of the chores. They wear overalls so many hours of the week that they are not entirely at ease in other clothes. They are too tired to keep up their interest in the outside world, frequently falling to sleep over the newspaper. Indeed, to bed is about the only place this exhausted man of the early evening is fit to go, for a tired man is not a social creature.

Washing dishes after a late supper with a nodding husband in the next room and your nearest neighbor from a quarter to a mile away does not foster love for the farm. It need not be wondered at that we are insisting that the farm day must be shortened and some time be given to the development of the mental and spiritual, as well as the physical side of the family.

You may remember how the little waif, Glory Maguire, as she looked through the windows at rich children's parties use to lament: "Oh, the good times going on in the world, and me not in them!" We farmers'

wives want some of the good times that are going on in the world for our children; we want a social center; a club room where neighborhood gatherings can be held. We want a neighborhood library, a live church and an up-to-date school. If our children are to be more than little animals, they must go to church and Sabbath school; they must have a well ventilated, well lighted school room and an experienced teacher.

Men and women of mature judgment are placed at the head of town schools, where suitable courses of instruction and the most approved methods are pursued. The graded school teacher refers any case of insubordination, any report of vulgarity, any question of discipline, to her superintendent, yet these same teachers have been required to take months of training and practicing on country pupils before they were permitted to teach in town under a superintendent.

The country schools should have trained teachers; teachers of sound judgment in understanding the nature of the child and tact in dealing with him. A live, progressive teacher in every country neighborhood is often the little leaven which "leaveneth the whole lump." We need fewer classes in the country schools; the long study periods are productive of inattention and mischief. If a child is permitted to spend this study time in idling and reading inferior fiction, he loses the power of concentration on his lessons and his taste for solid reading.

We need a well selected library planned for systematic reading; we need recitation benches and desks which will not produce spinal troubles. We need attractive school rooms, better furniture, good pictures and instructive maps. Part of the returns of the farm invested in the school is one of the farmer's best investments, for all the improvements in the condition of farm life must come through education. Many helpful innovations on the farm have come about through a discussion of what the child learned at school.

We also need better playground facilities. Thousands of country children don't know how to play. When they are at school there is nothing to play with; when they are at home there are chores, unending chores, to be done.

There is work right here for country women's clubs to do in supplying the school grounds with tennis, croquet, and any other equally wholesome and good sports which children can enjoy. Hence we must plan to meet and discuss our mutual problems. We need the stimulating influence which an exchange of ideas and the enthusiastic coöperation of club membership bring. We can accomplish much by the concerted effort which can only follow a reasonable getting together on the part of the farmers' wives. Working the handle of a dry pump won't bring results that a little priming brings. Women won't attend a club unless they get results; they must have something to help them through the week—reading courses, and a study program, as well as the social half hour. We should study dietetics and learn how to balance the day's

food; to provide such articles as will feed as well as fill the family stomach. Man must eat to live, but he need not eat nearly so much if we give him the right kinds of food. The more we study our business, the more attractive it becomes; when we cease studying it, we lose interest in our work. So country women are organizing clubs for discussion and study. When a club is conducted in an orderly manner, and every member made to feel personally responsible for its success, when its membership is small enough to seem like a big family, yet large enough to gain and hold interest of the members, it will work a revolution in a country neighborhood. Wherever a country women's club has been organized, the women report that it gives them new energy for their home work. Out of a small club at Adair, Iowa, have grown so many smaller clubs that a joint picnic of the members and friends brought out a crowd of nearly 1,000 persons. These ladies have issued a cook book, with the proceeds from which they are enlarging their sphere of usefulness.

Another club, the Daughters of Ceres, at Bedford, Iowa, issues a calendar for the year's work, which compares favorably with the work of any club. Country women's clubs are usually short of money, and difficulty is sometimes experienced in securing books for study. Would it not be well for every state to supply a reading course for farmers' wives after the example of the Cornell Reading Course? If the Government would send out a bulletin containing the essential rules of order for country clubs it would be a great help in conducting meetings. A meeting must be regarded seriously and conducted with dignity to get the best results. A little time and money expended in helping the women is well spent. When Secretary Shaw lived in Iowa he owned a number of farms. It was his practice to give to his tenants' wives pure bred cocks and turkey toms. A neighbor remonstrated with him, saying: "You are making our tenants' wives discontented. We cannot afford to give away pure bred poultry." Secretary Shaw replied: "When I help the women with their poultry, I always get my rent."

FARM ORGANIZATION.

The organization of the farmers has long been the end desired by those who are seeking to promote the country's welfare. By reason of all his previous years of training when he has been acting on his own judgment, and working alone, the farmer is not accustomed to organized effort, and does not fully recognize its value; hence the influence of his wife in this matter is of special help. The farmer knows if he leaves home for any length of time that weeds spring up, fences fall down, cattle get off their feed and cows fail in their milk. Hence he stays at home year in and year out getting deeper and deeper in the rut unless educational and social privileges are brought to him. This the women can and will do. Through the united efforts of the women

the farmer is going to think less of his taxes and more of his schools; he is going to be one of an army of country men united to secure conservation of the soil through longer leases, conservation of the child through better educational facilities; conservation of the wife through the relaxation of meeting with those of her own sex, and shall I not add: conservation of the few hard-earned dollars in the purse by parcels post? The farmer's wife, in order to conserve to the fullest extent the best interests of the farm, must be filled with the conviction that farming is the most honorable of any pursuit for a man and is a career worthy of his best endeavors and not merely a makeshift until something better offers. Such a woman will impress upon her children the thought that no calling or profession is so worthy of their best efforts; she will see to it that the books and papers that come into the family are those that treat farming and the farmer with respect. No one thing probably has had a more invidious influence in creating a desire among farm boys to leave the farm than the funny papers and cartoons which make the farmer the butt of their jokes, portraying him as the victim of the gold brick agent and picturing him with the vacant look and gaping mouth of an imbecile.

Cato, the Censor, lived at a time when Rome was at its height as a military power. He had held nearly all of the great offices under the Roman republic, yet in his old age he left this record, that: "No occupation was so worthy of the dignity of a man as that of farming," holding that: "Farming makes the bravest men, and thoughts." The farmer's wife should use her influence to see that this kind of literature is kept before her children in the farm home, in the curriculum of the school, and in the school library.

In the time at my disposal I have been able to only hint at a few of the very many and diverse problems, as well as opportunities which belong to our women of the farm. I have tried to view them as a wife and mother of the soil, where, indeed, my life is cast, and my energies have been engrossed. I have endeavored to advance no fine spun theories, but to suggest a solution which can be and is being worked out today in many localities. That these and similar organizations are bound to come in abundance and that they will work untold good to the cause of conservation I fully believe. Once the farm wives of our country are adequately organized there is no divining the power for good that they may wield. There is an old saying: "Unless a man's mother ordains him for the ministry, he won't make a good preacher." When a boy's mother ordains him for the farm there will be no lack of good farmers. (Applause)

Chairman VESSEY—I now have the pleasure of introducing to you Mrs. Matthew T. Scott, President General of the Daughters of the American Revolution, who will talk to you in regard to the "Farmer's Wife." (Applause)

Mrs. SCOTT—I have crossed the continent to be present today because of my interest in the farm and the farmer's wife—the class to which I am proud to belong.

We have considered here every interest of conservation in creation—vegetable, animal and mineral, and now come to conservation of the farmer's wife, the greatest issue before this Congress.

In the consideration of that problem which so far has baffled the masculine intelligence, i. e., that of keeping the younger generation on the farm, the key to the situation unquestionably is held by the farmer's wife.

The call of the country rings out from garden, from forest and stream, from acres of golden grain, and tonics pure from Nature's own laboratory. Back of all of this is the farmer's wife, who by making the farm home attractive and interesting is the magnet which draws the boy and girl back to the farm, from the allurements and disappointments of city life. The farmer's wife is no longer the isolated being of years ago—but with her free rural delivery, and the country's network of trolleys for her convenience—good roads, and with the use of modern machinery, a large degree of leisure to give to her social life, music and books, are now at her command. If she succeeds in making life on the farm attractive, if she is able to add the distinctively feminine touch of home charm to the freedom and zest of country life, who can doubt that this great problem of retaining the farmer boys on the farm will be solved?

It is the farmer's wife also, and she chiefly, who can enforce the only education that is worth while—that is real and true, that education which builds character, which educates not the intellect alone, but at the same time the conscience and the will; an education that means justice and truth and purity in this selfish work-a-day world. Moreover, few farmers succeed whose wives do not do their part to see to it that both ends meet. It is the wife of the farmer who sees where the waste and loss are eating into the profits of the farm. It is the housewife as a rule who has ideas of thrift in farm management and who, if she has the chance, will contribute more than is often realized to make the farm a business success.

Upon the farmer's wife largely rests this great responsibility, and in this great work, with the help of the noble army of quiet, intelligent, capable farmers' wives, we hope to develop the most splendid crop known on this fertile continent—the boys and girls, the youth of the land. Largely is this work the prerogative of the farmer's wife amid the stress and strain which absorb the energies of modern masculine business life.

Another duty which devolves upon the farmer's wife is to exert her influence and teaching to train her boys so that they will see to it when they are voters that in these days of political chicanery and cor-

ruption that only honest men and true are sent to Legislatures, to Congress, and the United States Government, to make the laws that are to govern this, the greatest Nation on the face of the earth.

Sociologists and agricultural professors can aid the farmer's wife in her work, but, after all, it is upon her shoulders that the responsibility of success or failure in this great task must ultimately rest.

Today the great difficulty is that the farmer's wife is trying heroically to fulfill the double functions—that of assistant economic producer and of housewife, mother and the organizer and inspirer of the happier and higher activities and diversions of country life.

To free the wife from the burden of money making and educate her in the more difficult and equally important task of home-making and the development of the finer and more humane and more enjoyable aspects of country life, these are the problems we must help her solve and she will do the rest.

An old Frenchman once said that farming was the only profession in which a man works in a relationship of direct partnership with God. The ministry might object to the words "only profession," but the fact is certainly patent that in more than any ordinary occupation of life, do we cooperate day and night with the sun, and the wind and the rain, and all the other forces of Nature and of Nature's God, and I believe that for women today there is no profession more alluring, healthful, or lucrative than that of scientific agriculture. If I had my life to live over I would enter as a student one of our great agricultural universities. I would familiarize myself with the work of experiment stations, learn to test soils, know the elements best suited to and most needed by the different stratas of earth. I would master the secrets of fertilization, which have for a thousand years made sections of the old world productive without exhaustion. I would inform myself as to the value and methods of rotation of crops, the value of dairy and cattle raising on the farm. I would also inform myself of the comparative cost of nitrogen drawn from the air in the form of leguminous crops, which imprison the nitrogen in the soil, and the cost of commercial nitrogen, and their comparative values.

I would learn the need of phosphate or potassium as applied to different soils and the comparative value of tested fertilizers. We have already an aristocracy of herds—cattle, horses and swine, but I would undertake the breeding of an aristocracy of seed corn and oats and alfalfa.

Oh! they are great the possibilities of woman on the farm—if she would only take advantage of them. (Applause)

Chairman WALLACE—We will now proceed with the call of the states, and these organizations who wish to report.

Delegate C. J. DILLON of Manhattan, Kan.—Can't we give five minutes more to discussion by the ladies? We have a lady here I wish to

propose, who has been working in this same line for years, and I would like to have you hear from her.

Chairman VESSEY—Send her up to the platform, please.

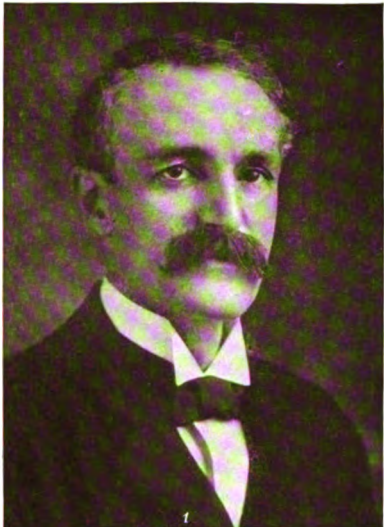
Mr. DILLON—I am glad to introduce to you Miss Frances Brown of Kansas, who has been in active work along the lines of organization of farmers' wives. (Applause)

A DELEGATE—Have her come down on the front platform.

President WALLACE—She has a pretty good voice, and I think if you will be quiet you can hear her.

Miss BROWN—The first speaker on this subject this afternoon outlined so ably and so well the needs of the farmer's wife that it will be my pleasure in just a very few minutes to tell you how we at the Agricultural College in Kansas have tried to meet these needs of the farmers' wives. We have looked over the field as well as we could, and we saw that in the very first instance the first thing for us to do was to correct, as far as possible, the errors of those who had gone before us. And so while it is only morning yet in Kansas, and the department as organized is only two years old, we went out into the organization that had already existed in Kansas and began to do work on these subjects that pertained to the commonest things of life, the very household, taking up for our very first work a sort of reformatory movement on the subject of bread and bread making. Then we spread that same movement before the Farmers' Institutes, and by visiting every one of the institutes and meetings that we could, we saw that the cause of dissatisfaction on the farm lay largely in the fact that there are not the conveniences in the farm home that we find in the town, and that was the cause of the exodus from the farm to the town. So we have begun a campaign for the country homes, and our women in the institutes are so anxious that they ask us to help them effect an organization which we call an Auxiliary to the Farmers' Institutes. Of these during the last year we have twenty organizations, with a membership of 500, whose women have been studying the cost of putting in plants for heating and lighting and bringing water into the homes, and taking care of the waste from the home. Now we are getting letters every day from farm homes where they are actually making use of some one of these various systems.

The next step was to take care of the younger members of the farm home, and so we had to get something ready that could be used in the public schools, as well as in the home itself. We have what you may be more or less familiar with under the title of the Girls' Home Economic Clubs, by which we reach the girls through the printed page. These printed papers are gotten up so that girls from ten to fifteen years of age can master them perfectly. They are on the subjects that



1. GIFFORD PINCHOT, Executive Committee, 1911-12. 2. GEORGE C. PARDEE, Executive Committee, 1910-11-12. 3. HENRY D. HARDTNER, Vice President, 1909-1912. 4. MRS. PHILIP N. MOORE, Executive Committee, 1909-12. 5. WALTER H. PAGE, Executive Committee, 1910-12. 6. D. AUSTIN LATCHAW, Treasurer. 7. THOMAS R. SHIPP, Executive Secretary. 8. JAMES C. GIPE, Recording Secretary. 9. A. B. FARQUHAR, Vital Resources, 1911-12. 10. L. H. BAILEY, Chairman Lands Committee, 1911-12. 11. W J MCGEE, Chairman National Parks Committee, 1911-12.

we need every day, first, cooking, because you know that while man can live without poetry, music and art, he cannot live without cooks, so we are going to begin raising each one to be a cook for the future. We have these courses in cooking out all over the state, not only being used by the individual girls in the farm home, but being taken up by the public schools where the towns or the communities are too poor to afford a department in domestic science and art. During the past year 2,300 girls took lessons either in cooking or sewing or both from this department at the college, and already, as the new schools are opening, letters are pouring in every day asking for more of that work in the various sections of the state. Moreover, during the last year, due to these efforts, seventy-five high schools put domestic science or art or both into their systems where it had not existed before. Wishing to utilize or bring together the organization that already existed instead of forming new organizations, we have been getting together a course of domestic lessons, or demonstrations, if you please to call them so, that can be used by the women's clubs that are already organized in the state. That course is almost completed; and when we have that finished, we hope to see every single organization of the women in the state adopting part or all of it, not because they need it so much, because women that have time for clubs, have more or less leisure through their added efficiency. But it will mean that they are still thoughtful along these lines, and that their efforts are going to be with us in spreading this gospel of good housekeeping throughout the state.

Now, we have a big work yet before us. We are not going to stop. We are going to work at every single channel that we have opened, and we are going to open as many new ones as can be helped, until every roof in Kansas covers a harmonious home where we will find every single thing that will tend to the highest efficiency and the needs of every member of the family in that home. I thank you. (Applause)

Chairman WALLACE—I know I voice the feeling of this audience when I say we have already highly enjoyed these addresses from the ladies this afternoon. The executive committee of this association has some business that you must transact, and the report will now be read by Mr. J. B. White, the chairman of the executive committee.

Mr. WHITE—The executive committee met this morning and adopted the following resolutions:

In view of the very effective help which the national organizations have given the Conservation Congress and the conservation movement in general, the members of the executive committee of the Third National Conservation Congress feel that the national organizations should have more adequate representation. Therefore, at a meeting of the executive committee of the Congress today, it was decided unanimously to recommend that the constitution be amended so as to provide for an advisory board to be made up of representatives of the national organizations which have appointed conservation committees.

To this end the executive committee respectfully begs leave to submit the following amendment to Article 5, Section 3, of the Constitution of the Conservation Congress, by adding the following:

"An advisory board, consisting of one person from each national organization having a conservation committee, shall be created to act for that Congress and during the interval before the next succeeding Congress. The board shall report to and co-operate with the executive committee."

The executive committee is also of opinion that the scope of the work of the permanent committees of the Congress should be extended so as to cover a larger field. The present sub-committees are those on forests, waters, land, mineral and vital resources.

The committee, therefore, recommends that the constitution of the Conservation Congress be amended as follows:

Article 5, Section 5. The committee on vital resources shall consist of members, each selected with the view to becoming chairman of the sub-committee and that six sub-committees be created subordinate to the committee on vital resources as follows: Food, homes, child life, education, civics, general (including wild life, domesticated animals and cultivated plants). The chairman of each committee, with the approval of the chairman of the executive committee, shall be authorized to appoint as members of these sub-committees, such members as in their judgment will best accomplish the object sought.

Delegate BRUCE DODSON of Kansas City—I move that the report of the executive committee be received.

Delegate WM. H. DYE of Indianapolis—I second the motion.

Chairman VESSEY—All in favor of them will say aye. Contrary minded. The amendments are adopted.

Mr. WHITE—Mr. President, we invite all those who are here and are delegates of the different national associations that have conservation committees to come on the platform, that they may choose their representatives, if possible, and confer with the executive committee immediately after adjournment.

President WALLACE—What now is the pleasure of the Congress? We have filled up the program of today. I take pleasure in introducing Miss Mame E. Weller of Nathan, Iowa, of the conservation committee of the Iowa Federation of Women's Clubs.

Miss WELLER—I bring greetings from the Federated Club women of Iowa, who today stand ready to help in all lines of conservation.

We have been and are working for the conservation of child-life, health and happiness. We have done much toward procuring sanitation in schools, and especially pure drinking water. We are trying to have our bird laws enforced and shall petition our Legislature at its next session to prohibit spring shooting of ducks and all shore birds, who are our sanitary commissioners of lake, shore and stream borders.

We have caused many hundreds of trees to be planted in Iowa, and the coming year we are to work for state control of the banks of our streams and shores of our lakes.

We have done much to prevent the wanton mutilation of trees and destruction of our wayside trees by telephone companies. Yet much

remains to be done. We have in Iowa a statute that exempts from taxation almost entirely all woodlands, native or planted, when kept and used for timber purposes only.

President WALLACE—We expected until today to have a paper or address by Dr. Knapp of Washington, D. C., but I am very sorry to say that he cannot come, but the Department of Agriculture has a gentleman that can take his place, and I would suggest that Dr. W. J. Spillman come forward and tell us about the wonderful demonstration work that is going on in the South.

Is Dr. Spillman in the audience? If not, we would be glad to hear from Mr. F. A. Guthrie, a member of the Congress representing the city of St. Paul, Minn. Five minutes, and then I promise you we will adjourn.

Mr. GUTHRIE—As indicated in the announcement, my work is on a line somewhat different from almost anything that has been presented. In connection with charitable and correctional institutions, we have found that it is necessary to go to the country. This presentation this afternoon relates to charitable and correctional work. The dreariness of the country home is very important and has to do with most of that which we have to treat. The national conferences on this matter have come to the conclusion that it is necessary for leaders in the country to engage some person specially qualified to advance social interests, to organize country meetings of various kinds, or organize musical entertainments, organize social entertainments, and organize educational work. We present that to the national conference as something to which we will have to come in order to bring about agreeable healthy country life, a life which gives joy in living, as was presented by the President at the opening. I thank you.

President WALLACE—We are ready to entertain a motion to adjourn. Ladies and Gentlemen, remember that the meeting is at 8 o'clock sharp. We are to have a great program tonight. Mrs. Moore, Dr. Wilson, and Dr. Wiley.

The Congress stands adjourned until 8 o'clock this evening.

SIXTH SESSION

President WALLACE—The house will come to order. The secretary has a telegram to be read:

Returning from two weeks on the firing line of conservation with Secretary Fisher. I send through you the accredited representative of the American Civic Association hearty good wishes for the great movement now being considered and promoted by those who believe in a continuing and improving America.

J. HORACE MCFARLAND,
President American Civic Association.

President WALLACE—We are to be privileged this evening to have an address on the Community Club, by Mrs. Phillip Moore, St. Louis, president of the General Confederation of Women's Clubs. (Applause)

Mrs. MOORE—Members of the Conservation Congress: I have already said to the officers of the association that we very much prefer "Community Center" to "Community Club." It will cover the ground much better, as you will see, from my viewpoint:

It may be a question in the minds of many present why this particular subject has been assigned to a representative of the General Federation of Women's Clubs. I am glad to present the very best of reasons: because we have studied it for years, and have worked on the findings of such study.

At the Second Conservation Congress in St. Paul our honored ex-president gave in some detail the history of the Country Life Commission in which he had become much interested. Economic and social questions engaged his attention; he had given thought to the economic strengthening and social elevation of the Irish farmer, in connection with the policies of conservation and country life in our own country.

The results of the Country Life Commission were of the widest import, but were never made public, inasmuch as Congress did not appropriate money to print the findings.

It was about this time that our interest was specially centered on the life of the women of rural communities; one of the Eastern publications supplemented the existing inquiries from the Government by sending out letters to approximately 700,000 readers. There were answers from nearly every state in the Union which would have required a large office force to read and tabulate. The majority of these letters was given to our general federation board members, representing through their own and advisory states all the community interest which we wish to bring to you today.

The result was extraordinary—answers from a thousand women, with facts, feelings, hopes, ambitions, possibilities and probabilities. The bulk of correspondence came from women, whose letters showed that they are not having for one reason or another what Mr. Roosevelt called a "square deal."

The letters were distributed among the board members, were carefully read, and they frequently gave an opening for further correspondence—with most interesting, personal results. The letters were not illiterate; many of the women have been school teachers and nearly all have had a good education; many were eloquent in deeper modes of expression than rhetoric.

The volume of data which these letters presented is of high value industrially, from a sociological point of view, and with reference to sanitary conditions; the study of public schools and country churches would gain largely from this material.

Our board members represented, and naturally for that reason understood, the New England and Eastern states; the sandy shores, the Pennsylvania settlements, the sunny South, the mountain regions, the near West, the river states, the Northern plains, the prairie stretches, the Rockies and the Pacific shores.

Only a fraction of the answers returned could we utilize to assort and digest; we believe it is beyond the power of any but a commission to recommend, and such commission might well give its entire time to the work.

We have, however, as I said in our reports, made further inquiries, have come into closer personal relation, have assisted wherever possible, and have certainly recognized the needs of many outlying, lonely homes.

You will allow me to give from the experiences of these letters through our members some few generalizations:

Iowa and Nebraska happened to be grouped together. The eastern and southeastern part of Nebraska are geographically one with Iowa in soil, surface and products, and the two states are allied as to their inhabitants. Except in isolated colonies, the farmers of Iowa and Nebraska came from the Eastern and Central states. The foreign-born settlers come almost exclusively from Ireland, the north European countries and Bohemia. The northwest portion of Nebraska, embracing the "big Sixth" congressional district with the far western part, is grouped geographically with eastern Colorado and Wyoming, and the problems of the farmer there differ materially from those of the farmer in the fertile and populous eastern division of this section.

THE DRAWBACK TO RURAL LIFE.

Everywhere the isolated and primitive character has been the greatest drawback to rural life. To those who have depended always upon companionship and society for their interests and enjoyment, this loneliness is intolerable. Physical conditions are changing this, the telephone, the rural mail delivery, the automobiles and the interurban are bringing the comforts and companionship of the town to the farm. There are farmers' families who planned ten years ago to move to the town as soon as a competence had been accumulated, but who now, with more than the hoped for income, are content to remain on the farm, the active management having been turned over to a tenant or a son, and to enjoy the comforts of the country.

In the older settled portions of these states the farms are being divided. The high price of land is driving the farmer to more intensive cultivation and this will continue to eliminate the more disagreeable features of rural life.

Wisconsin, Minnesota, North Dakota and South Dakota were grouped and the interesting items were as varied as they might be in more widely separated regions.

There is no "hard luck" tale to tell of poverty and squalor in this

region, although the conditions differ widely from very poor to very good. Everyone is already familiar with the stories of the poor wives who have not been away from the farm for five or ten years. There are too many such in the Northern plains; these pitiful tales are all too true, but they are not the whole truth. To get at that it is necessary to know not only the worst, but the best conditions. The best are especially worthy of mention because they indicate possibilities, and are an example and inspiration to those not already arrived at prosperity.

While there are still to be found one-room sod houses sheltering whole families, there are others with all the modern conveniences of steam heat, good plumbing, electricity for light and power, telephones, and the rural postal delivery bringing each day from the outside world papers, books and magazines. And these are the fruit of industry and frugality; and between these two extremes are many homes of moderate means where conveniences and luxuries are not yet possible, but where there is wholesome, normal living.

The great factor in improving rural conditions is education in scientific farming, and in these states there are excellent educational advantages offered to the young men and women who wish to make this a business. Each state has its agricultural college, which is usually a department of the state university, a school where agriculture and its kindred subjects rank with the technical or professional courses; the tendency is to dignify the business of farming, to make it attractive from both the pleasurable and the practical standpoint. There are traveling libraries equipped not only with books for entertainment, but books in various languages for instruction on subjects of rural interest, and these libraries go to the very remotest corners of the state.

The women who have answered the questions in the rural conditions inquiry are agreed that the farm presents great possibilities for happiness, if they could only have a little more help with the farm work, and more frequent chances for change and recreation. They rarely complain that their work is too hard, but only of its dreary monotony.

Fraternal societies afford the greatest opportunities for social intercourse for our country people. Clubs—as we know them—are infrequent. The varied nationalities represented in new states present no common ground on which people of widely differing habits of mind and modes of speech can meet, and this condition and the lack of help enhance the difficulties of social gatherings.

It is very evident that each section of this great country must present its own problems. In the part of the country included in "The Rockies" we find four types of rural life—the small town, the farm, the ranch, and the mining camp. Answers came from all of these. While the last is not, strictly speaking, a rural community, it must be so considered in any effort to brighten the lives of the women who are removed from the advantages of city life.

THE BUILDERS OF THE WEST.

These people, who are in large measure the builders of the West, have come from the more thickly settled states, to try their fortunes under greatly changed conditions; and one of the great hardships that face them is the fact that their means will not permit their first experiments at farming—either dry farming or irrigated farming—ranching, or mining to be a failure. And in the very nature of things, a failure is too often made the first year. If the family finances permit the partial loss of the first year's work, and if the family adopts the methods proved to be successful, the after years are brighter and not shadowed by poverty. Poverty in the West is a removable cause.

Loneliness is a second problem which is being rapidly met in these states by the organization of women's clubs and the foundation of local libraries in the towns, and traveling libraries for those outside. Colorado has done especially good work with her traveling library boxes.

For the most part the people are hopeful and happy. They came into this mountain region expecting difficulties and they have no complaints to make that their problems are not all solved. They had the grit to come into a new and unsettled country, and they desire to stay. Every letter from the "farm women" of Colorado, Montana and Wyoming was a happy letter. Such rural problems are hopeful.

The North Pacific shores offer a diversity of agricultural and commercial interests, and the farmer here differs somewhat from the Eastern farmer in that he is more of a specialist. He is either a wheat, cattle, fruit or dairy farmer. He specializes on one thing, and does his work with the most improved machinery, or under the latest and most modern methods; he seldom attempts to derive revenue from the hundred and one little things that, in many districts, are made by the farmer's wife and hauled to the corner store to exchange for groceries. In other words, his farming is more of a business than the old idea of making it a semi-domestic arrangement. This relieves the wife of much of the drudgery of the farm and puts her on the same business footing in the home, as the professional man's wife.

With rare exceptions, the farmers have rural mail delivery, farmers' telephones, and very often electricity for light and other purposes. The roads, as a rule, are good, and the automobile is fast displacing the farm horse.

The schools of higher education are filled with the children from the rural districts, and many farmers move into town in the winter, that their children may have better educational advantages.

In the smaller towns many farmers' wives join the women's clubs. While this is commendable, it is not necessary to the life or happiness of the women, for in these states the grange is a great educational factor. It is perhaps the only secret organization in existence where men and women meet on an exact equality. In it some of the best legislation originates, and the probe sinks deep into every proposed measure that

affects the farmer; here the conservation of every resource is discussed, and, knowing that they must enter into these deliberations, the farmers' wives read and keep abreast of the times. The grange meetings are all-day sessions, with a goodly proportion of the day given over to social pleasures; the young people enjoy all sorts of healthful sports, while their elders discuss the prospect of parcel post delivery, the threatened increase of postage on magazines, or the postal savings bank and many other things that bring comfort or enlightenment to the rural home.

The suggestions that came in the letters from New England will be very helpful whenever needed, and have already come into some recent government policies.

The advantages and disadvantages of farm life, in the many letters from the Pennsylvania settlements, would give thought to the most logical mind. They have been culled, however, from a more than usually large number of replies, and due somewhat to the fact that 180 sessions of farmers' institutes were held for women in one year throughout Pennsylvania.

I think I need not enter further into the details of all parts of the country, or even give recommendations, which a special committee might better bring to a future meeting; but there are certainly two policies which are closely allied—conservation and rural life. When public opinion is thoroughly aroused, it is but a question of time for the will to find a way. There must be a voluntary effort, and such volition must be aroused by education.

One of the most vital items to those who are specially interested in the educational progress of a country is the awakened public opinion in the Middle West shown by the development of the agricultural courses in all of our great universities and colleges.

Even public schools in some parts of this region are giving practical instruction to old and young. Meetings are being held upon the farms; lectures, experiments and demonstrations are being introduced.

The church has quickly realized that there must be a combination of emotion and sanity; the practical and ideal have come into closer relationship; clubs of young men and of women, sometimes of the two together, are taking up all subjects pertaining to the farm life; and wherever these subjects are alive, and the social element is not forgotten, we find distance makes no barrier. At once means of communication are increased. The telephone is in every home; the trolley line goes by the farm—even the automobile becomes a necessity, and good roads are at once established. Distance is therefore annihilated, and the lonely life is a matter of the past.

How short a time it is since insanity was a large concomitant of the farm life for women! Recently, at a session of the Charity Conference in Boston, there seemed to be very little reference to the need for prevention of insanity among isolated farm women. I found it to be largely a sorrow of the past; but I do not agree entirely with such

statements, when I recall the letters, from the immense prairie farms. Woods Hutchinson, in speaking of the change that had come into the homes of all women—the removal of much of the old-time work from the home to the factory—says that it is a convincing proof of the stability of woman's mental powers that generations of that semi-solitary confinement at hard labor known as "home life" have not made her a candidate for the insane asylum. "Man would have gone raving crazy long ago."

IDEAL CLUBS.

A community club, as we would call a club, must be composed of men and women, for they must, under ordinary circumstances, go together to their meetings. The Farmers' Institute is more in the line of this particular thought, but the community center or grange covers the ground fully. The institute comes but once or twice a year, while the club might be regularly intermittent.

This must mean a central meeting point with the very best and appropriate reading matter pertaining to equipment of both home and farm; the solution of the help question (shall we ever reach this millennium?), certainly demonstrates in cooking and pure food, discussions as to education of children, and the way to obtain better lighting and heating, and good roads should be a part of these meetings.

Where shall this center be—the school or the church?

The women's clubs of the nearby towns have attempted in an entirely friendly spirit to maintain rest rooms for farmers' wives when on shopping bent, with a possible creche for the babies and a caretaker and amusements for young children. This is excellent, but will never take the place of the community center.

A change in the attitude of public opinion towards the old question of town and country means some practical outcome to all this discussion. The interdependence of the two is real, each having its influence on the other, the main consideration being human rather than material. The town representative can talk out his grievances, political and economic; the farmer has a full stock of grievances, but rarely gives formal expression to them; and the farmer's wife acknowledges that her social life is barren. The two need to bring their problems to each other; and a community spirit will surely lead to forms of organization for mutual economic and social advantage. There must be in the rural community such social life as shall withstand the attractions of the city, if we wish the farms to remain in the control of their owners, instead of in the hands of renters.

What can be done to give the farmer's wife a little leisure in which to enjoy the advantages that might be hers?

The answer to this is the answer to the question which confronts every one who is striving to improve social conditions anywhere. It is the great problem of work and the "out of works," which city and

country are trying alike to solve, working from opposite horns of the dilemma. With thousands of hands begging for employment at one end, with thousands of jobs begging to be done at the other, it is not creditable to our initiative that we have not discovered some way to equalize the supply and demand of labor. We are already educating our country youth to stay on the farm; what we need further is a campaign of education to destroy the lure of the city, to teach men and women that there is plenty of work under wholesome conditions awaiting anyone who will take it, that those who cannot go the pace of the city can find pleasant, profitable living where there is time enough, and work enough for every one, if they will but go back to the soil.

The conclusions drawn from the investigations into rural conditions, which I have been able to make, have changed my opinion very materially. Life is not so sordid and hard, poverty is not so pinching as I had thought. That it is narrow and unnecessarily colorless is evident, and that much can be done to brighten it is certain, but just what form of help to offer is a grave question.

There is always needed a plan and the machinery to carry it through. I am not sure of name or method, but a central force there must be, whether of men or women—possibly it might be well to appeal to the woman, who makes the home life, to whom it is of so much importance.

From all our letters we note that the women love the country life, both for themselves and their children. They would doubtless be ready to take up any coöperative plan that might be suggested. Certain I am that no committee should be appointed to consider ways and means that did not have in its membership some thoughtful, progressive farm women. Towards this common end should be included also representatives from all the agencies making the community life educational and religious.

It is not difficult to draft a scheme, but it is essential that the elements most needed to carry it out should feel themselves vitally interested.

Horace Plunkett suggests "an institution which shall be scientific, philosophic, research-making." His arguments are so entirely to the point that I quote some few sentences:

Every social worker knows how the knowledge of what others are doing will help him. It is strange how little the problems of the rural population have entered into the study of sociologists. At leading universities I have sought in vain for light. * * * The fact is the subject must be treated as a new one, and it is urgently necessary, if the work of the Country Life Movement is to be based on a solid foundation of fact, to make good the lack of information, which has resulted from the general lack of interest. * * * An institute is wanted to survey the field, to collect, classify and coördinate information and to supplement and carry forward the work of research and inquiry. The rural social worker requires as far as possible to carry exact statistical methods into his work, so that he may not have to depend on general statements, but may have at his command evidence, the validity of which can be trusted, while its significance can be measured.

In agreeing with his desire for absolute data, let us not forget the

human side, the personal evidence, which can never be obtained through an institute.

May we hope that the Conservation Congress, which has ever shown a human interest in the conservation of vital force, will be the leader in bringing to its own the vital center of the country!

President WALLACE—You will all agree with me, Ladies and Gentlemen, that we have had one choice treat tonight. There are two more coming. The Presbyterian Church of the United States has taken a very great deal of interest in the country church. Do you know that if the Presbyterians do not revive their country church there won't be a Presbyterian church in the next generation, for this reason, that the town, while it can get all the lawyers it wants, can grow them, and all the doctors, can't grow preachers enough to supply their own pulpits. (Applause) Now, we are to have before us here tonight Dr. Warren H. Wilson of New York City, the superintendent of the Board of Home Missions of the Presbyterian Church, and he will give us a new phase of conservation.

[Dr. Wilson's paper will be found in Supplementary Proceedings.]

President WALLACE—Here endeth the second lesson. (Applause) We have been told about society. We have heard about the practical everyday religion of feeding men. And now we are going to be told by Dr. Wiley how to keep healthy, so that we may enjoy our religion and feed more men. (Applause)

Dr. WILEY—Mr. President and Delegates of the third National Conservation Congress, Ladies and Gentlemen: My sermon is going to be short. I think a great many of these country churches were vacated by two and a quarter hour sermons. (Applause) I want to insist, however, that in this sermon I am going to preach I want to follow the steps of my illustrious predecessor. I have been preaching sermons for a number of years, and I think it is about time I was ordained. I believe in all the principles of conservation that you have taught this week and many previous weeks. I was an early and insistent and persistent conserver. I believe I have the honor of having delivered the first public address that ever took the term "conservation" as a text. In 1894 I delivered an address on the conservation of the fertility of the soil, and so, as well as my dear friends, the Presbyterians, I am a little bit conservative, too. (Applause) I am sorry that that condition has obtained which he described here, the empty country churches. But let me tell you they are no more empty than the country houses of this country. Everybody has been going to the town. They have taken the greater part of country boys who would have made good farmers and made pretty poor preachers out of them. On the whole the country boy thinks it is easier to preach once a week than it is to plow corn every day and feed the stock on Sunday. And naturally he chooses the line of least resistance to make a living. That is the reason that the country is becoming de-

serted, and just as long as it is easier to make a living in the city than it is in the country, the country is going to be empty, and all you preachers can't fill it up, and the object of these meetings is to make it easier to make a living in the country than in the city, and then you will see the tide flow the other way, and not before. (Applause) One reason people ought to live in the country is because they can be healthier there. I would rather be a healthy boy in the country than a sick boy in town. If I have equal health, I think I would rather stay in town, for a boy has more fun in town. If you take fun away from the boy you deboyize the boy. Another thing, there is too much demanizing, and dehorning, in the country life. I know about this Pennsylvania Dutch people, why they are so prosperous, because their home life is in their life in the country. It follows the Pennsylvania Dutchman to the grave. It is a pleasure to go to a funeral in that community. (Applause) It has got to be a burden, every time I am invited to a funeral, I don't want to go. When I was a boy I loved to go to a funeral. (Applause) They have a good custom up there among the Pennsylvania Dutch, too. They all go to the funeral, and nobody begins to cover up the grave until some neighbor goes up, takes off his hat and says a good word for the departed. Then they can fill up the grave. When old Jacob Shaffer died he was the meanest man in the community. He was buried on a cold, rainy day in November, when it was half rain and half sleet. They stood for ten or fifteen minutes, or half an hour, and nobody said a word. They had to stay there, and could not leave until the grave was filled up. Finally one neighbor, in despair, went up and took off his hat and said, "Well, I can say this about Jake: he wasn't always so mean as he was sometimes." (Applause) Now, I want to say this about the preacher. He is not always so inhuman as he is sometimes. When I heard this sermon tonight I almost concluded that a minister of the gospel was a real human being. (Applause) I want to tell you that he was not that to me when I was a boy. I did not look upon him as the friend that he ought to have been to me. And that is the reason one boy did not go to the country church oftener.

CONSERVATION AND UTILIZATION.

I believe in the conservation of the natural resources. I believe in the conservation of the coal and the forests. But conservation does not mean hoarding. It means utilization. I do not want to go through life with cold feet to save the Alaska coal and warm up somebody that is going to live a million years from now. (Applause) I want to get some of the benefit out of the coal while I am living, and out of the forest and out of the stream. My idea of conservation is to use the natural assets of this country for the benefit of the people, and not for some syndicate of rich men alone. (Applause) And I hope we won't spend all this generation quarreling about who is going to have the coal, but that we will find some way to get it out and use it before

it gets out of date. Because I want to tell you that we will not need coal much longer. The scientific men will find plenty of ways of finding heat and motive power when the coal is all gone. And if we do not use it now, it is going to become simply a specimen in the near future. (Applause) I want to say that we want to use the lumber, and use it wisely. There is no economy in allowing a tree to stand in the forest until it rots. We want to cut the old trees down just like Nature comes around and cuts down the old people and gets them out of the way. That is the way that science will provide lumber and at the same time continue to reduce the forests. Only the mineral resources are limited. There is just so much coal, just so much gold, and when they are used up, so far as I know, there is no more making, and they will be then gone. But do not have any fear. When the iron is all gone and the silver is all gone and the gold is all gone, there will be plenty of metals at the disposal of man, because we have found now how to convert clay into metal. I went into an automobile shop the other morning where they were making the frames out of pure aluminum. We have got enough clay in this country to last several years. (Applause) It will take the place of the steel and the iron and the gold and the silver and the copper. Have no fear of exhausting these supplies of humanity, but exhaust them for the benefit of the public. (Applause) If we could use one millionth part of the force of the wind we could turn every wheel of industry in the world, warm every house, cook every meal in this whole universe. And the wind and hot air shops are very abundant still. (Applause) There are no signs of it giving out in the near future, either. If the wind is going to blow and turn the wheels of commerce and industry, there are 24,000 wind mills with a dynamo attached to them and storage battery guaranteeing to the farmer all the light he wants in the barn, cooking stove, and turning the sewing machine and grindstone and engine every day of the year. Do not have any fear, ladies and gentlemen, that the natural powers of this world are going to be exhausted. They are here and here to stay, and here to be supplied by the advance of science in such a way that no matter how populous the world becomes in the future nobody is going to suffer for warmth or clothing or power in this world of ours, and we want to get so many people in this country that there won't be any complaint of vacant country churches. And there is no doubt that this country can supply the food and clothing for untold millions of people yet unborn. We can have every foot of our country as densely populated as Belgium and still have plenty for everybody, because advancing science will supply it. The capacity of a man's mouth is limited and constant, but the skill of his hands is unlimited. He has two hands, but only one mouth, and the advancing skill of his hand is going to fill the mouth.

President WALLACE—Turn around that way and face the audience, please. (Applause)

HEALTH, THE GREATEST ASSET.

Dr. WILEY—I would just as leave say it all over again if you didn't hear it. (Laughter) Now, there is one public asset of wealth that is rarely mentioned in these conservation congresses, and that is the public health. Let me tell you, ladies and gentlemen (applause), it is worth in money more than all the gold and all the forests and all the water power combined. If a man boasts of the wealth of Kansas City he speaks of the railroads and the packing houses and the great centers of distribution and the wholesale commercial houses and the value of real estate. He never says a word about how much a people are worth in health. I asked the children in the Central High School today how much each one thought he was worth in money. They did not know. I told them that in a year or two every one of them would be capable of earning \$50 a month. I think there are lots of parents in this town that would not take \$12,000 for a single child they have. And every single child is worth in money, if it is developed into a man or woman, \$12,000. And if you take all of the people of the country and value them at \$12,000 apiece, all the rest of the wealth of this country sinks into insignificance. And I am satisfied that that is the value of every man who is able to earn a dollar.

Now, some people think women are worth nothing because they don't get paid much for their work. Housewives do not get a monthly salary usually from their husbands. She ought to, but she does not. Practically all of them ought to get a salary every month. (Applause) But that does not make any difference in the earning capacity of the housewife. She is worth more than \$50—every one. So I would say that there are 40,000,000 of people in this country who are capable of earning \$50 a month and do earn it. That, in my mind, will give you a good idea of the wealth of this country in health. But that wealth consists of health. If you impair the machine, the human machine, you impair the earning power of that machine, and thus you diminish its value. If you let the child die you rob the father of a great asset. And we are letting our children die every year. You may go into any graveyard in this country and count the little graves of children under five years of age, and three out of every five of them ought not to be there. The little body that is crumbling beneath that tombstone ought to be in the high school of the city or in the active walks of life. We let these children die and never think of the responsibility that rests upon us. How can we get to be healthy? Well, in the first place heredity. We have got to begin away back. That don't do us much good, but if we pay attention to it it will do future generations some good. It was Oliver Wendell Holmes I believe who said. "You have to begin to make a man when he was a marsupial possibility." We have got to go way back now to shape the careers of men and women unborn. Heredity, a sound body is one of the rights of every human being who is born.

(Applause) I am glad to know that many of the states are already taking steps to insure that, and to forbid marriages with people who are physically incapable of producing healthy children. Marriage we regard as a sentiment, and we do not like to have anybody interfere with our sentiments. But I tell you marriage is an affair of the state. If the state has a right to demand a fee for a marriage license, and to prescribe how it shall be performed, and make laws by which it may be broken, it has the right to forbid the marriage as well as to regulate it. (Applause)

CONSERVATION OF FUTURE GENERATIONS.

I say then that our first work for public health is to look after the unborn generations and to see that they have healthy parents. That does not help us now, but we must look to it right now. I asked a member of the school board today if they had medical inspection of the school children here. He said a partial one. I said: "Do you have a dental inspection? Do you have a registered dentist come around through the school and see what kind of teeth the children have?" That is just as important as whether they come with clean clothes or not. I have no use for a boy or girl who loses his teeth in childhood. We must begin the conservation with the children of this country, of the public health. The time is coming when there will not be a school in our broad land without competent medical supervision. We demand now that our children be vaccinated. We also should demand that they bring to school no contagious disease to spread among their fellows. And there are lots of contagious diseases that we do not think of as contagious, such as tuberculosis for instance. And so by beginning with the unborn generation we may add to the length of human existence. Heredity then, sound bodies in which sound minds are and may be developed, is one of the primal basic qualifications for the conservation of human life.

Then the next thing is, after we get healthy beings into the world, to see that they are properly nourished, and unless the child and the man and the woman have the proper food they cannot be expected to maintain their health. Unless you feed an engine, or boiler, good coal you cannot expect it to develop the maximum of power. Unless you feed a man well, nourish him well, you cannot expect him to be an effective machine, and to do his proper duty as a member of the community. The thing to do to secure the maximum efficiency of the machine—feed it well. What are we doing about that? We are making a beginning in that line. And the first thing we are doing is with the young child. We are saving the lives of the infants. I may say there has been more progress made along that line than in any other, and that is the place to begin. Here a few years ago if 125 children did not die out of every thousand that were born we thought something was wrong; we rather expected it. And in some communities a great many more than that died.

In many communities the death rate has been reduced to seventy per thousand. There is no reason why over this whole country the death rate of the children, of the infants and the child under five, may not be reduced so as to make the death rate per thousand not very much greater than that of the adult, namely, thirteen or fourteen per thousand in a healthy community. And I do not know any reason why the children of this country should die at the rate of more than thirteen or fourteen per thousand when they are properly cared for at birth, and have proper fathers and mothers to give them healthy bodies. This will be a great addition to the wealth of the country, to save the children. And we can save the grown person by a wholesome diet. I am not one of those who believe in a starvation diet, cutting down food. There are a great many preachers of that doctrine in this country. That is a false doctrine. Nature provides that we shall have enough, and intended we shall have enough and then a little more. When the engineer fills up the tender with coal, he does not take just enough to get him into the station. No. He puts in a ton or two in excess. So Nature provides that when we eat to get strength to perform the mechanical functions of life, we shall have just a little more than is necessary, the factor of safety which enables us to go over the emergency safely.

THE RIGHT TO NUTRITIOUS FOOD.

And, therefore, it is the right of every citizen of this country to have nutritious food and to have plenty of it. Again, when the animal does feel sick, it has the right to scientific attendance with good food; in other words, the sick man has a right to be attended by a competent physician, and to have remedies administered prepared by a competent pharmacist and of pronounced purity. That is another thing we are securing for the people of this country—pure drugs to help them get well when they are sick. (Applause) And we are trying to keep men from practicing medicine who have no qualifications to do so except a facile pen to write an advertisement. The day is coming when a man cannot practice medicine in Kansas City by the newspaper as he can today. I looked at your newspapers. They are full of prescriptions, written by physicians who could not begin to pass the examination of your state board of health. They are quacks and fakirs, and the advertisements are worded cunningly to separate your money from your income. And the law permits it, while the regular physician cannot come to Kansas City and practice medicine without taking out a license from the state board of health, and yet you allow a fakir in any other county to come to town and practice medicine *ad libitum*. We are going to stop that for you and save your money and save your lives (applause) by securing competent medical supervision of the sick of the community.

Then we are going to protect you from contagious diseases. We are building up now a cordon around this country against invasion, not

from an armed enemy, but from one that has slain a thousand times more than the armed enemy would slay—the germ of contagious disease. While Europe has been suffering from Asiatic cholera for a year, we have succeeded absolutely in wiping it out of this country, except one or two sporadic cases, and we no longer fear yellow fever. We know it because we know how to handle the mosquito that spreads it, and we segregate it in the spots where it breaks out. We are beginning to control that most dread of all diseases, tuberculosis. And the day is coming when we will have full control of it. There are people in this house who will live to see tuberculosis as rare as smallpox is today, in my opinion. (Applause) Why? Because science has found out how that disease is conveyed, and having found out the cause, we can proceed to the remedy, and the day is coming when there will be camps of detention for tuberculosis patients, just as there are today for leprosy. It looks hard. It looks inhuman. But what we must care for is humanity, and not the single life. You remember what Tennyson says: "Are God and Nature then at strife, that Nature sends such evil dreams? So careful of the type she signs, so careless of the single life?"

THE INDIVIDUAL AND THE COMMUNITY.

The individual must give way to the community, and if he is afflicted with tuberculosis he must be segregated, so that the disease may be conquered and kept within bounds. And so typhoid fever will be conquered—all the diseases which are due to infection and contagion. And great progress is making along this line today, so much so that we are encouraged in the belief that other diseases yet unconquered may meet the enemy and master, like for instance pneumonia and diseases of that sort. And the result will be that by the advance of scientific medicine and by the wise control of the state, men will be spared the destruction of their usefulness and value in middle life. Why, how much does it mean to die before your time? All the years of preparation, all the money spent in your education, all that you have done to prepare yourself for the duties of life, cut off in an instant by an enemy more treacherous by far than any foreign invader could be, more to be feared than any armed foe could possibly be feared. We have no need to build sixteen-inch guns to protect our trade on the Panama Canal. What we have protected are the men who builded them. The greatest triumph of the Panama Canal is not that it is a wonderful cut, is not that it is protected by sixteen-inch guns, but that the men who build it are as healthy as you people who have stayed here in Kansas City. That is the great triumph of the Panama Canal. (Applause)

Then we want to preach sanitation in the outplaces where the church ought to be built in the country. That is one reason that the country is not attractive, because there are no sanitary conveniences there. The farmers are living today in a state of barbarism almost in that respect. What we need to do is to populate the country in order

to make the country attractive, and it can be done at little expense. There are preachers today who are preaching sanitation about the country school house, and to the country farmer, how to make himself comfortable at home. The roller towels have been abolished in Kansas. The Pullman Company has taken out its public drinking cups in the State of Illinois, and failed to give any other, so you can go all through Illinois without any danger of drinking the Pullman ice water. (Applause) The day will come some time when the Pullman Company will ventilate its cars. (Applause) On the train coming out from Washington there were at least five hundred free passengers called flies that came all the way and enjoyed the trip (laughter) and never lost a moment from sleep. (Laughter) Think of it at this modern day, to start a palace car from Washington that cost \$20,000 full of flies! But we are preaching sanitation in out of the way places like the country home and the Pullman car, and the people are learning. And you will be able to travel after a while without danger of contracting a disease in the car where you sleep, or in the hotel where you eat. This gospel of sanitation goes with the gospel of the country church, because cleanliness is next to godliness, and sometimes it seems to me it comes first and godliness second, because a dirty man has a great deal of trouble in feeling godly. (Applause) So the gospel of sanitation is coming to our help. Another thing will help, and that is the gospel of segregation. What are we to do to prevent the influx into the city? I will tell you one thing that the city could do. Every city wants to have more people in it. They do not care what kind they are. They want more than their neighboring city. It is the ambition of the town to pad the census. Many of them are in jail for doing it today. If I lived in Kansas City I wouldn't care whether we had more people than Omaha or not, but I would love to have, if I were in Kansas City, cleaner streets and purer water and more segregated houses (applause) than Omaha or any other city. And you ought to have them here with all your beautiful streets. You have the principle here of keeping the houses apart. There is plenty of ground in this country to build houses and have a little spot of green by them where they can have flowers in the garden and potatoes. That is what we ought to do to prevent the influx into the city.

THE CITY NOT FOR MANUFACTURING.

I would recommend as a sanitary measure that every city forbid any manufacturing of any kind within its limits. The city is not for manufacturing. The city is for exchange only, and if you would banish the factory you would do much for the sanitation of the city and for the factory workers. You would get closer to the raw material which the factory uses. You would save in transportation, and every workman could have his little cottage with his little piece of land that would help populate the country and help the church that was built near the

factory, too. I say we can put the people into the country by legislation if in no other way in that respect, and the moment the factory starts the farmer is coming to raise garden truck. You will have growing around the factory a prosperous agricultural community with its church and it will be a great deal better than having a little church with a lonely graveyard. The most awful thing in the country is the graveyard, especially at night, when the boy has to go home past it. That is the way. We will segregate the population and thus conserve the public health.

Last of all, we can crown the work of the gospel of sanitation by enacting into a law provision for a national board of health with real power and with real authority, whose director shall have a seat in the President's cabinet and advise him in regard to the most precious of all the assets of our country, public health (applause), and he can guide and help the authorities of the state and cities, and furnish them the material with which to work, and that is coming after a while. We are going to conquer and bring together all the government authorities which have to do with the public health in the one grand organization which will conserve the health of this country and have a voice of power in the councils of the Nation. And then when we do this we will have instilled into the people the idea that there are things that are more important than dollars. Every movement of this kind is stopped by the dollars, the fear that somebody is going to lose some money, while at the same time it could be easily shown that every single movement of this kind is for the increase of our national wealth, and the day will come when the doctrine of graft and greed will have to give way to the doctrine of the sanitation of the people. (Applause) We have today our Fourth of July when we celebrate. In some parts of the country the colored citizens meet and celebrate the emancipation. So I want to live to see the day when the people of this country will meet together in one grand convocation to celebrate the emancipation from the reign of greed and graft and for the establishment of the principles of sanitation which keep them well and happy and patriotic American citizens. (Applause)

President WALLACE—This Congress will now stand adjourned until tomorrow morning at 9 o'clock.

SEVENTH SESSION.

Dr. Cyrus Northrop, President Emeritus Minnesota University, presided.

Chairman NORTHROP—The Congress will be led in prayer by the Rev. Dr. S. M. Neel, pastor of the Central Presbyterian Church of Kansas City.

INVOCATION.

Our Father, Who art in heaven, we recognize Thy hand in every good. We are dependent upon the bounties of Thy providence, and we invoke Thy blessing upon these Thy servants, as they have met together to consider the best interests that manifest Thy love and Thy goodness to the children of men. Thou hast taught us if any man lack wisdom, let him ask of God, Who giveth liberally unto all men and upbraideth not. We pray Thee that Thou wilt give us wisdom to guide us in this Congress, that we advise those ways and means that shall be productive of the interests of our fellow men in their various avocations, especially to those who are called to labor and till the soil, and may Thy blessing rest upon them and Thy providence be about us, sending the rain and the sunshine in season, and that men may look up to Thee with thankful, grateful hearts, and serve Thee honestly and sincerely, and finally meet Thee in richest reward in the world to come, and the glory shall be Thine forever, Amen.

Chairman NORTHROP—My instructions were to start the Congress at 9 o'clock, but it did not seem possible to do that. So I have compromised by starting it half way between 9 and 9:30. The regular order of business probably cannot be pursued at this moment. Is Mr. George W. Bailey of Missouri in the room?

If Mr. Bailey will come to the platform he may have the ear of the Congress for five minutes. Mr. Bailey, Deputy State Game and Fish Commissioner of Missouri.

Mr. BAILEY—I was highly pleased with the remarks of the gentleman Monday evening from New York on the conservation of wild life in that state, and again yesterday we enjoyed another treat from a gentleman representing the Audubon Society of the Empire State.

The protection of song and insectivorous birds in this rich agricultural land of the Middle West deserves more than a passing notice from this great Congress.

That the destruction of song and insectivorous birds means the increase of pests, so destructive to fruit and grain crops, is acknowledged by the best informed farmers of the day. And what a great pleasure it was to hear reports like those from the gentlemen representing the State of New York.

Here in Missouri we have had some trouble in getting the attention of farmers to this important subject, but they are beginning to realize that the insect-destroying bird is one of the best assets to the farmer.

The present Game Department of Missouri has never cost the tax payers of the state one penny, but the revenue for the protection of game is obtained from hunters' licenses, paid into the State Treasurer's office.

In North Central Missouri I have organized districts in several counties for the protection of prairie chicken and quail, and in these localities the farmers refuse to permit the destruction of these birds out of season, and we have now more than fifteen hundred prairie chickens absolutely protected, and the farmers will remember that in many neighborhoods of the state during the past season the grasshoppers were very destructive to late corn, and, as a proof of the usefulness of the wild birds,

there was no complaint of the grasshoppers from the farmers in the localities where the prairie chicken, quail and other insectivorous and song birds are so well protected.

Through the efforts of our efficient Game and Fish Commissioner, Hon. Jesse A. Tolerton, the Chinese pheasant has been introduced in many counties of Missouri, and has proven a very great destroyer of insects, and especially so to the hated potato bug.

Some time ago I read an article in the Dallas News saying that the boll weevil had cost the State of Texas \$20,000,000 in the last few years, and the editor called attention to the fact that the boll weevil never appeared until after the target gun in the hands of the vicious and ignorant had so wantonly destroyed wild bird life in that state.

Ladies and gentlemen, this is a startling statement, but true, and what an object lesson for the great subject of bird conservation.

Chairman NORTHROP—In the absence of the gentlemen who were upon the regular program, will you indulge me for a moment or two while I say something? In the papers in the South there has been for some time special notice of the fact that a few years ago a small cotton crop yielded to the cotton planter \$240,000,000 more than the larger cotton crop which succeeded, and the lesson sought to be taught is that the products shall be kept down as low as is necessary to secure the highest prices, and to that end if a large amount of cotton has been raised a considerable portion shall be kept out of the market until the prices rise to fifteen cents a pound, and then brought forward as fast as the market will take it. There is some disposition among the wheat farmers to keep back their wheat until the market is high enough to enable them to get the best prices. There is nothing wrong in the farmer doing that, and securing the best price he can, because the cotton and the wheat are not ultimately lost. At some time or other they come into human use. But there is another department in which the same process does not meet with the same results. I refer to that most important and, as it seems to me, growing important department, fruits of all kinds in the United States. We talk about the high price of living, and the price is high. Anything which will relieve the demand upon the most common necessities of life will tend to lower the cost of living. Anything that we can introduce and make a common article of food for a large portion of the people to take the place of beefsteak is a blessing to the country, and we are receiving into this country hundreds of thousands of immigrants at the present time, many of them—perhaps most of them—coming from countries where the practice is to live largely on fruits—the Italians and others. Now, you are conserving the resources of the country, and how are we conserving our resources in the matter of fruits? Why, there are millions of dollars' worth of fruits that are permitted to perish every year in order that the price of fruit may be kept up to a certain grade all over the country, and the consequence is that this million dollars worth of fruit that might

feed the people, or might take the place of some other more important food in some way, is all lost to the country. What is the use of conserving the fertility of the soil if we are going to have our soil so fertile that we can raise \$50,000,000 worth of fruit and let \$40,000,000 perish, in order that for the ten millions we might get the price of the forty millions? Some way ought to be provided by which the fruit that is raised in this country shall be made available for food. I do not ask that anything will be done that will interfere with the prosperity of the fruit raiser. But that he shall raise a large amount of fruit and then have it made impossible to put upon the market more than a quarter of his product, and have that fruit maintain in price the same standard that the whole of it would, is a wrong, it seems to me, to the people of this country, and a detriment to its welfare. What we want is to feed people comfortably and at the lowest rate that is consistent with existing conditions.

There is nothing that would contribute more to the health of our people in a large way than increasing to a very considerable extent the use of fruit. So many persons use things that are not really advantageous to health. Fruit would be invaluable, and we are raising millions of bushels of apples and kindred things that never come to the use of man, but are permitted to perish. The same is true of peaches in many cases, and with cherries in some states. It is remarkably true of apples. Those states on the Pacific Coast, Washington and Oregon, and the region round about there, are raising apples that are astonishing in quantity and quality, and they are preparing to produce a great many more. It will be of the greatest value to the people of this country if we can get them. Twenty years ago it was doubtful whether Minnesota could ever raise apples. We have apples by the thousands of bushels this year all around Minnesota.

Notwithstanding, green apples in the market when I left home were \$1.50 a bushel. That is not necessary. It ought to be so that the laborer, the man who works with his hands, can have fruit. God has given us a country that will yield almost everything. It will yield fruit in tremendous quantities, and the people will eat it if they can get it. What is the trouble? Why should three-fourths of the crop rot on the ground, while only one-fourth gets to market and brings the price that the whole should command? You see my point. It is not to interfere with the man who raises apples. I want him to get his full reward. But it is that this magnificent product with which God has favored us shall be utilized for the needs of this country, for their good, and for the removal of the stress in the demand for various other products, which are now at a price that is not within the reach of many people. We are met for the interests of people in general, for the good of mankind. No man liveth to himself; no man dieth to himself. If there is not grass enough and food enough to keep alive the cattle of the country, and a man has a thousand tons of hay, do you think he has the right to

burn up 999 tons, and then ask for the remaining ton the price of the thousand? Has a man a right to destroy what is necessary for the lives of his fellow men, when it is needed for those lives (cries of "no!") simply in order that by having only a part he may get the reward of the whole? I say no. We have to look for something besides ourselves.

It is not merely a matter of how much money goes into my pocket and how little comes out. It is a matter of whether I am doing my part in this world to make the world what it ought to be, and my fellow man just as comfortable and happy as I can. (Applause) (Good!) I have got to do it whether I am a farmer or anybody else. We have to so use what we have that it may benefit others as well as ourselves. I am not proposing any plan. I do not know what plan should be proposed. But, ladies and gentlemen, what I want is to see the products of the earth utilized for the support of men and women and children. And I want some way to be provided by which the magnificent products of our orchards may be carried all over the country, and the people may eat and enjoy them and live, and the returns to the producer of that fruit be all that they could ask. Can you help to secure this result in some way in the coming years? It is not secured as it ought to be at the present time. (Applause)

I resign the chair to President Wallace.

President WALLACE—I am very much obliged to Mr. Northrop for taking charge of the meeting in my absence. I have been down to meet Mr. Bryan. (Applause) I have persuaded him to put off his speech until 8 o'clock this evening. (Applause) Mr. Bryan will talk on a subject entirely in harmony with the spirit and purpose of this convention.

Delegate A. W. STUBBS—I have talked with a number of delegates from the country and understand that many of them have made arrangements to leave the city before 8 o'clock this evening, and I know it would be exceedingly gratifying to them to have Mr. Bryan here for a few moments some time. Do you suppose that could be arranged?

President WALLACE—Yes, sir; he will be here and you can get to see him.

Delegate STUBBS—We want to hear him.

President WALLACE—You may have a chance to hear him. We have a strong program; we keep the best to the last (applause), but we want you to assist us in putting through this program so that every man who comes here and says something can be heard. We will appreciate it, and push it through and just as fast as we can. Now, let me ask whether Mr. Curtis Hill is present? He is to address us on good roads. He is the State Highway Engineer of Missouri. What other matters have we to come before the Congress? The next speaker is

Mr. White. He is not here, but he will be here in a little while. We will take up the call of the states. We do not care about resources or coal mines, but we want to know what you have done in your state for conservation, and what you intend to do, dead earnest, honor bright, what you intend to do.

Recording Secretary GIFE—Oregon (no response); Texas; Utah; Vermont; Virginia; West Virginia; Wisconsin; Wyoming. We have a request, Mr. President, from the chairman of the Arkansas delegation to be heard. They were not here when their names were called.

President WALLACE—I take pleasure in introducing to you Mr. F. M. Filson, president Missouri State Association of Assistant Postmasters, who will talk to you for five minutes.

[Mr. Filson's paper is in Supplementary Proceedings.]

President WALLACE—Gentlemen: One reason for bringing this meeting to Kansas City was that we might get the voice from the South. Mr. Knapp, who has charge of the demonstration work in the South, was to be here, but cannot come because of illness, and his place will be taken by Professor W. J. Spillman of the Department of Agriculture, who will talk to you about fifteen or twenty minutes. Professor Spillman is engaged in the same work.

PROF. SPILLMAN—I regret very much that Dr. Knapp could not be here himself.

He is in charge of the farmers' coöperative demonstration work in the South. It has been suggested that I take his place upon the program. I cannot tell you of his work. The Secretary of Agriculture has asked me to develop similar line of work in the Northern states, and we are now laying plans for its development. I want to discuss a few of the problems that strike me very forcibly in my study of agriculture in this country.

Several years ago I spent two weeks in visiting the more successful farmers in the New England states. I visited ten farmers in that two weeks, and made a careful study of their methods. I want to say that while we usually speak of the worked-out, bleak hills of New England, that I found as good farming there on a few farms as I have found anywhere in the United States. And one thing which struck me very forcibly, indeed, was that the oldest boy or young man I saw on any of those ten farms was fifteen years old, and the youngest man I saw was forty years old. A short time after that I had the pleasure of addressing the Vermont State Dairymen's Association. There were a thousand farmers there, and in that assembly there were six who were under forty years of age. I asked those people where their young men and older boys were. They said they had gone to the city. Why have they gone to the city? Because they think they can better their

condition there. Is that true? "Well, we suppose it is. Most of them are doing better in the city than they did on the farm." I said, "They are wise boys then, to go where they can do better." I would advise anybody to do that. The statistics of agriculture in the New England states show that between 1880 and 1900, a twenty-year period, there was a decrease of 30.1 per cent in the area of improved farm land in New England, a decrease of one-third practically. During the period of 1890 to 1900, there was a decrease of 10 per cent in the rural population in New England as a whole. Since that time there has been a decrease in the rural population of practically all of the states north of the cotton belt and east of the great plains.

SOME STARTLING CONDITIONS.

During the last ten years there was a heavy decrease in the rural population of the state of Missouri, which I claim as my birthplace. Why is that? There are several reasons. One is that farmers are using more farm machinery today than they used to use, and they do not need as many men to man the farms as they formerly needed. Another reason is, many of the farms are not as well managed now as they were before because of the scarcity of labor, and they are not so profitable. But on the whole farms are more profitable now than they were ten years ago. There has been a ten per cent increase in the yield of farm crops in the United States in the last ten years. These conditions have brought about a movement which we have heard a great deal of in the papers recently, the back to the farm movement. Now, I am a farmer myself. I own a beautiful little farm down in the southwest corner of this state. I expect to be there next week picking my seed corn, and I am in full sympathy with every effort to develop agriculture and to improve the lot of the farmer, but I am not in sympathy with the efforts to make a wholesale migration of city people to the farm. I do not believe that is the solution of the question. In the first place we have on the farms of this country already children growing up who are getting the proper training to be farmers, aside from the schools they go to. Unfortunately our country schools teach them everything except farming. And as far as the farm experience is concerned those are the people who ought to be our farmers of the future. The city man has too much to learn. It takes too long to get adjusted when he goes to the land. We have recently made a careful study of several hundred city men who have gone out to settle on ten and twenty-acre farm tracts. And I want to say unreservedly that these men have made failures as farmers, and practically every one of them has his farm for sale at less than he paid for it. There are a few exceptions to that, but they are mighty few. I believe the solution of the problem of populating our farms is to keep a proper proportion of our farm boys and girls on the farm. (Applause)

I wouldn't keep all of them on the farm. Why? Because they are not needed there. If they were all kept on the farm, in a short while

there would be overproduction in agricultural products in this country. I want to see enough of them, and some of the very best of them, kept to man the farms in this country, and at the same time I want to see a small proportion, the proper proportion of those young men do what they have always done, go to the city and take the lead in every line of human activity. (Applause) I one time made the assertion before a body of scientists that there was something in the life of the farm that had a higher pedagogical value, higher educational value than the best city schools had to give. (Applause) I was called down hard for that statement, by a city scientist. Then I went to work to find out whether I was correct. I looked up the history of the Presidents of the United States, and I found that 92 per cent of them were born and raised on the farm; there are only 36 per cent of our population live on the farm—a little more than their share of presidents. Then I wrote letters to the governors of every state in this Union asking them if they were brought up on the farm; 91.4 per cent of them wrote back and said that they were farmer boys. Why is it that farmer boys become governors? It is because of something in their early training. We know it cannot be the country school, because that is a thing to speak of with a blush, generally speaking. What is it then? I asked those men. I said, "If the country life is advantageous to the growing boy, tell me why you think it is." President Lucien Tuttle, of the Boston & Maine Railway, New England, gave me this answer—(which seemed to be the answer that most of them gave)—"When I was a boy on the farm by the time I was 12 years of age I was buying and selling cattle and feeding stock and taking care of them. I learned a sense of responsibility, and I never forgot it."

I believe that the opportunity of putting responsibility on the farm boy is the most important feature of his education. I am confident that is correct. (Applause) We want a proper proportion of the farm boys and farm girls to remain on the farm and become farmers that are a credit to the Nation.

THE INCREASE IN LAND VALUES.

Let me tell you another reason why I want that rather than see city people go to the land. Land is going to become high-priced in this country in the very near future. The value of the land in the United States in the last ten years increased from twenty billion dollars to forty billion dollars. What made that? Was it increase in income from the land? No. Was it increase in the intrinsic value of that land for farming purposes? No. It was increase in the demand and decrease in the supply of free land. That is what did it. We only have to go across the Atlantic ocean to find farm land selling at from two to six hundred dollars an acre. Why? Because it is comparatively limited. There is no free land for sale. As long as a man could homestead 160 acres of

good land in Missouri, Iowa, Illinois, no farm land in America could be worth more than \$100 per acre. But that day has past. We are now to have high-priced land. I want to see the boys who inherit that land live on it and run it. (Applause) I would much rather see that than to see the boy who owns that farm, or will own it, go to the city and become a street car driver and rent his farm to some fellow who will become a tenant. I want to see the American farms, so far as possible, peopled by those who own the land, who can hold up their heads and look any man in the face and say, "I am a landed proprietor, a free born citizen in a free land." a thing which the tenant farmer can't always do.

A Delegate—How to keep the boys on the farm is what we want to know.

Prof. SPILLMAN—That is what I was coming to in just a minute. Let me tell you what I have to say on that subject. There are lots of men in this audience that have left the farm. Why did you leave it? Because you thought you could do better, didn't you?

A Delegate—Exactly.

Prof. SPILLMAN—That is it. Now, let us face the thing as it is. You left the farm because you thought you could do better elsewhere. Now, there is only one way to keep a sensible young man on the farm. You can keep a blockhead there perhaps some other way, but a sensible young man can be kept there in only one way, and that is to make it advantageous for him to stay there. You insult his intelligence when you ask him to stay at a disadvantage. (Applause) How are we going to make it advantageous for that boy to stay there? Well, I think I know how that can be done. We have tremendous agencies in this country at work learning how farming ought to be done. We have agricultural colleges, teaching young men, but one thing I want to impress upon you is that in order for the agricultural college to reach and affect every farmer in America, it would be necessary to graduate every year in agriculture alone 4,000 men in every college in the country. You know that they cannot reach that, and the function of the agricultural college is to prepare leaders and teachers and as many farmers as possible, but not all farmers.

The agricultural college of Kansas cannot graduate 4,000 men a year in agriculture. Kansas is a pretty liberal state in the matter of education, but I do not think she would want to go into her pocket deep enough to provide educational facilities at Manhattan for that many men. I would like to see her do it, but I do not think she can. Now, we must reach the farmer in other ways. These institutions have learned a tremendous amount. They have discovered the principles in fertilization of the soil; they have worked out thoroughly the principles of feeding live stock, so that today it is practically reduced to an exact science.

They have worked out methods of selecting seed corn. How many farmers in Missouri plant carefully prepared seed corn? You ought to do it. I have just two minutes to tell you the gist of the scheme.

The President of the United States the other night told you that he was willing to approve the appropriation of a million dollars to begin a work of carrying to the farmer what the scientists already know. Let me add to that, that some of the most important work these men are to do will be to carry to those farmers what that farmer knows. I know farmers at whose feet I would be willing to sit for weeks, and I have done so, and I have learned more from the men whose farms I have studied than I ever learned from anybody else. But those men had worked out the methods of putting into practice what the agricultural scientist knows. We propose to put in every county in the United States a man to carry on an investigation of the work of the successful farmers and find out how they do it. A man who will investigate local agricultural problems and become an agricultural adviser of the farmers in these counties. (Applause) We are going to take the best men we can get. Most of them will be men who cannot afford to take the positions, men who are already making more than \$1,500 or \$2,000 a year on their own farms. Most of them will be young men, and the others, who, if they were a little older, would be doing the same thing. Now, my time is up, and I just want to add in ten seconds that we propose to join the state and the county and all divide the expense of establishing this system all over the United States for you.

President WALLACE—I will now introduce to you, and it gives me great pleasure, Mrs. E. R. Weeks of the National Congress of Mothers and Parent Teachers' Association, who will speak to you for five minutes only. (Applause)

Mrs. WEEKS—I told you to make it three minutes.

The National Congress of Mothers reports here, not because it has a committee on conservation, but because it is an association organized for conservation, the conservation of the home and the child.

When we gave the call for our first convention in 1897 a whirlwind of protest swept over the land, that mothers should be called from their homes and children to attend a convention, and the press, from one end of the land to the other, ridiculed us as a lot of old maids and childless married women.

Today the press is our best friend, and we have taught the world that a mother can not live for her home and children in the best way unless she takes into her thought and work all other homes and children. The wives and daughters of the land have learned through us that a woman's duty lies along the avenues by which she may bring into the home the best from the outside world. We conserve the home and child by our work in promoting the creation of juvenile courts, both in this country and abroad, and by sending to this convention as delegates

our chairman of that committee, Judge Benjamin Lindsey. We organize parents' and teachers' meetings in city and rural schools, and to make these meetings possible we have a committee on good roads for country children's welfare.

As a conservation congress for child welfare, we offer you, gentlemen, our experience and our organization in any efforts which you may put forth for the betterment of childhood whether in city or country. (Applause)

President WALLACE—I take pleasure in introducing to you Congressman Fred S. Jackson, former Attorney General of Kansas.

MR. JACKSON—As soils may be exhausted, it is even possible to exhaust the conservation of soils—by discussion. We have listened to several papers, each of which has been not only intensely interesting but exhaustive on the subject of restoring and conserving exhausted soils. I may be pardoned, therefore, in asking your attention to another great national subject of conservation; that of conserving our lives and millions of property from loss by fire. This subject has been already partially discussed, before this Congress, through and by means of a report of the National Board of Fire Underwriters, a national organization of fire insurance companies.

This report, though good in the main, is one-sided. It calls attention to the public duty of citizens in general in preventing fire losses. We desire by means of a national investigation under national supervision to remind insurance companies of certain of their own public duties, relative to the causes of fire losses.

All agree that these losses are enormous and when compared with that of any other country are excessive and abnormal. In the last decade the amount of property insured has doubled and in spite of a campaign for fire prevention by the insurance companies, fire losses have also doubled.

This disappointing result has led many of the best informed insurance experts of the country to conclude that the real "bug under the chip" in our fast increasing excessive and abnormal fire losses is the insurance rate, for which our insurance companies are responsible.

I hold no brief in this matter against the insurance companies. I became interested in the subject merely as a state officer in an attempt to enforce state laws and to secure state supervision of rates in the interest of the public. Such laws are now in force in at least four states of the Union, and are sustained by our courts on the theory of the state's right to protect the life and property of the citizens against loss from fire.

POWELL EVANS' VIEWS.

The importance of this subject has not been better or more strongly stated than by Mr. Powell Evans, of Philadelphia, one of the leading

business men of the country, who spoke before this Congress in its first session, in May, 1908. In a recent magazine article, Mr. Evans says:

Fire waste in the United States and Canada is about ten times that of western Europe. It averages broadly \$250,000,000 yearly with \$150,000,000 added expense for protective measures imperatively demanded by this great, continuous, and increasing loss.

The 1910 fire waste would pay the total interest-bearing debt of the country in four years; or would build the Panama Canal in less than two years. In other terms, it exceeds the combined cost of the United States Army and Navy and the interest on the National debt; or nearly equals the combined annual failure and pension payments in the United States; or exceeds the combined United States gold and silver production and Post Office Department receipts—these all annual figures.

It represents about 40 per cent of either the total unused United States government receipts or total expenditures, or the net earnings of American railways; it represents about 80 per cent of either the United States Internal Revenue receipts or the United States Customs or the interest paid on the railways in the country. It exceeds the combined annual value of wheat, hay, oats, and rye crops, and is twice that of the cotton crop. It costs about \$30,000 for each hour in the year, or \$500 for each minute. It costs, moreover, more than 1,500 lives and 5,000 serious injuries annually.

If all buildings burned last year in the United States were placed together on both sides of a street, they would make an avenue of desolation reaching from Chicago to New York, and although one seriously injured person were rescued every thousand feet, at every three-quarters of a mile a man, woman, or child would nevertheless be found burned to death.

This fire loss averages three dollars per capita in America each year as against thirty cents in Europe. It is absolute loss, and not ever transference of value. It positively does no good to anyone. About two-thirds of this waste in life and property in this country could easily be avoided by means similar to those employed in western Europe, where the loss is about one-tenth of ours.

INSURANCE COMPANIES IN CONTROL.

Let me now tax your attention with a consideration a little more in detail of the part played by the insurance system and the rate in the fire-waste of the country.

By common consent the control of fire has been left almost entirely to the care of the fire insurance company. The average man considers that the company pays the loss and suffers loss in the payment. In his opinion the company is impelled by fear of loss to exact a high state of efficiency from all engaged in stopping loss, and that it is also in position to know what ought to be done at any time to prevent loss or strengthen the forces that fight fire. From the point of view of the average man, to pay the insurance premium is to discharge his whole duty as a citizen. All else is a detail of the business of fire insurance and none of his business.

The prevalence of this conception of the interest of the fire insurance company explains the apathy of the public and prominence of the company in all questions of public safety against fire. Nevertheless, it is a misconception, and until the public bestirs itself in its own behalf, fire waste will never be subdued. While the company pays the loss, payment is made out of a fund taken from the public in advance. This premium fund covers not only the loss but about as much more in addition for the use and profit of the company. Up to the limit of price that the public will stand for, the higher the losses, the more the premi-

ums and profits to be collected by the company. Thus the doubling of the loss, in the face of a ten-year campaign for reduction led by underwriters, is not the reflection on the leadership that it seems. If losses doubled, so also did premiums and profits.

The actual control of the situation lies with the insurance rate. However, the companies may protest and exhort, little will be doing unless their admonitions find concrete embodiment in the rate. It was the rate that doubled premiums during the last ten years, and it was the rate which maintained the conditions of risk implicated in doubling the losses. It is axiomatic that premiums cannot be doubled unless losses double, and that losses will not double unless there is hazard to produce them. A true rate could have been promulgated ten years ago, which would have sent much hazard to the discard as no longer profitable and much of the subsequent loss would not have transpired. But premiums would have suffered a like shrinkage.

Mr. Evans' address before the first Conservation Congress, to which I have already referred, became the basis of an official utterance by the National Board of Underwriters, and the public therefore must regard him as a creditable witness.

INSURANCE RATES.

Here is what he says of the part of the insurance companies and insurance rates in this great national calamity:

The world's insurance bill is the measure of its fire waste. In the United States insurance costs, on the average, about 1 per cent of the policy value or one dollar per one hundred, with three dollars per capita fire waste; whereas, in western Europe insurance costs on the average one-tenth of one per cent of the policy value or ten cents per hundred, with thirty cents per capita fire waste.

The sound rule follows that, as fire waste is reduced, the cost of insurance automatically falls in proportion, and from this cause only. Insurance is not a commodity in the usual term; it is a tax which distributes the fire waste of the country over its population. It is fundamentally a nation-wide average. About one-half of all insurance premiums collected are returned to the insured for fire losses, and the remaining one-half goes for expense and profits in the insurance business. Unduly numerous or large fires, or conflagrations, swell the total waste bill, and automatically rates rise everywhere within the national boundaries, until the half of all collections is great enough to pay these losses. Every inhabitant of the country contributes an average share of these insurance bills; higher rents, clothing, and food bills; and through them higher credit rates and interest on loans. No one can escape. In the aggregate, it can safely be said that every workman pays this three dollars yearly for every member of his family, through either one or all of these channels.

The insurance interests have limited influence; no power other than imposing a high rate; and are in a measure, because of their own commercial interest, indifferent to present fire waste. It would appear to the layman at first glance that less fire waste would be welcome to the insurance business, yet the insurance influence is far from making a united effort to reduce it. So long as an insurance company does not have to pay out more than fifty per cent of its premiums for fire loss the unit profit is good. Therefore one-half of a high rate nets a greater final profit than the same proportion of a low one. Hence the automatic yard-stick rate-schedule which companies apply to any property, which totals up the final rate in each case—having regard to the building, contents, and location (exposure hazard). This might result in a premium as low as ten cents on new mills, and stores (not contents); or as high as ten dollars per one hundred dollars on Southern wood-working mills. Many insurance managers actually prefer the higher rate and risk as making higher possible earnings for the company and permitting a higher abso-

lute payment to the broker, thus enabling the manager to produce a larger net annual profit, and to interest and hold a better line of brokers through whom to distribute his contracts of insurance.

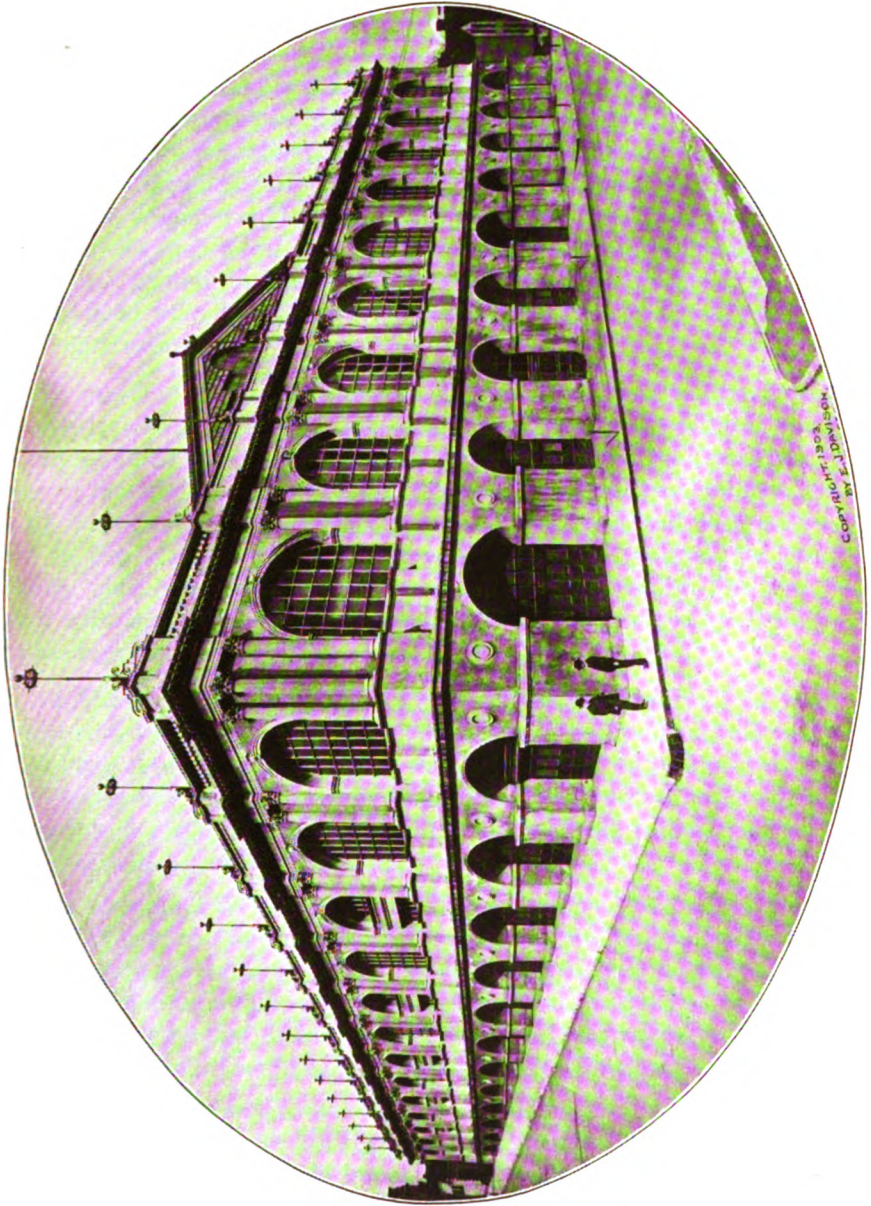
The broker, who gets from ten per cent to thirty per cent of the premium, objects even less to the higher rate—although, as we have seen, it inevitably means higher risk and more chance of fire, and in fact more fire waste; so the destruction continues.

There's a siamese twinship between premiums and losses that forbids a knockout. Packing houses afford an apt illustration of the control of the situation wielded by the insurance rate. Public attention was attracted last winter by a large loss in the Chicago stockyards which was accompanied by the death of many firemen. This loss involves a paradox which few observed. Why should appliances which would have prevented this loss and catastrophe be absent in the congested Chicago yards, and yet present in similar outlying plants owned by the same men? No spot on earth needs precaution against fire more than the Chicago stockyards, and in none is there a more profitable opening for investment in the means of safety.

SAFETY NOT SOUGHT FOR ITS OWN SAKE.

The answer lies in the fact that safety is not sought for its own sake by the average business man. From the small dealer to the board of trustees of a great university, no more is appropriated for safety against fire than will pan out profit from the insurance rate. The rate makes safety pay in the outlying packing house and makes hazard pay in Chicago, and the packers are governed accordingly. Inquiry would probably develop that competitive conditions made a reasonable rate possible in the locations where the plants have been made safe, whereas, in the Chicago yards, competition does not operate and the rate is made by a board having only commissions at stake.

How is this rate, so loaded with import to life and property, made? This question assumed prominence when regulation of rates was undertaken by certain states. Inquiries conducted by these states show that ratemaking is neither what it purports to be nor what the public imagines. What it purports to be is indicated by the title given to schedules promulgated by associated insurance companies for the formation of rates throughout the West, namely, an "Analytical System for the Measurement of Relative Fire Hazard." It is claimed to be a system of measurement. Something scientific, accurate and just is indicated by this title. The public accepts the schedule at the valuation fixed by the title, and believes that back of its provisions is a great fund of digested information bearing upon every angle of the problem. It suggests information collected by the companies with infinite patience and given freely, so that the making of rates might be done with exact justice to all, charging to none the burden that rightfully should be borne by another. What ratemaking really is may be inferred from the inquiry of Missouri as to the reasonableness of the important schedule filed under the rating law of



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Convention Hall, Kansas City, where the Third National Conservation Congress was held

that state for the formation of rates for fireproof buildings and contents. Some knowledge of premiums and losses in this class of property is clearly essential for the making of reasonable rates.

WHAT WAS ASKED OF COMPANIES.

The companies were first asked by the Insurance Department of Missouri to furnish their experience in fireproof buildings and contents. Companies like the Aetna, Hartford, Home and Royal replied that they had never kept a tabulation of this nature and were unable to furnish any information which would show what premiums and losses might be expected from such property. It was explained by these companies that it was their custom, in keeping track of bakeries, for example, to class together those of ordinary construction, improved construction and fireproof construction.

No useful information could be gleaned from such a source, and the experts who prepared the schedule were called to the witness stand and requested to justify their handiwork. It appeared on examination, however, that the provisions of this schedule were prepared without one iota of information showing what premiums and losses had been experienced in this class of property. It was not known whether the rates formerly used had proved unduly profitable or unprofitable, nor was it known with certainty whether the new rates would increase or diminish the premium charge as a whole.

All classes of property receive this arbitrary treatment. In none are statistics kept to show whether the schedule is producing too much or too little revenue in comparison with the losses. It is admitted that many classes pay too much, while others are being carried at a loss, but no schedule is made to rectify this abuse, although the schedule purports to be a system of measurement.

The companies do not keep faith with the public. We are promised that greater care to avoid fire will reduce the loss and lead to lower rates. But the rating system is conducted so that the public will neither know its just due nor receive it, except by resort to other forms of insurance. When some organized industry undertakes self-insurance, ratemakers soon find that conditions have improved and that reductions are in order.

It is evident, however, that the end of this system of false measurement is near. Four states are regulating rates under laws which call for rates in reasonable relation to losses, and the sustaining of the constitutionality of such regulation by the lower courts makes similar legislation certain in practically all states. There is urgent need, therefore, for accurate knowledge on all matters which affect the rate of burning in the several classes of property. This knowledge does not exist. It must be acquired by study of data yet to be gathered. The data in the hands of the companies is worthless. It has been gathered by plain business

men engaged in the insurance business, and, whatever the purpose of the compilation, it certainly has had no reference to the formation of reasonable rates.

NEED FOR FEDERAL INVESTIGATION.

Faulty treatment, and not incurability, is indicated by the persistence of the high level of destruction by fire in this country. The treatment is vague and characterized by irresponsibility. Diagnosis is wholly lacking; the location of the trouble is not known, and the remedies are applied haphazard in ignorance of the possible effect. No person connected with the treatment has a definite result to produce, or is even asked to prove that any result has been produced. The premiums and losses are reported in bulk to each state. The summation of these reports into one huge total constitutes all that is done by the insurance company or the insurance rater or the public to discover the workings of this great waste.

Such blind methods can accomplish nothing. Risks must be enumerated. Those in need of treatment must be singled out and something economically appropriate be prescribed for each. To find out where and how effort can be put forth to economic advantage—to define what can be done wisely by the class and individual to reach the low economic level of loss—to keep watch of results and register the efficiencies of fire alarms, fire patrols, fire departments and fire resistants—these are details which must be wrought out before fire waste can be attacked with definite aim and for the perfecting of which the Federal investigation and bureau is proposed.

The states appeal to the Federal Government to standardize the schedule for the formation of rates so that it shall become a true measure of the conditions to which it is applied. Leaving this measurement to the dictates of the "best underwriting judgment" has proved a costly error to the people. The underwriter escapes the common lot; the cost of his "error," with a substantial addition for his profit, is borne by the people.

When the fog that envelops this waste shall become dispersed by the Federal analysis, the way to its speedy removal will become clearly visible to the individual states.

I lay no claim to originality in the presentation of this subject. I have given you facts and for the most part the comparisons and expressions of the experts who compiled these facts. They are original only in the sense that the testimony of witnesses recited in a brief or argument in a trial are original.

I have asked the assistance of the Congress of the United States to secure an investigation of this important subject to the end that power may be added to the arms of the states to restore natural conditions as to fire losses in our modern business world.

President WALLACE—You will now hear the great highway engineer of Missouri, Hon. Curtis Hill, on the subject of how good roads help the farmer.

Mr. HILL—Mr. Chairman, Ladies and Gentlemen: There is no question but that we have been making as much progress in road work during the last few years as we have and as we are in other lines of work, and still in many places we are not making the progress that we road-making enthusiasts, and I might say road cranks, would like to see made. Still I do not believe that we can now apply to our highways over the large part of the Mississippi and Missouri valleys that little poem which, or a few verses of which, Robert Burns is said to have written upon his arrival at a little town in Scotland, illustrating that the highways of Scotland at one time were not much better than they are today of Missouri; I might say. Speaking of those highways, he left two verses, which run something like this:

I am now arrived, thanks to the gods,
Over pathways rough and muddy;
A certain sign that making roads
Is not these people's study.

And though I am not with Scripture crammed,
I am sure the Bible says
That you people shall be damned
Unless you mend your ways.

Now, how good roads help the farmer must always include others, and it can be best discussed in a short discussion, in a general way under two heads. First, transportation systems, and the importance of our social conditions. Referring to Robert Burns in Scotland, you will see that the road question has been hammered upon for years and years. Man has been considering it as a means, and as one means of transportation. Now, in fact man has been forever trying to overcome gravitation, from the first load that a man carried on his back, or put upon the back of a pack animal, he has been endeavoring to lighten his burdens by overcoming the laws of gravitation. And so it has been through all history. The galley, the sail boat, the steamship, automobile, and airship. The good roads is one line in the endeavor to overcome the laws of gravitation and to make easier one method of transportation. Transportation charges have entered more into the cost of living than any other one item. Food, clothing, building material, all the staple necessities of life have had to pay the freight. The freight is deducted from or added to the price of the article which forms the basis of the price which the producer receives or the consumer pays. The man who produces the commodity, or he who settles the bill, pays the freight. Neither the producer nor the consumer has gained by a high cost of transportation. The question of good roads is therefore at the present time one of the most vital with which we have to deal. There is no one internal improvement so absolutely necessary and essential to a state's progress and prosperity as the betterment of the highways. (Applause) Good

highways are necessary to a state's progress and prosperity, as well as that of a community, because they involve the transportation problem. With transportation is involved the problem of life, the cost and pleasures of living, exchange of commodities, valuation of property and the social and moral and educational conditions. The problem of life is a study closely linked with the problem of transportation.

Our very existence as a social and commercial body as a state is dependent upon transportation to such an extent that without easy, quick and economic means of transportation we must rank as a second, third or fourth class state. The greatest assets of the most substantial nations are transportation and agriculture, neither one of which can be fully developed without the other. The transportation of the bulk of agricultural shipments begins at the farm when the raw material is hauled over the country roads. This country road is the farmer's own road, which leads to the collecting points of transportation by rail and water, and over which he reaches his market. It is used one hundred times to every other time for all other means of transportation. The good road permits the farmer to watch his markets and not the road. Many a farmer markets his grain at harvest time because it is a season of good roads, at a less price than he would by storing the grain until the markets are better and less glutted, and when he would have more leisure time for hauling it to the market. The good road permits him to haul double the load that he would over a poor one, and he is thus enabled to move his crop in one-half the time. This, figuratively speaking, picks up the producer and sets him down one-half the distance closer to his market. You all know that distance in this age is measured in time and not in miles. The country road is the people's own road, their own means of transportation, and it is the only transportation system that is owned, operated and controlled by the people themselves.

It is at the same time the most neglected system of transportation in the United States, and the most expensive over which to transport our produce, owing largely to this neglect. Many a pound of freight originating upon a farm, or destined to a farm, moves over a common country road at a cost three times as high as it would be if the road were first class. Often the haul between the farm and the railroad costs more than the remainder of the journey, and the railroad or any other means of rail transportation cannot be expected to reach every man's farm, and it becomes necessary to provide means for transporting the commodities to the railroad. The wagon road then becomes a system of transportation, just as a line of boats or a railroad is a system of transportation. Water and rail are the means for long distance transportation; highways for local exchange. The highway serves the purpose for local transportation, and is a connecting link for local traffic with the railroads. The condition of this connecting link or highway may make transportation reasonable or costly. Too frequently, as I said before, the haul over the highway is the most expensive part of

farm transportation. It requires a tractive force of 125 pounds per ton upon an ordinary country earth road, and only sixty pounds upon a rock road. The cost of transportation by water and rail seldom exceeds one cent per ton mile. That upon a good road is from seven to ten cents per ton mile. Upon our ordinary country highway, half kept roads, it is from twenty cents up to anything, depending upon the condition of the road. The railroad will haul a bushel of your grain thirty miles as cheaply as the farmer can bring it one mile. If the farmer is situated a few miles out of town on poor roads, the railroads will haul the produce and the commodities to cities like Kansas City rather, and the return merchandise from that city as cheaply as the farmer can haul it to and from the railroad and to the farm. Now this high cost of transportation can be decreased by increasing the size of the load. This can be done by improving the road surface. The high cost of transportation is not altogether due to the railroad. Good wagon roads are just as important a factor in the reduction of this high cost of transportation as are low rates by water or rail.

By social conditions, in my opening remarks, I meant the pleasures of community life, the exchange of visits and social courtesies, neighborhood gatherings, social association, fellowship, and the home, the school and the church. The roads should be built for some of the pleasures and comforts of life as well as for their pecuniary interest. It has been said that the pecuniary benefits of good roads sink into insignificance when compared with their social, moral and educational advantages. Man after all is only a social being, and is influenced by his surroundings. The maintenance of a seat of learning, or of a good church in and by a neighborhood has its influence upon the people of that community. The maintenance of anything tending towards better living has a good influence. The maintenance of a good road or improved road has a good influence by permitting easier intercourse between the people of country communities, between rural and urban population, and unifies social and commercial interests. The rural mail delivery is one of the greatest means of education today. Good roads facilitate rural mail delivery, and therefore tend to improve educational conditions. The improvement of our roads would also facilitate the central high school idea for country districts, for while our roads are not an impassable barrier in all of the districts, in some they are, and in many they are obstacles. If our country churches are to be supplied with good pastors and our country schools with able teachers, better libraries and other facilities, it must be by the support of greater wealth therefor, by the consolidation of the districts being possible only where good roads exist, where people can be easily and safely transported. The schools and the churches in many sections of our best land have a decayed, run-down, neglected appearance. Churches which are practically abandoned certain seasons of the year because of the condition of the roads, country schools not accessible in seasons of bad roads, little children plodding through

mud and water and compelled to sit all day in the school room with wet feet and damp clothing—this may not apparently affect the children today, but for all the parents know it may be instrumental in undermining otherwise strong constitutions and laying up many aches and pains for future life. As someone has appropriately asked, "Why should a Christian people have heathen roads and a civilized people barbarous ones?" One thought which possibly you have heard brought out time and time again at these congresses for several years is that the trend of population has been from the farms to the cities and the towns. A large part of the best blood and sinew of the country has been trying to get away from the farm. If this continues, it is going to sap the farm industry of its best blood and its best energy. There is something wrong today with our country conditions, when so many of our best farmers leave the farms and seek homes elsewhere in order to give their families better social and educational advantages and when so many of the brightest youths from the country become discouraged with country life and endeavor to escape from the farm. A fair percentage of the men and women, boys and girls must be kept on the farm. This can be done by making farm life worth living. Good roads will help to do it. Will the best, most progressive farm ever be developed without these young men and women, boys and girls to grow into intelligent farmers? Will the increased yield per acre by means of better farming become fully effectual without bettering the means for marketing that yield? Can you incite better farming and maintain a higher order of intelligence and social conditions in country life without easy means of communication? Can country life be supplied with the necessary association and good fellowship, without good roads?

In conclusion, Mr. Chairman, let me state that I do not contend that good roads is the whole solution for happiness and prosperity of country life, but I do contend that a very necessary and important part of it is the relation which our public roads bear to our social and moral and our educational life. The home and the school are the nucleus around which our social life exists, and this is especially true of country life.

Neglect your public road conditions and you will not only neglect your transportation facilities, but you will neglect your social and your educational environments.

The articles that we eat and wear must come from the farm, and the growth and the development of agriculture and the life connected therewith, no matter how we may view this question of the development of the farm, the betterment of life and the development of the country community life, its transportation, exchange of commodities, the basis upon which it rests will be found a question of good roads. No proposition for the betterment of country conditions, no proposition for the

good country life is an assured success until good roads are assured. It all rests upon the question of transportation, and communication, and the basis of transportation is the public wagon road. (Applause)

Professor CONDRA—I beg leave to submit the report of the committee on credentials.

The Chair announces the appointment of the following committee on credentials:

Prof. Geo. E. Condra, of Nebraska.

Dr. H. E. Barnard, of Indiana.

Mr. Ralph H. Faxon, of Kansas.

Mr. E. T. Allen, of Oregon.

Mr. W. E. Barns, of Missouri.

President WALLACE—If you want to get the proceedings of the Congress, which will be worth their weight in gold, give your name and a dollar to the secretary.

Professor CONDRA—I move that the report be received and the committee discharged.

President WALLACE—We will now hear the Hon. J. B. White, of Kansas City, who will tell us what he knows about lumber in Europe.

MR. WHITE—In Europe the experience of more than a hundred years in forest management has resulted in a more or less scientific and practical policy, although it cannot be said that a well defined, universal policy has yet obtained. This is largely due to conditions of ownership, with consequent variance in ideas as applying to various local conditions, as well as the difference in necessities and financial ability of individual owners to carry out in successful practice the best approved methods. Hence there is a growing tendency towards greater governmental control, whereunder the most economic working system, suited to different conditions of soil, climate and kind of forestry, would be intelligently considered and properly installed.

In the German Empire 47 per cent of the entire forest area is privately owned, and 32 per cent by the state, 19 per cent by institutions, communities and associations, and 21 per cent by the crown. Thirty-three per cent is hardwood and 67 per cent conifers. They are now cutting about their annual growth, taking an average of hardwood and conifers.

Austria-Hungary exports more lumber than any other nation in the world. It covers 46,500,000 acres, or a little over 30 per cent of the total land area. In Austria the forests are composed principally of conifers, spruce, pine and fir, only 15 per cent of the acreage being of hardwood. Sixty-one per cent is in the hands of private owners, and one-half of this, or 30 per cent of the entire forest, in the hands of small owners. The state owns less than 11 per cent of the forests; the balance belongs to churches and communities. The average yearly growth of

all the Austrian forests is said to be about forty-two cubic feet per acre, or an annual growth of about 1,100,000,000 cubic feet. They are now cutting annually 250,000,000 cubic feet more than this, or 20 per cent faster than it is growing. This excess of cut, over the growth, will in large measure regulate itself, as the increasing demand makes the industry more profitable and encourages the planting of greater forest area.

In Hungary about 75 per cent of the total forest area is oak, beech, maple and other hardwood species, and only 25 per cent of conifers. The annual yield of conifers is about fifty-eight cubic feet per acre, and that of oak about forty-one cubic feet per acre. Thus the conifers yield the largest percentage of commercial lumber and are most valuable as a crop because of more rapid growth, and because of their larger demand for building purposes. Sixty per cent of the total acreage in Hungary is private forests, about 18 per cent is state forest, and 22 per cent communal and church forests. The annual cut in Hungary is estimated to be less than the annual growth.

England has not until very recently deemed forestry profitable, preferring to buy her supply. Of her 3,000,000 acres of woodlands, mostly devoted to parks and the chase, the state only owns 2 per cent. France has 24,000,000 acres of forest, or 18 per cent of its land area, of which only 12 per cent of its wooded area belongs to the state.

Switzerland has about 25 per cent of her total area under forest. The Zurich forest, known as the Sihlwald, containing 2,760 acres, is 85 per cent hardwood, and is worked on a rotation period of 100 to 110 years. The forest director claims an annual growth for the Zurich forest of sixty-five cubic feet per acre, while the general average of all the forests is only fifty cubic feet per acre. This means the entire growth—wood, poles, limbs and all. Only 40 per cent of the total cut is saw timber for building purposes. The net income from this forest for the past twenty-five years has been from \$4.00 to \$7.00 per acre, not including interest charges. It was \$4.40 in 1890 and \$7.69 in 1907. This forest has its own mills and saves all profits.

In Switzerland one pays taxes when the crop is harvested. In Germany and Austria the method of taxation varies in different states, but laws are always favorable to encourage private forestry. In some cases one pays no taxes for twenty years. Then one begins to thin out the poles for use of telegraph and telephone companies, etc., and get a revenue, and leaving a stand in destructive forestry which, when sixty years old, will yield in many cases 20,000 feet of lumber, board measure, per acre. In fact, the average is 4,190 cubic feet per acre of timber and fuel, which, according to values prevailing in England and Germany, amounts to about \$200.00 per acre.

CUTTING METHODS IN EUROPE.

It was pointed out to us that mixed growth or conservative forestry

is expensive. The most economical and profitable plan is the destructive method. That is, a forest is planted and grown like any other crop, and whenever interest, carrying charges and total cost meet the market value at age and time of greatest profit, then trees are cut and they are all about of a size. The entire acreage is cut clean and the cost of logging is cheap. Trees are again planted and another crop grown. Under the old plan of conservation of mixed growth and mixed sizes, or the shelter-wood system, not as much can be grown per acre, and the cost of logging out the large trees is vastly more expensive, and damage is done to other timber in falling them, while in the destructive method all is taken and a large crop harvested. It is nice to view these stands of timber in strips, side by side, ranging in years from baby trees to stands of ten, twenty, thirty, forty, fifty and up to sixty and eighty years of age, when they are ready to be harvested.

In growing forests in Europe, lands that are better adapted for agriculture are not used. The degree of utility is considered. And in determining the value of a forest property, one has to figure compound interest, as the crop may not be harvested and the capital returned for sixty or eighty years. Because of absolute protection from forest fires, capital is regarded as safe, and investors in forests are satisfied with a low rate. As an investment, forests require less labor than other crops, if one practices the most economical method of what is called destructive forestry. In times of temporary high prices, one can take advantage of the situation and harvest more than the annual growth, and can then wait and let the trees grow when prices are low, and this is the usual practice. The rate of interest generally charged to the forests, and compounded, is sometimes determined by rate yielded by government securities, which is usually about $2\frac{1}{2}$ per cent.

THE ROTATION METHOD.

It has been ascertained by careful observations that Scotch pine (which grows rapidly, like our short leaf yellow pine) yields, on medium soil in every sixty-year rotation in best quality of location, 5,255 cubic feet per acre, of which an average of 565 cubic feet have been removed in thinning as the forest has been growing, figuring the thinning out being done on an average of about every ten years, leaving at the end of sixty years an average of 4,690 cubic feet per acre. If allowed to remain, this has increased in ten years to 5,250 cubic feet per acre, besides 536 cubic feet that have been profitably taken out in thinning in the last ten years, leaving at seventy years 5,250 cubic feet. Now in the next ten years there will profitably be taken an average of 493 cubic feet in thinning as against the 536 cubic feet taken out the ten years before, leaving at the end of eighty years standing on each acre an average amount of 5,720 cubic feet per acre.

These interesting results follow: With average values of lumber products as in the year 1910, an eighty-year rotation period with Scotch

pine would pay $2\frac{1}{2}$ per cent compound interest on soil value of \$97.00 per acre. With a ninety-year rotation period it would pay this interest rate on land worth only \$94.00 per acre. On a seventy-year rotation period it would pay such interest rate on land worth \$94.60 per acre, and on sixty-year rotation it would pay such rate of interest on land worth \$85.00 per acre. This shows that the maximum profits at this low rate of interest come from cutting the forests at eight years' growth. The greater the variation from this eighty-year period the less favorable the financial results. The maximum age for hardwood trees for best profit is said to be rotation periods of about 100 years with a low rate of interest suited to the safety of the investment. These statistics were prepared by Sir William Schlich, professor of forestry at the University of Oxford, and published by him this year, and are undoubtedly reliable.

But it is safer to figure at a compound interest rate of 4 per cent. A high rate of interest demands a low value of soil, and *vice versa*. And as Sir William points out, the value is, however, not in inverse proportion to the rate of interest, as the value of the soil rises more rapidly than the interest falls. Under a low rate of interest, the expectation value of soil culminates later than under a high rate of interest. So that under a $2\frac{1}{2}$ per cent interest rate, the timber could stand about eighty years; under a 3 per cent rate, about seventy years, and under a 4 per cent rate it should be cut every sixty years. Or, to further illustrate, if a party is satisfied with $2\frac{1}{2}$ per cent compound interest on his investment in European forestry, he could pay \$97.00 per acre for his land, and must cut it at eighty years of age.

If he desires 3 per cent interest he must not pay over \$55.50 per acre, and must cut his timber when seventy years of age. And if he demands 4 per cent interest rate he cannot pay quite \$15.00 per acre for his soil, and must cut his trees when sixty years old.

PERIODS OF PINE TREE GROWTH.

Now this is the best that can be done in Europe (which, according to statistics, is 37 per cent above the average yield), with the best results as to soil and favorable location, with low priced labor, with most favorable consideration by the government as to taxation, and with the most approved economical methods, where the limbs and twigs are sold for fuel, and forest products are fully 50 per cent higher than they are in the United States. So it is fairly well established that from sixty to eighty years is the most profitable rotation period for growing Scotch pine forests in Europe. The higher the rate of interest demanded, the shorter the rotation.

With advancing age the value of the stumpage increases so that the value of the soil for forestry becomes nearly positive. But in time a maximum is reached, and it falls again. This maximum, with $2\frac{1}{2}$ per cent money, is eighty years growth, and with 4 per cent money only sixty years growth. The value of the soil under a very brief rotation would be negative, so that the yield might not even cover the cost of

harvesting. And under a very long rotation, the value of the soil would again become negative, because it could not stand the compound interest and other expenses for an excessively long term of years.

It follows that the expenses during the early part of the rotation affects the expectation value disastrously, for compound interest is running against this expense for a long term of years, lessened only by sale of the thinnings in about ten-year periods. Of course a sudden and heavy increase in the value of stumpage, at any given period after trees are large enough to cut, may create a second maximum, differing from the normal average because of an unexpectedly great demand, causing an abnormally and temporarily high price. But the cost one has to pay for the soil is really the true value, chiefly determined by its value for ordinary purposes of agriculture; and as trees will thrive on land not so well suited for farm crops, such lands are nearly always selected for forestry. But if the soil can be more profitably used for agriculture in the examples just mentioned, then the increased value will enter into the account to change the length period of rotation of forest crop. And where the acreage is not stocked to its full capacity (on account of poor soil, or for any other reason), the rotation, for which the highest probable value of the growing stock is obtained, can, as Sir William states, only be determined by experimental calculations based on these special cases.

THE YIELD OF FORESTS.

But this method of calculation is absolutely logical, and shows under the most normal conditions what we can expect, and it has been proved by experience. The abnormal conditions that may occasionally present themselves are governed by these same financial methods of reasoning, differing only in degree of application, by reason of change of basic conditions in each special case. A normal yield is what the forest can permanently be depended upon to produce. It is a permanent interest investment of greater or lesser rate, where the principal will never be returned, while the land is kept in forest crops. These figures are based upon the best yields in the clear cutting of destructive forest system, which, as has been stated, is 37 per cent above the average. But the principle of calculation applies equally as well in the shelter-wood system of different age trees; but the average volume per tree in each age class in the latter system has to be taken into consideration. On the whole, it has been admitted by the best foresters that the system of clear cutting, then pulling the stumps, fallowing or planting other crops for a couple of years, and replanting again, gives the best financial results.

So much for European forestry. Now how will this system apply to us, under our conditions of taxation, high-priced labor, and low-priced forest products, and considering the fact that there is little or no demand for the thinnings until large enough for telegraph poles, and no market for the tops and necessary waste in manufacturing? We are lacking in

statistics, because we have not sufficient experience along the lines of growing new forests, at either private or public expense. But we are soon to be interested in what it will cost to reforest and grow commercial timber in the United States. And surely our present supply of old growth timber from 150 to 300 years old is worth more than the cost of growing timber sixty to eighty years old. The United States owns in national forests 192,931,197 acres. The state forest reserves of 3,253,185 acres, the national parks of 4,562,265 acres, and the Indian forests of approximately 10,000,000 acres, make the total of public forests over 210,000,000 acres. Chief Forester Graves estimates the area of private forests as over three times that of the public forests, and containing five times the timber that is on the public lands.

The countries whose wood exports exceed their imports are: Austria-Hungary, Canada, Sweden, Russia, Finland, the United States of America, Norway, Bosnia-Herzegovina, Roumania, and Japan. The countries whose wood imports exceed their exports are: The United Kingdom, Germany, France, Belgium, Spain, Italy, Holland, Denmark, Switzerland, Australian colonies, China, Greece, West Indies, Bulgaria, Servia, and British possessions in Africa.

CONDITIONS TO BE CONSIDERED.

The climate and other conditions in some countries render them not so well adapted to growing trees as for growing other crops; and they find it more profitable to exchange their products for the wood products of other countries that either have a present surplus, or whose climate, soil and land values enable them to grow trees at lower cost. This is true with the different states in our own country. Illinois and Iowa, for instance, will never grow what timber they require. They can more profitably grow corn, and exchange for lumber products with those states which have low-priced and mountainous land with plenty of moisture, so that trees will grow twice as fast as in those prairie states where land is very expensive and climate not so well adapted. Trees will be grown here, as in Europe, where they can be grown cheapest, and they will be harvested at an age which will bring the greatest net profit. The market price of the product will be finally and surely governed by the cost of growth and manufacture, insurance, and risk, and the price of money used in the business.

If the Government of the United States itself can get money at 2½ per cent, as it can, while private owners have to pay 5 per cent or 6 per cent, then it follows that the states and the Government can, for this very important reason alone, grow commercial trees cheaper than private individuals, and can remove the maximum rotation period to a more mature age, giving better lumber from older trees at the same cost at which private owners would have to furnish poorer lumber, because coming from younger trees. But the people pay the cost, whatever it may be,

whether the Government or private interests grow the trees. The consumer is interested that they be grown as cheaply as possible. It is likely true here, as in Europe, that forestry will be a more general success with private owners, if they are in some important methods placed under the practical rules of government forestry. It will be found here, as over there, that private forests will not prove so generally productive, or, as a rule, so economically administered, as the government or state forests under the management of expert foresters. And parenthetically, is it not equally true that many farms and farmers would be better off if directed by government or state experts?

In Europe they have no forest losses from fire for the reason that fires are prevented from starting. The railroad locomotive has been the cause of most forest fires in the West, and I observe that these Western roads are now equipping hundreds of their locomotives with spark arresters, so as to prevent the starting of these fires in the future. United States Chief Forester Graves very truly says: "Private owners do not practice forestry for one or more of three reasons: First, the risk of fire; second, burdensome taxation; third, low price of products." Forester E. T. Allen has pointedly said: "Forest protection is the cheapest form of prosperity insurance a timbered state can buy." It is not the present generation so much as it is the future generations that will be affected disastrously by our neglect. The principles of agriculture, horticulture, forestry, and the science of conservation of soil and trees, and of life itself, should be taught in our public schools.

THE EXAMPLE OF DENMARK.

In Denmark, a country which fifty years ago was one of the poorest in Europe, they have erected a statute to Captain Dalgas, who reforested Denmark and changed a desert heath into a rich farming country. So now Denmark is said to be, according to its size, one of the most prosperous nations in the world. It was the patriotism and inspiration of Captain Dalgas that enthused the citizens. He lectured to the people, and talked to the children in the schools, and made converts everywhere. He gave all he had, and begged and pleaded against doubt and opposition of the most discouraging character, until success crowned his efforts. He will be loved and his memory cherished by all the people of Denmark through all future years as one who saved the nation. In many vital respects, for energy and self-sacrifice, his work reminds us of our Gifford Pinchot.

We are, as a nation, too young to understand the dangers before us; for we are just emerging from a condition of burning log heaps to make farms, from a condition of too much timber for a small population to a condition of too little timber for a large population. Yet we have enough if we will now conserve and reforest. Our ancestors did the best they could under conditions and the light that they had—what now

seems waste, had then no market and was unavoidable. As a nation we are proud of our past and we should also be more proud of what we expect to become. As was said not long ago by one of our greatest statesmen, "Conservation of our resources does not mean that we shall become great in the present at the expense of the future, but that we shall show ourselves truly great by striving to make the Nation's future as great as the present." (Applause)

President WALLACE—The committee on nominations is ready to make its report.

Mr. BAKER—Pursuant to an announcement made from the stage at the opening of the afternoon session of the Congress this day, the members of the nominating committee met in room 775, Baltimore Hotel, at 3:00 p. m., and unanimously nominated the following officers for election for the ensuing year:

President, J. B. White.
 Secretary, Thomas R. Shipp.
 Treasurer, D. Austin Latchaw.
 Recording Secretary, James C. Gipe.

The report is signed by the following nominating committee: Mr. B. N. Baker, Baltimore, Md.; Major E. G. Griggs, Tacoma, Wash.; Mr. A. B. Farquhar, York, Pa.; Mr. H. C. Wallace, Des Moines, Ia.; Mr. Henry S. Graves, Washington, D. C.; Mr. G. E. Condra, Lincoln, Nebr.

President WALLACE—You have heard the nominations. Is there a motion made to accept and approve the report of the committee?

Delegate BAKER—I move that the report be accepted.
 Motion was duly seconded and, on being put to vote, was carried.

President WALLACE—I want to thank members of the Congress for their kindness to me. And I am going to make a confession now. I have been running a bluff on you, for I never in my life presided over any convention or association of more than thirty persons, and it is only by the marvelous patience that this Congress has shown and its endurance that I have been enabled to carry it through. I thank you, and I want to say that I do not believe the mantle could have fallen on a better man than Mr. J. B. White. (Applause)

President WHITE—I hope the election has been fair, if there has been an election. Has there?

Mr. WALLACE—Yes, sir, there has been an election and you are president.

President WHITE—Has the committee reported?

Mr. WALLACE—It has, and reported in favor of you, Mr. Shipp, Mr. Latchaw and Mr. Gipe.

President WHITE—This is a great honor, and I appreciate it very much, more than I can tell. I have been in politics before tonight, but not in this way. I will have to tell a short story. It will take less time to tell it than it did for the events to transpire. I have got to tell it straight because I see Governor Stone of Pennsylvania watching me. I was a candidate one time when I thought it was necessary for someone to represent some good principles. I published a newspaper. I owned a farm and a small saw mill, and I was nominated because I was a granger and because I had the reputation of being a laborer. I got the nomination of the Democratic party of my state, and the nomination of the National Greenback and Labor party of my county. Then the Prohibitionists met. They were not quite sure about me as a Prohibitionist, but they said that they would support me, and they would not put any ticket in the field against me. So that I had the endorsement of the Prohibitionists, the Greenbackers, the Labor party, and the Democratic party, but I did not have the Republican party because there was another man running in that party, and I had to have one opponent. The fight waxed warm. I drove all over the county, to every school house; I met the people, kissed all the babies in the county, and I was elected by a very large majority. It was not quite unanimous, but it was very large. This appears to be unanimous. And the next day after the election a gentleman came down from the township, I think, of Limestone, up above Warren on the Allegheny river. He came to see me, and said "I see you are elected." "Yes," I said, "I understand I am. It is very gratifying as it has been a very hard campaign." "I came down to see Davis, the treasurer of this campaign fund," he said. "Davis is in Warren," I told him. "Well, I stopped off at Warren on the way down to see him and Davis was not to home. I spent \$30.00 in this campaign and Davis said to come right down after election and get my money. I thought maybe you could pay it. You are elected, and I come down to see you." "Let us see, what did you spend that money for? How did you spend it?" I asked. "Well," he said, "I told Davis I could carry Limestone Township. The way I done it was that I went and bought a ten-gallon keg of whisky, and I got down by the ferry. The lumberman and tie markers from up in that township had to go across the ferry. On the other side I put the keg of whisky in the ferry house. Every man that came along I says, 'Come on, boys,' and they came in to get their ferry tickets. And I says, 'Here, have a drink,' and I gave them a drink, and I gave them your ticket. I says, 'Here is a ticket for White; go right over on the other side and vote. and then when you come back come in and get another drink.' They went right, every one of them, and voted, and they were so anxious to come back and get another drink that they never stopped to talk with anybody. And that is the way we carried Limestone Township solid for you."

I said, "Well, that is very gratifying, but you know, of course, I am

somewhat of a candidate on the Prohibition ticket. I think you had better see Davis about this." "Well, yes," he says, "that is all right, I know; I knew you was a candidate also on the Democratic ticket, and I thought you might pay this out of Democratic money." (Applause) So I think probably Davis fixed it without my knowledge. I will ask the retiring president to introduce to this audience Prof. Hopkins.

Mr. WALLACE—Permit me to say that Prof. Hopkins has done a wonderful work in the State of Illinois, and I have asked him to present the results of that work, or to tell us about worn-out soils. If your soils out in Kansas are not worn out, they will be unless you mend your ways. Now you want to listen to Professor Cyril G. Hopkins of the University of Illinois. (Applause)

Professor HOPKINS—As agriculture is the basis of all industry, so the fertility of the soil is the basic support of every form of agriculture. Without productive land there could be no American agriculture and no American prosperity. The most important material problem of the United States is to restore, to increase, and to permanently maintain the fertility and productive power of our farm lands. In comparison with this problem others fade almost to insignificance; and we do well to pause in the rush and hurry of our business life, to measure the agricultural record of the past and to consider the possibilities of the future.

I come before this National Congress of patriotic, progressive and influential men and women, not to present theories or opinions, but facts and data, which deserve and should command your immediate serious consideration and your subsequent persistent and effective action.

Intelligent optimism is right and admirable, but blind bigotry paraded as optimism is dangerous and condemnable. "Truth, crushed to earth, shall rise again; the eternal years of God are hers"; and this Congress has before it the duty and the right to uncover the facts, to face the truth, and to plan intelligently for the solution of this mighty problem.

That vast areas of land once cultivated with profit in the original thirteen states now lie agriculturally abandoned is common knowledge; and that the farm lands of the great corn belt and wheat belt of the North Central states are even now undergoing the most rapid soil depletion ever witnessed is known to all who possess the facts.

WHAT CROP STATISTICS SHOW.

The crop statistics of the United States now cover two twenty-year periods, and half a decade on the next. A comparison of these two periods shows the average acre yield in the United States to have increased only one bushel for wheat and one-half bushel for rye; while corn decreased one and one-half bushels and potatoes decreased seven bushels per acre. These crops constitute the basis of our human foods, even our supply of meat being largely dependent upon the corn crop. Thus, in spite of the vast areas of new land put under cultivation during

the last twenty years, and in spite of the improvements in dredge ditching and tile drainage, in seed, and in implements and methods of cultivation, the average acre yield shows little or no increase. In striking contrast the census returns show an increase in the population of contiguous continental United States from thirty-eight million to ninety-two million people during the last forty years; and in spite of the fact that to feed our rapidly increasing population we have extended our area of cultivated crops beyond the humid and far into the semi-arid regions, and in spite of reducing our corn exports from 213 million to thirty-eight million bushels and our wheat exports from thirty-four to twelve million bushels during the last decade, nevertheless the most common topic discussed in recent years is the high cost of plain living in these United States.

These are American facts; and, while there need be no sensation, there is need for sense in their consideration. A few people can live on blind optimism or hot air, but something more substantial will be required to feed the progeny of ninety-two millions, and added millions of immigrants. It is said that the high civilization of the ancient Mediterranean countries went down into the Dark Ages with laughter—Dark Ages which covered the face of the earth for a thousand years and which still exist for most of our own Aryan race in Russia and in India, where more people are hungry day by day, and year by year, than the total population of the United States.

The problem which now confronts America is nothing less than the maintenance of prosperity for ourselves and of civilization for our children; for civilization depends upon education, and only a prosperous nation can afford the general education of its people. Poverty is at once helpless, and soon ignorant and indolent. An impoverished people cannot have adequate schools or schooling.

No greater problem ever confronted any nation than now confronts the United States, but the solution is plain: In a word, we must increase production and limit reproduction, especially the reproduction of the unfit. To solve half of the problem is not sufficient; and, in passing, I must emphasize the fact that, with the most practical scientific systems of farming applied to all the farm lands of the United States, there is still somewhere a limit to the highest possible production of food and clothing materials in this country; but there is no limit to the reproduction and increase of population except the starvation limit, already reached in Russia, India and China; unless the public sentiment of this Nation, in these times of education and general intelligence, will support the inauguration and enforcement of legal laws based upon the established natural laws of heredity.

Just and adequate legislation should be enacted by the Nation for the better control of immigration, and by the states for preventing the reproduction of every form of degeneracy, whether revealed by insanity, criminality, idiocy, deformity, or beggary. Half of all the state revenue

is already required in many cases for the support of the non-productive degenerate classes, upon whose reproduction there is still no check in most states.

CROP YIELDS CAN BE DOUBLED.

That we can double the crop yields of the United States is not a prediction, but a fact. To say that millions of acres of abandoned farm lands in the older states can be restored and increased in productivity far above the present average for the \$200.00 corn-belt lands is merely to speak the truth. To accomplish these objects requires, first of all, that agricultural ignorance shall be replaced with agricultural intelligence in the minds of the people of influence in this nation.

Why should not every influential man and woman in America have a definite and quantitative knowledge of the basic principles that to increase and permanently maintain the productive power of our normal soils, in practical systems of farming, requires the addition to the soil and permanent maintenance of adequate supplies of only three important constituents, limestone, phosphorus, and nitrogenous organic matter?

The limestone is contained in measureless deposits in almost every state. All it requires is that it be quarried and pulverized and transported at a reasonable cost.

The phosphorus is contained in New York, Pennsylvania, Virginia, the Carolinas, Florida, Tennessee, Kentucky, Arkansas, Utah, Idaho, Wyoming and Montana, in the greatest deposits known to the world. All that is required to utilize these great stores of phosphorus for soil improvement in good systems of general farming is to mine and finely pulverize the natural rock and transport it to the farmer's railroad station at reasonable cost.

With abundant supplies of limestone and phosphorus thus provided, the nitrogenous organic matter can then be produced upon the farm by the growing of clover and other legume crops which have power to secure nitrogen from the inexhaustible supply in the air; and by plowing under this organic matter, either directly or in animal manures, the remaining essential mineral plant foods, such as potassium, can then be liberated and made available from the practically inexhaustible supply in the soil.

The man who is willing to study this subject will find that these facts are as true as the fact that the earth is round.

Normal land contains thirty thousand pounds of potassium in the plowed soil of an acre, and the air above contains seventy million pounds of nitrogen; and yet the most common commercial fertilizer sold to the general farmers in the older states contains both nitrogen and potassium, with a small amount of phosphorus. The average farmer who buys fertilizer at all merely accepts the teaching that reaches him, and as a rule this teaching comes through the fertilizer agents, who are now selling to the farmers of Indiana 900 different brands of fertilizers, and to the farmers of Georgia more than 2,000 different brands.

The result is that the ton of fertilizer for which the farmer pays \$25.00 contains less than a hundred pounds of phosphorus, whereas he ought to receive and apply to his land a thousand pounds of phosphorus for the same money.

Phosphorus is the one element we shall always need to buy—phosphorus, the master key to permanent agriculture, permanent industry, and permanent prosperity in America; phosphorus, in which we are exporting, practically giving away, as a nation, a value which amounts to as much every year as the total value of all the timber on all the Federal lands.

In 1848, Sir John Lawes and Sir Henry Gilbert began at Rothamsted, England, an investigation to ascertain the effect of applying phosphorus to normal soil where a good crop rotation and a practical system of farming were followed. The Norfolk rotation, already well known at that time as one of the best rotation systems, was turnips, barley, clover and wheat. In these practical field experiments the turnips were fed on the land and the animal fertilizer thus produced returned to the soil, which was well supplied with limestone.

THE USE OF PHOSPHORUS.

During the next thirty-six years \$29.52 worth of phosphorus was applied to one part of the field; and in comparison with another part of the field cropped and managed, the same, except that no phosphorus was applied, the \$29.52 worth of phosphorus produced \$98.02 increase in the value of turnips, \$37.45 in barley, \$48.93 in clover (and other legumes), and \$45.99 increase in the value of the wheat. The total value of the crops grown on land not receiving phosphorus during the thirty-six years was \$432.43 per acre, while on the phosphated land the crop values amounted to \$662.82, an increase of \$230.39 from an investment of \$29.52 in phosphorus. These statements summarize the results of thirty-six years of careful investigation in practical farming on normal soil; but not one American in a hundred knows, utilizes, or imparts this information. Meanwhile the ten-year average yield of wheat in the United States is fourteen bushels per acre, while Germany's average is twenty-eight bushels and England's thirty-two bushels per acre; meanwhile the United States continues to export annually, for the paltry sum of five million dollars, a million tons of our best phosphate rock, carrying away an amount of phosphorus which, if applied to our own depleted and depleting soils, would be worth not five million, but a thousand million dollars, for the production of food for us for the oncoming generations of Americans.

As an average of twenty-four years of carefully conducted field investigations with a four-year rotation of corn, oats, wheat and clover on normal soil at the Pennsylvania State College, the addition of \$5.04 worth of phosphorus increased the value of the four crops from \$32.55 to \$44.72; and a comparison of the two twelve-year periods reveals the

fact that the average crop value per acre per annum decreased on unfertilized land under this rotation from \$11.05 to \$8.18, a decrease of 26 per cent in the productive power of the land. Meanwhile the average farmer, and even the average business man who owns a farm, allows the land to be depleted and decreased in acre yield because of the erroneous and widespread opinion that crop rotation will maintain the fertility of the soil; whereas the truth, as revealed by every long continued and trustworthy investigation, shows that the rotation of crops will no more maintain the fertility of the soil than the rotation of the checkbook among the members of the family would maintain the bank account.

The rotation of crops should, of course, be practiced, for it helps to avoid injurious insects and fungous diseases, and stimulates the soil to produce larger crops for a time, with the result, however, that the depletion of the essential plant food elements is even more rapid than if wheat were grown every year on the land.

In 1897 the Ohio Agricultural Experiment Station began a field investigation on normal soil with a three-year rotation of corn, wheat and clover—and as an average of the next thirteen years, the application of eight tons per acre of farm manure increased the value of the three crops from \$26.21 to \$42.79, and the further addition of \$1.20 worth of fine-ground raw rock phosphate increased the crop values from \$42.79 to \$53.28.

WRONG FERTILIZERS.

Meanwhile the farmers and landowners of Ohio continue, in the main, to use high-priced so-called "complete" fertilizers in the same systems of land ruin that led to the agricultural abandonment of much farm land in the older states.

As an average of nineteen years, the Louisiana Agricultural Experiment Station applied \$14.45 worth of plant food, chiefly in organic manures and acid phosphate, which produced an average increase of \$62.25 in the value of the crops in a three-year rotation of cotton, corn and cowpeas, oats and cowpeas, grown on the typical much exhausted upland soil of the South.

The average yield of cotton exceeded a bale to the acre for the nineteen years. Meanwhile the average yield for the Southern states is one-third of a bale per acre.

I have given you some of the cream of the world's work in soil fertility investigations on normal soils, which need for their improvement phosphorus and organic manures, and sometimes limestone. Abnormal, or markedly different soils, require markedly different treatment.

Thus four plots of normal corn-belt prairie soil in McLean County, Ill., produced, in round numbers, only twenty-two, twenty-six, twenty-two, and twenty-seven bushels of wheat per acre in 1911, although some of them had received nitrogen and potassium; while four other similar

adjoining or intervening plots, which differed from these only by having been treated with \$2.50 worth of phosphorus, in 200 pounds of steamed bone meal per acre per annum, during the past ten years, produced fifty-eight, sixty, fifty-four, and sixty bushels, respectively, of wheat per acre.

But on the peaty swamp soil of Kankakee County, with the same amount of phosphorus applied to several plots, the acre-yields of corn in 1903 were seven, four, five, and four bushels, respectively, on four separate plots, while on four other plots, which differed from these only by the addition of potassium, the yields were seventy-two, seventy-one, seventy-three, and sixty-seven bushels of corn per acre the same season.

Again, on the sand land in Tazewell County, Ill., four plots, including some treated with phosphorus and potassium, both singly and combined, produced eighteen, ten, eight, and eighteen bushels of corn per acre in 1906, while four other plots whose treatment differed from these only by the addition of nitrogen, produced the same season sixty-three, seventy-one, seventy-five, and sixty-six bushels per acre.

It is truly gratifying to acknowledge that the State of Illinois is now devoting \$100,000 per annum to soil and crop investigations and the dissemination of the information secured, even though this is less than one per cent of the revenue of the state, all of which come directly or indirectly from the soil. It is also gratifying to acknowledge that, according to the crop statistics reported by the Federal Government and confirmed by the independent crop statistics of the Illinois State Board of Agriculture, the last ten-year average yield of corn for the State of Illinois is six bushels higher than during the twenty-five years before the agricultural experiment station began to exert an influence upon our agricultural practice, and also that a similar comparison shows three bushels increase per acre in the Illinois wheat crop—increases whose aggregate value for the state now exceeds twenty million dollars a year; and yet I must confess to you that as an average the farm lands of Illinois are yielding only half a crop; that by soil enrichment alone the average crop yields of Illinois could be doubled even with the same seed as we now plant, with the same amount and methods of cultivation and with our normal climatic conditions.

On one of our old experiment fields on the University of Illinois farm the latest three-year average yield of corn grown every year upon the same land is twenty-seven bushels, while in a crop rotation of corn, oats and clover the average corn yield for the same three years has been forty-nine bushels, and where proper soil enrichment is practiced in the same rotation the average yield of corn has been eighty-seven bushels per acre—all grown from the same seed, on the same kind of land, plowed and cultivated the same, warmed by the same sunshine and watered by the same rains.

All these are examples not of theory, but of fact—examples of fact which should be known and emphasized by all influential men and or-

ganizations. We talk of conservation, but 90 per cent of all the talk during the last five years about the conservation of natural resources has been directed toward 10 per cent of the resources. On the other hand, to improve and to save the soils of America will require more than talk. Thought and action are required, and the time for thought and action is already upon us. Not conservation of soil fertility; but amelioration of good soils, restoration of worn-out soils, and then permanent preservation of all soils.

WHAT REAL RECLAMATION MEANS.

Our reclamation of land must be more than the continued exploitation of so-called dry farming and irrigation on virgin soils and the drainage of virgin swamp lands; we must reclaim, in the truest sense of the word, the millions of acres of depleted and agriculturally abandoned lands lying at the door of our greatest markets and already favored with an abundant supply of unused water in the normal rainfall of our older states.

If 145 million dollars of federal funds can be wisely and profitably expended (and I believe they can) in providing irrigation for three million acres in the arid regions of the Far West, and if 300 million dollars can be expended annually to support our army and navy, as we are doing even in time of peace, then what should we do in comparison for the restoration or improvement of the 900 million acres of farm lands in this country? I would affirm and emphasize the fact that 145 million dollars, if wisely and economically used, would make a soil survey of every farm in the United States and furnish every farmer with definite and much needed information concerning the composition or invoice of fertility of every type of soil on his farm and proof of practical profitable methods for its improvement, and still leave an endowment whose income would support a permanent experiment field or demonstration farm in every county in every state.

Private enterprise has already put twelve million acres under irrigation in the United States, and the Federal Government has added one million and has projects concerning two million more. This is doubtless all good work and ought to go on, but the fact still remains that as a nation we are penny-wise and pound-foolish, with millions of acres of agriculturally abandoned lands in states surrounding the national capital.

The rapid investigation of the soils of every state should be inaugurated, and this should be accompanied by the wide dissemination of information by demonstration farms showing by actual field trial the most practical methods of soil improvement and preservation. This is local work and is best done by the state institutions directly responsible to their home people, while the Federal Government must direct and control the reclamation work on the federal lands. Because the revenue of the Federal Government is ten times the total or combined revenue of all the

states, the federal appropriations to the state agricultural institutions should be largely increased for the specific purpose of increasing and extending the knowledge of practical methods for restoring and improving the fertility of the soil, and these increased appropriations might well be made in direct proportion to the acreage of farm lands in the respective states.

All public schools should offer practical scientific instruction in the principles of soil fertility, and every man and woman of mental power should acquire information and exert influence toward saving the soil, which is second in importance only to saving the soul. But the fact is that not one American in a hundred knows what the soils contain or what the crops require. They know of the rivers of Asia and of all the kings of England, and perhaps of the wars of Caesar and the orations of Cicero; but they do not know what is required to produce a grain of wheat or a kernel of corn. And yet there is as much of culture and more of use and value and of satisfaction in a study of clover roots and plant-food compounds than in Greek roots and Latin compounds; and I insist that the study of soil fertility is so simple and easy and so interesting that any man or woman of ordinary education can become master of the essential principles by studying the subject an hour a day for a single month.

President WHITE—Mr. Wallace will introduce Mr. F. D. Coburn, secretary of the Kansas Board of Agriculture, who will preside this afternoon.

Mr. WALLACE—You people in Kansas have all heard of Coburn (applause), the man who adorns, advises, and advertises the State of Kansas and the state of the West. Mr. Coburn will preside with you this afternoon. (Applause)

Mr. COBURN—President Wallace, I thank you for your kindly introduction. Ladies and gentlemen of the Congress, and delegates: Your temporary chairman will base his claims to your charitable consideration this afternoon on the fact that he has no speech to make, and further will go on the assumption that the program which is provided him and for you will be carried out. I thank you. (Applause)

President WHITE—Ladies and gentlemen: The Missouri delegation is requested to meet immediately after adjournment. We will now listen to Dr. W. J. McGee, the well-known authority on soils, of the U. S. Department of Agriculture. (Applause)

DR. MCGEE—The relation of man to the earth on which he lives forms a worthy theme for those who think and base action on thought. As it is now, so it has been in every age; every early people had a creation epic; the noblest of all recounts that out of the dust of the earth God made man in His own image. The ancients gave chief thought to beginnings seen vaguely at the best; moderns to current processes which may be seen

clearly and verified by repeated observation. In this way natural science arose; and under the guidance of Darwin naturalists learned that living organisms are controlled and perpetuated chiefly by the two factors of heredity and environment. Into this scheme of nature man entered, and through mental power gradually assumed control over lower nature; for man differs from other organisms in that he adjusts himself to his surroundings largely by reconstructing them. While still retaining heredity as a vital factor like lower living things, man is essentially an environment-shaping organism, and lives by doing. The factors of his existence are heredity and exercise, and it is his rôle in nature to reconstruct the face of the earth, to modify all other living things for the welfare of his kind, and finally, by growing knowledge, to progressively improve his own kind and ennoble humanity.

The conservation movement marks a step in human advancement; for it is a conscious and purposeful entering into control over nature, through the natural resources, for the direct benefit of mankind. In truth it means a revolution (arising, like all other beneficent revolutions, in clear thinking) against an old order of things, preparatory to the framing of principles on which a new order may arise; and in essence it reaches those fundamental relations between man and earth which have stirred deep thought and inspired high motives during all the generations of men. Conservation is no passing caprice, no fantastic whim of a day; the idea expressed by the term runs back to the mainsprings of human existence and of righteousness, and it is in no way surprising that it has already spread from sea to sea and found lodgment in millions of minds—albeit still as seed rather than in the full bloom and rich fruitage destined to follow as question grows into conviction and conviction into action.

THE PRESTIGE OF THE TREE.

As a vital factor in our national life, conservation began with forests used and destroyed several times faster than they grew. Now a tree is a noble object, a sacred thing; "the groves were God's first temples"; the apple is the theme of earliest legend, and the vine and fig tree are emblems of domestic peace; the oak is the symbol of strength and the pine of perpetuity; the memories and affections of the happily born cluster about the old homestead trees under which their happiest hours were spent. And so the material argument for conserving forests was supported by deep-lying sentiment—and what obstacle can long resist the united assaults of profit and sentiment? Then as growing knowledge showed that the woods conserve the waters the force favorable to forests was further increased. At the critical time the prophet of the forest arose in Gifford Pinchot, and the gospel of conserving nature's good for the Nation's strength took form.

Even before the public conscience was awakened to the woodland

waste the farm lands available for homesteads were nearly gone out of public possession, and a plan to eke out the supply by irrigating arid districts was framed by John Wesley Powell, soldier and scientist, whose grasp of the relations between man and earth was stronger than any other of his generation. His plan was extended and carried out by Frederick Haynes Newell, engineer and builder, one of the live leaders of the conservation movement. Thus Powell planted and Newell watered, and the wilderness blossomed; and the aspiration for an independent home-owning citizenry which shaped the Nation in its infancy, and then fell into neglect, was revived. The Reclamation Service virtually extended the habitable and productive area of the country; but its best gift was a re-awakened desire for homes on the land, a re-kindling of that home sense which is the mate of patriotism and handmaid of conservation.

Through genius fostered by stress of pioneering, this became a country of invention; and through plentitude of coal and wood and iron, manufacturing grew as never before, until the riches of one after another of the forests and coal fields and ore beds were exhausted. Meantime the contact of free citizens with nature—the common touch of man and earth—made this a country of science, and scientific surveys measured the mineral resources used and remaining for use. More than any other, Joseph Austin Holmes came up as the apostle of better things in economical exploitation and in the saving of human life in mine and factory, and the last of these stirred deeper sympathy and evoked wider appreciation than could the merely material considerations untouched by humane sentiment.

THE ROOSEVELT POLICY.

Though moved directly by desire for better use of the rivers, it was on these three pillars—forests, lands, minerals—that the original structure of conservation was founded by Theodore Roosevelt, humanitarian and statesman, no less than president. Yet—“lest we forget”—it cannot be too strongly emphasized that while the argument for conservation was and is statable in terms of board feet and acres and tons and dollars, the strength of the movement lies in the human feeling behind the material units: in love of trees, in love of home, in love of country, in love of family and fellow men. In truth, the material argument merely justifies and gives formal warrant for the sentimental outgrowth born of increasing intelligence coupled with increasing interdependence between man and earth—for even like Anteus of old, modern men gain new life by contact with earth.

Largely after the conservation movement was under way came the realization that the water of the country is the primary resource, since on it depends that productivity without which the lands would be uninhabitable, the forests non-existent, and the minerals merely so much inert and worthless matter. Now, the material basis for appreciation of water

has been largely worked out; the quantity has been computed more carefully than before; the amount required for the maintenance of life has been reckoned, and it has been shown that the capacity of the country for population is only half what it would be if the land were more freely watered. It has been emphasized that there is no assimilation, or germination, or tissue growth, or reproduction in the absence of water—indeed it has been shown that these vital processes are apparently but manifestations of properties inhering in water; but, except here and there in arid regions and now and then in its esthetic aspects, water has not yet fully found that place in sentiment which it deserves as the final measure of life on the land, the direct medium between man and earth.

As the movement proceeded it was realized, even before the National Conservation Commission reported, that all the natural resources (as commonly defined) are balanced against that human life in which alone they find use and value; for without men to enjoy them the earth and the fullness thereof were as dead cosmic matter. So human efficiency was recognized as a sort of equation expressing the relations between man and earth, measured by the powers of accomplishment, the prospects of perpetuity, and the general welfare of mankind; and the survey was extended, first by Irving Fisher to the public health, considered with special reference to industrial capacity and viability, and later (through another agency headed by Liberty Hyde Bailey) to that rural living which may and should contribute so largely to national strength and spirit. Thereby the material field and much of the moral purport of conservation were rounded out, and the lesson of science that man is master over lower nature became practical and entered into the daily thought of millions.

THE SCOPE OF CONSERVATION.

Such, in broad outline, has been the course of conservation to date, that earlier course predetermining the present and future trend of the movement. Yet forecast or even current view would be futile without the fullest understanding that, despite the impressive material facts with which conservationists point argument and convince contemporaries, the conservation movement is primarily and fundamentally moral, and is material only in secondary and empirical aspects; the material resources form property, but the moral forces make men who create property at will. It is the quality of human knowledge to advance, not uniformly but per saltum. In the individual a great idea (perhaps the offspring of subconscious cerebration) springs full-armed—like the daughter of Jove—under momentary inspiration, and is gradually adjusted to the general fabric of thought. In the people, a great idea (conceived in some individual) sweeps from one to another swiftly, according to its fitness as a new faith, or doctrine, or cult, or means of life, until enough are inspired to reconstruct the old ideas and customs.

Somehow, men need these inspirations; they are essential to advancement, are indeed the very means of mental growth; and the whole course of human progress is marked by great inspirations. In the unwritten past of our ancestry (though in the observed life of other races) the recognition of paternity came as a luminous idea, and the mother-right of savagery was shifted to the paternal kinship of barbarism, while the deific powers were transformed from fearsome to gracious. Within the time of written record, consanguineal tribes gathered into civic groups, yet civilization became effective only under monotheistic faith and the great inspiration going out from Palestine with the injunction, "Do unto others as ye would that others should do unto you." Later, Luther and Loyola fired mankind religiously, and Cromwell politically, through inspirations influencing all Christendom. And then came, through resistance to attempted tyranny over a strong people and unparalleled weighing of human rights, the quickened conviction that all men are equally entitled to life, liberty, and the pursuit of happiness which inspired enlightenment and gave a new form of government already spread afar over the lands of the earth. With each inspiration, the moral impulse quickly rose above material structures and yielded better institutions on the higher plane.

Now the conservation idea has spread and is still spreading as an inspiration for which the national mind was ripe; it crystallizes intuitive feeling as to eternal fitness—the feeling that the riches of the land belong not to the few but in due share to all, both living and yet unborn. So in its essence, conservation is a cult based on deep-lying moral sense; and, just as in the earlier stages of human progress, all material structures must be adjusted, albeit gradually, to the moral foundation. Happily, the new cult is peculiarly adapted to our country, not only by our plentitude of resources and our constructive genius but by historical association. Ever the highest human aspirations have been for liberty, equality, fraternity. Our Revolution was fought for liberty, and our Constitution was framed for equality; and the end of conservation is fraternity—a stricter honesty, richer patriotism, broader charity, and warmer philanthropy ripening in the brotherhood of man.

MAN AND THE FOREST.

Since 1776 and 1787, knowledge of the relations between man and earth has multiplied. Then forests were but haunts for game and obstacles to settlement—the waters unreckoned, coal unknown, and iron little used. Then but two elements of national strength were conceived: (1) land as both means and symbol of homes, and (2) the home-making people; and on this balance between lower nature and the higher nature residing in mankind the Nation was founded. In 1908 the several natural resources, waters, forests, lands, minerals, were in large use and were balanced against human efficiency, measured chiefly by public health and viability; yet in the last three years, under the inspiration of conserva-

tion, the spirit of citizenship has spread more than in the preceding century, until today it is widely recognized that the earth and all its riches are for all mankind, and the natural resources as a whole may now be balanced against human welfare in the individual, the family, the community, and the state, including commonwealth and Nation.

In this broad view, conservation deals not merely with the sources of welfare found in lower nature, but in still larger degree with the higher powers involved in the relations among men—in human rights and institutions and laws, social, industrial, civil and political. For it is not enough for the free citizens of this new era to conserve the mere materials for national power and perpetuity; the Nation itself, with all that strength of national character which has given us the lead among the nations, must be conserved for ourselves, our children, and our children's children! This is the chief duty of the day.

While individual and family and community and state are interdependent, human efficiency begins in the individual. Only in the individual mind, howsoever warmed by association, are ideas conceived; only by individual aptitude, howsoever instructed, are tasks accomplished; only by individual conscience, howsoever quickened, is conduct guided. Individual standards of righteousness are higher than those of crowds of communities or states. In war it is the man behind the gun, and in peace the man with hand on tool or throttle that achieves victory. No state can be powerful unless its constituent individuals are efficient. Now, individual efficiency involves suitable food and clothing and dwelling, with health and sanitary surroundings assuring normal expectation of life. And in even higher degree it involves those inspirations of humanity; especially love of kind and love of country, in which incentive buds and ambition blossom. These things are among the rights of the individual on which the strength of the state must ever rest—the rights to life, liberty, and the pursuit of happiness, of late expressed in the single term, "Opportunity."

THE RIGHT AND NEED OF WORK.

The clearest right and most needful opportunity is for work, that exercise wherein men rise above lower nature, especially productive labor in which visible results incite the mind and invigorate the hand. Despite current clap-trap, there is no "inalienable right not to work"; none have the right to idleness, and the country owes no man a living unearned, for it is no less true now than of old that "they who work not, neither shall they eat"; and neither community nor state can conserve its strength without opening wide the door of opportunity to its constituent individuals.

Within any generation, efficiency is attained by individual work—that exercise which combines with heredity to shape human progress. Yet it is only through the run of generations that heredity acts and that individuals, like communities and states, are perpetuated. Indeed, the

essential human unit is neither the individual nor the social assemblage, but the procreative family. So the ultimate strength of any nation, and the progress of mankind in controlling lower nature, hinge on maintenance of the family triad with its vital angles of mother and child.

Herein moderns may learn something from the ancients and lower races. When mankind commenced conquest over lower nature, mother-right prevailed; the mothers were priestesses and law-givers for their clans, and they and their daughters were esteemed as the bearers of the line of life. Under the patriarchial condition, the child-bearers were seen to measure tribal strength, and were set apart and supported, and often multiplied, through warfare and polygyny, though sometimes degraded into slaves and chattels. Under the militant motives of early civilization, when the strength of cities and principalities was measured by the fighting men, as shown by Fustel de Coulanges in "The Ancient City," and Sir Henry Maine in "Ancient Law," wives and mothers were debarred from councils and virtually disfranchised. Although "When Knighthood Was in Flower" and romance in its heyday, the prolific sex was often both cause and guerdon of strife; and it is only under enlightenment, with its broad view of general welfare, that the pendulum is swinging toward that equitable division of rights and duties and responsibilities between the sexes and ages of mankind inhering in the family.

In the light of accumulated experience, it is to the interest of community and state to vouchsafe mother and child exceptional rights; the prospective mother has a right to family protection and to freedom of choice in mating, and the bearing mother to both material sustenance and the spiritual support of affection during her fruitful period. The child has a right to be conceived in the inspiration of love (the most potent force in humanity) and born to a welcome—and then to both material sustenance and moral sympathy during infancy and early adolescence. These rights may burden individuals and communities, yet the burden is essential to the richness of heredity and the fullness of humanity. Now the rights of the generation arise in the family. Conservation came up with the new concept of continuity, added to that of present power. It was first felt that each future generation is entitled equally with the present one to a due share of the natural resources. Yet already the moral light has shown that each generation in its turn is no less entitled to the benefits of happy birth and good breeding, to normally increasing numerical strength, and to the fittest laws and institutions within reach of the parents, for each child and each generation naturally inherit not merely parental traits but their share in the community and state. Already conservation and eugenics and righteous decrial of race-suicide are awakening a new sense of generational responsibility; and it grows clearer every day that our present power and prestige were of little worth unless assured of perpetuity by due regard for generations coming up and yet to come.

THE GREGARIOUS INSTINCT.

Under gregarious instinct and desire for strength in union, mankind is grouped in multifarious communities overlapping and combining in such wise as measurably to control the action of each individual and family, and shape the character and career of the state. It is the essence of the community that each surrenders some share of individuality for the common good; and the benefits usually vary with the nearness of the constituents in person and in interest. While endlessly protean, communities may be classed by purpose as (1) for public benefit, (2) for class benefit, and (3) for private benefit—of which the first and some of the second merge in the state. Now, the community may be likened to a miller's bolt, in that it grades individuals according to characteristics, and in the overlapping communities of the country each individual falls more or less fairly into fit place according to the judgment of contemporaries. Yet the customary flexibility of the community allows the less designing and more generous constituents to lose position and permits the designing and selfish to gain undue power—and partly for this reason the communities for private and class benefit tend to multiply, while communities for public benefit tend to become subverted to the ends of shrewd and self-seeking leaders.

Despite primary dependence on individuals and families, the power and continuity of the state are measured largely by the strength and sagacity of its communities, especially those designed for public benefit. Yet grave dangers lurk in that multiplication and subversion of communities tending to subordinate public good to private greed. Two current tendencies may be signalized as especially ominous: (1) through an insidious legal fiction certain communities for private benefit (*e. g.*, corporations for profit) have come to be viewed as possessing the property rights of individuals, whereby their constituents (partners, stockholders, *et al*) enjoy dual privileges as actual persons and in the pseudo-personalities of their corporations. So that privileged classes are arising among us, despite a republican constitution under which all are equal. (2) Through a development not sanctioned by the constitution, and most solemnly denounced by that steady balance-wheel of the constitutional convention, afterward First President, the form of community known as "political party" grew up, and, though first designed for public benefit, became subverted through self-seeking leadership into the machine organization, diverting attention of citizens from the public welfare and promoting graft and bribery and worse evils, especially in cities—where the party "machine" is commonly a cover for corruption. These two un-republican forces have not unnaturally drawn together, and often combine, interests in private behalf and against the public welfare; and in them lies the chief menace to the Republic. Clearly, maintenance of the integrity and power of the state demands due regulation of these and other community forces. Largely through the conservation movement, the public conscience and the spirit of citizenship have been awakened as never before. Citi-

zens are entering on exercise of their rights as a sacred duty, and through such community devices as municipal commissions, direct primaries and the gradual adoption of initiative and referendum and recall, they are rapidly restoring government of the people, by the people, for the people—the only form of government assuring perpetuity to a great and progressive country.

THE GROWTH OF ORGANIZATION.

In a republic such as this, the state (including commonwealth and nation) merely sums the constituent individuals and families and communities, and—theoretically—organizes the popular will. Now, the hardest lesson of the long course of human progress is that of individual responsibility for the general welfare, a responsibility first realized by the founders of the Republic and fully realized today by few of our citizens. But those are of the salt of the earth. Fortunately, our forebears saw the way to develop a responsible citizenry united in popular government, the chief requisite being the independent family home on land producing the prime necessities of life; and such was the real foundation of the Republic. Later, manufacturing and transportation grew until a majority of our electors became industrial dependents and only a minority were primary producers. Still later, partly through the influence of a great governmental department under the leadership of a great farmer for fifteen years, agriculture has again become respectable, and the tiller of the soil is once more the exemplar of that citizenship on which the power and prestige of the Republic must ever depend. Thus far the movement "back to the farm" is hardly shown in population figures, though clearly indicated by farm values. During the decade 1900-1910, the farm area increased only 4.2 per cent and the acreage of improved farms only 15.2 per cent, while the acre value of farm lands increased 108.7 per cent and the aggregate value no less than 117.4 per cent. This increase is connected with the high cost of living, especially in cities, though the advance in prices has thus far benefited transportation and trade rather than the primary producers. In 1900 we paid our railways \$1,650,000,000 and in 1910 about \$2,750,000,000, 70 per cent of which was freightage—an advance of 67 per cent. Considered as a tax on improved land (justifiably, in that the cost of transportation limits production), this was \$4.00 per acre in 1900 and \$5.76 in 1910, an increase of 44 per cent, or as a per capita tax it was \$21.74 in 1900 and \$30.00 in 1910, an increase of 38 per cent—all of which ratios of increase are far higher than that of farm prices for farm products. Howsoever the factors of our recent growth are arranged, it is clear that primary production, fallen behind during recent decades, must be brought up—which can best be done by fertilizing the acres with brains, and so controlling natural forces and materials as to increase production both per acre and per worker.

THE FARMER'S RESOURCES.

It cannot be too strongly emphasized that if there be anything in the lessons of past human progress or in modern science, this is feasible. During the generations, natural productivity has been multiplied, and today the sun-power with which the farmer plays is over 1,700 horse-power per acre for each crop, so that the farmer has larger command over natural forces than any other industrialist. Nor can it be too strongly emphasized, in the light of all human experience, that the needful apotheosis of agriculture will at once revive individual and family life, relieve the burden of living, and restore that independent citizenship without which the free government in which we so justly glory may hardly be conserved for the benefit of coming generations. Herein lies a sacred duty; it is the duty of the whole people forming the Republic, but especially of the farmer folk who furnish its strength.

This vast interior, of which the like is not to be found on earth, is the bread basket and meat hamper of the country. The career of the Nation is destined to be shaped largely by the teeming crops of its acres in foodstuffs and clothing wares, and yet more largely by that richer crop produced through union of man and earth, the strong manhood and gracious womanhood and prepotent childhood of the highest type of humanity the world has seen. Yet this consummation will not come without foresight and effort. The resources must be developed conservatively; lower nature must be further subjugated; sun-power must be better directed and water supply better used. The spirit of free citizenship must be fostered and the franchise exercised fully; tendencies of communities against public welfare must be counteracted; transportation must be cheapened by regulation and by proper use of the finest natural system of waterways on earth. Statesmen in sympathy with the people—and in a republic he is not a statesman who lacks that sympathy—must be developed in lieu of pseudo-statesmen serving special privilege. Laws must be enacted and executed in behalf of all the people, and special and class legislation must be checked. Public utilities must be controlled in the public interest and their conduct kept open to the public; corporations must be given opportunity second only to individuals, but must not be permitted to invade individuality, nor must partisan issues be allowed to delude the unwary. These are among the requisites for the continued welfare of this interior and for the perpetuity of this Nation. The duty and the responsibility devolve directly on the people; and it is the aim of conservation to fan and keep aflame the moral light behind the material movement.

President WHITE—Ladies and gentlemen, we are now ready to adjourn the morning session. We want you to be back here with all of your friends and everybody that you can get to come, at two o'clock

sharp. The afternoon session is going to be a very interesting one. Everybody should be present. The Secretary of the Interior, Hon. Walter L. Fisher, will speak at 2:30. We stand adjourned.

EIGHTH SESSION.

President WHITE—Ladies and gentlemen, delegates to the Third National Conservation Congress, we will now come to order. Mr. Coburn will preside this afternoon, and will now take the Chair. (Applause)

Chairman COBURN—Ladies and gentlemen, the meeting will be opened with prayer by the Rev. Dr. Munro, of Kansas City.

INVOCATION.

Our Gracious God and our Father, we thank Thee for the inexhaustible resources which Thou hast placed at our command. We thank Thee therefore for the infinite possibilities that are at our disposal. We pray, therefore, that we may use them wisely, doing those things that will serve and in themselves will glorify Thee. Not only do we seek Thy glory but we seek the betterment of mankind and the advancement of humanity and the elevation of our much loved land. Direct us therefore in all that we shall undertake to say or do this afternoon. We thank Thee that in order to make the best of what we have and what we are and what we possess, even our very circumstances, Thou hast sent Thine own dear Son to give His life for us that we might thus be able to reach the holiest heights. Bless those who speak to us, and direct us in all our deliberations, we ask in Christ's name and for His sake. Amen.

[Here Mr. Bryan entered the room and was received with loud cheers.]

Chairman COBURN—The first number on this program as presented to the Chair is entitled "Practical Methods of Soil Cultivation," to be treated by Professor A. M. Ten Eyck, the very capable head of the Kansas Experimental station at Hays. I have pleasure in presenting him. (Applause)

[Prof. Ten Eyck's address will be found in Supplementary Proceedings.]

Prof. CONDRA—I have in mind a resolution that I think this Congress, representing more than 1,200 conservation delegates, would like to adopt. There is a man in the far Northwest who has done much, in the way of labor and leadership, for the cause of conservation. Let us send greetings to the Hon. Gifford Pinchot. (Applause)

President WHITE—I second the motion.

Chairman COBURN—You have heard the motion, which has been duly seconded. All of you in favor of its adoption please manifest it by saying aye. The motion is unanimously carried.

Chairman COBURN—Conservation and the National Domain. We

are fortunate that this important subject is to be discussed here this afternoon by the Honorable, the Secretary of the Interior, Mr. Walter L. Fisher, whom I now have the pleasure of presenting. (Applause)

Mr. FISHER—Mr. Chairman, Ladies and Gentlemen, Delegates of the National Conservation Congress: I am a conservationist who realizes that many of the problems of conservation have not yet been rightly solved, but who has no apologies to make. I am here by a very strenuous effort and the cancellation of a number of important engagements, in order to express my continued adherence to the general principles upon which this movement is founded, and to offer my assistance, officially and unofficially, in carrying those principles into execution. (Applause)

As I said a little while ago at another meeting, my statisticians who are traveling with me tell me I have covered something in the neighborhood of 16,000 miles in an effort to get a little better acquainted with a portion of the Department of the Interior. I presume that many of you would rather hear from me today about that country in the Far North, to which allusion has already been made, and upon which national attention has been so rightly concentrated. I refer to Alaska. However, it is my opinion that in that, as in all other matters, wisest conclusions will be reached when all the facts are known. I have spent a considerable amount of time in traveling through that portion of Alaska in which the most acute problems have arisen. I have been peculiarly fortunate in being able to cover much more territory than I had believed possible. And I think I have reached some general conclusions which, while they may be wrong, nevertheless are the conclusions which I expect to present to the President and to the Nation in proper time and form.

I would be perfectly willing to present them to this audience whose interests in the question I recognize, were it not for the fact that I am waiting for two reports upon the coal situation which I have not yet been able to receive. One of these reports is from the geological survey and one from the director of the bureau of mines, who is just now returning from the largest and probably the most important coal field in that country. I have gone over these matters somewhat in detail with the President of the United States, and am gratified to be able to say to you and to the public that there are no differences of opinion between him and me upon those questions—that he is ready, as am I, to suggest a solution which will at least recognize our obligation for constructive recommendations upon this important matter.

For I believe that the thing which is most important for conservationists to understand is that they cannot shirk their full share of the responsibility for constructive legislation. Criticism is justly levelled at a policy of inaction, and that criticism should be disarmed at once by the conscientious and sincere effort of men who are identified with this movement, to find a way out. (Applause) I believe that conservation in its last analysis means nothing but wise development, in the

public interest. (Applause) And I believe that the first public interest is wise development, but that the emphasis should be put on the character of the development as much as upon development itself.

MISUNDERSTOOD AND MISREPRESENTED.

The difficulty with the conservation movement so far has been that it has been both misunderstood and misrepresented. There are those who profess allegiance to the principles for which you stand, and yet are quick to find objection to every concrete suggestion for carrying those principles into effect. There are those who find that the present situation presents many difficulties, but who content themselves with insisting merely upon sitting on the lid. I think the proper place for the conservation movement is with neither of those parties, but with the men who genuinely recognize that when we have worked out those principles under which development can go forward without danger of monopoly and for the public good, the conservation movement should get behind those policies and push them with all the strength that the public sentiment which has already been manifested to be behind this movement can exert. (Applause)

The topic which has been assigned to me, as was first suggested, is "Conservation and the Public Domain." It is a large subject, and as I have had no opportunity whatever to do more than to make a few casual notes on the train, you will have to pardon the informality and the inadequacy of the address which I shall present.

I will probably make some mistakes in what I say; probably in the wording of some things I shall not be quite as accurate as I would like; but I reserve that right now, which I reserve at all times, to change my mind tomorrow morning if I see things differently then. (Applause)

In the first place, the conservation movement is a thoroughly non-partisan movement, and it should be distinctly so understood. Perhaps the best evidence of that that occurs to me upon the moment is that when the Conservation League of America was formed, at the instigation of Theodore Roosevelt, then President of the United States, he became honorary president, and Mr. Bryan and Mr. Taft became honorary vice-presidents. (Applause) While the position of president fell to me, John Mitchell and Gustave Schwab, perhaps representing the two extremes of industrial interest, were vice-presidents of the organization. In this way I think we presented in the organization of that particular association a thing which I wish to bring home, so far as I can, to the American people, namely, that there is no partisan politics of any kind in this movement, neither industrial politics, nor any other kind of politics, but that it is the interest of the people, and the whole people, and of no one but the whole people, that is at stake.

The national domain naturally divides itself into the great subdivisions of lands, minerals, forests and water. If you will pardon me for a moment I will undertake to present, very candidly, some views of

my own upon each of these topics. Of course, the first to which I have referred, that of land, embraces the entire subject, because, broadly speaking, the land is supposed to include the mineral within it, the water which flows over it, and the forests which grow on it. Nevertheless, there are many problems included within the public domain which distinctly relate to land as land, and contradistinguished from the other main subdivisions or topics that I have mentioned.

NOT A NEW POLICY.

Now, there is a great hue and cry, in certain sections, that in some way the Nation has departed from its ancient policies, with reference to land. It is my personal conviction that no change has been made that has not been necessitated by changed or different conditions. For instance, when we started out in this country, the forest area as a whole was not particularly valuable for lumber, but on the contrary it was an obstacle to agricultural development. The forest had to be cleared before the land itself could be put under cultivation, and that related particularly to the most valuable land. It was covered with forests. As we got into the central West that particular problem began to disappear. We had less difficulty in removing forests. We found more prairie and upland ready for the plow, and the result was that the question of forestry, the question of the removal of the timber became of diminishing importance. When we got into the extreme West we found a great subdivision in the character of our federal domain. While we found forested areas in the mountains, and in the more broken country, we found that the great territory lying west of the Mississippi river was in the main free from trees. But we have only recently learned that the land which never had the tree upon it, which has upon it today nothing but the sage brush, is after all the most valuable agricultural land which the Nation has possessed. We have found that the great problem of today in the West is how to get water upon the desert so that it may blossom like the garden and may become the most fertile and most productive portion of our national domain. As a result, the relative importance of the forest from the agricultural point of view has diminished, and the problem in the West today, as I have seen it during weeks of travel through irrigation projects, Indian offices, land offices, is how to get the water on the land, and the settler to follow the water. And I think if our friends who are particularly concerned about excessive forest reservations would devote their attention, first to getting settlers on those lands, which are worth ten times what their forest area is worth for agricultural purposes, the development of the West will go forward more rapidly than in any other way. (Applause) There are, however, many special problems connected with the land question that it is necessary to solve, and I shall pass rapidly to some of them.

Let us take the question of coal. There is a large area of coal re-

served in the Western country from present entry. This coal land, under the statute which now prevails, is rapidly becoming available. There is considerable disappointment or disapproval of the policy of withdrawal of coal lands in certain portions of the West. Usually, as I have found by personal contact with the people of those areas, and by discussion at public meetings, the disapproval is on the part of the people who wish to exploit coal by getting it and holding it without present development, in expectation of reaping the unearned increment from the future growth of the country. Recently a letter was written to me, and given wide publicity by a member of Congress, to which I intend shortly to pay some attention, and I think perhaps at this time it would be just as well to discuss one or two of the features that are embodied in this correspondence. Congressman Mondell, of Wyoming, has written a letter in which he complains that the present policy of classifying public coal lands has resulted in increasing the price of coal to the consumer from fifty cents to a dollar a ton; that it has created a monopoly in the hands of the government, and that the prices are prohibitive.

SOME RESOURCE FIGURES.

I think that at this time, perhaps, it would be well to give some figures upon these various points, and I shall take this opportunity to do so. There are estimated to be, west of the 100th meridian, 620 billion tons of anthracite and bituminous coal; 650 billion tons of sub-bituminous, and 720 billion tons of lignite. The valuation which the Department of the Interior, through its geological survey, has placed upon these lands, is based upon the theory that the purchaser, instead of paying a flat rate per acre, pays by the ton for the coal which he buys at values graded according to the character of the coal. For instance, the price of land underlaid by anthracite and high grade bituminous coals is computed at the maximum of three cents a ton, whereas sub-bituminous coal of only moderate fuel value is rated at one-half cent per ton. An exception to the tonnage basis is made in cases of lignite in the lowest grades of sub-bituminous coals. These are valued at the prices fixed by law as the minimum prices at which coal land can be valued. No lignites whatever have been given values of hundreds of dollars an acre, as has been claimed, nor any value better than the minimum, \$20, fixed by the statute if within fifteen miles of a railroad and \$10 if at a greater distance. The tonnage value for coal sold in the ground, according to the best information obtainable, should be in general from one-fifth to one-half of the royalty value of the same coal if paid for as mined. The classification prices used by the Geological Survey are, in fact, lower—in some cases very much lower. It is plainly impossible that the result of the classification policy has been to increase the cost of coal to the consumer as much as fifty cents on a dollar a ton, as claimed, since the maximum government price is only three cents a ton.

The State of Colorado charges a royalty itself of ten cents a ton

for coal mined from the state lands regardless of the quality of the coal. The State of Wyoming fixes royalties for all grades of coal mined from state lands at from three cents to six cents per ton, depending upon the quality produced. Private leases in Wyoming require as high as ten cents, and for small local mines, much higher rates. Fifteen cents, for instance, is the royalty in the Mills City and Roundup districts of Montana, and in the Trinidad and Boulder countries in Colorado it runs from eight to twenty-seven and one-half cents. The government price on federal lands is in no case more than three cents a ton, and the great majority of the Western fields are being classified at from half a cent to two cents a ton. Now, that system of valuation results in prices of which only a comparatively small part are \$150 or more. Great areas are valued at the minimum fixed by statute, and other great areas at comparatively low figures. Values running into the large amounts will be found only in the anthracite and the other high grade bituminous fields.

In many of the cases the prices fixed are less than the actual market price of private land of the same character in the same field. For example, coal lands in the Rock Springs field of Wyoming are reported to have been sold from \$100 to \$430 per acre. The government prices in this field will run from \$20 to \$465, the high price being for land with greater tonnage than that which would be covered by the \$430 price paid by private interests. In the Colorado Springs district of Colorado these private land sales are reported from \$100 to \$500, while the classified price in that district ranges from \$20 to \$50. Now, it is true that in some of the cases prices by the acre are greater than the prices fixed for corresponding acreage elsewhere, even in the Eastern field, but the reason will be found to be in all those cases that the extent of the coal, the thickness of the vein and the number of the veins is greater. Land in certain fields of Pennsylvania is selling at \$2,000 an acre, on the other hand, whereas the highest price fixed by the government on any of its lands is \$600 an acre.

THE CLASSIFICATION POLICY.

It has been said that these prices are prohibitive. I have had a table prepared showing what the results have been in the four fiscal years that have passed since the adoption of the classification policy as compared with the preceding four years, and as a result I find that the sales of public coal land have increased $12\frac{1}{2}$ per cent in acreage and 36 per cent in value, as compared with the four preceding fiscal years.

I am giving these figures, and discussing this somewhat dry question at this time because of the fact that public attention is being attracted to these questions, and that a certain amount of either misunderstanding or misrepresentation is going vigorously on. The truth of the matter is that the government has offered incentive to development along this line greater than prevails in the private field. Why has it not been more

vigorous? May I put the question to you, whether it may not be that we are making the mistake which Australia and New Zealand have already recognized and corrected? And that we should put our coal lands where the conservation movement, where the National Conservation Association and the other conservation organizations have advocated placing it, under a rational leasing system? If I am right (applause) the present objections largely disappear.

I was very much interested at the reception which was given to the presentation of some of these facts to the audiences that I addressed in Seattle and in other places, and to find that the suggestions made to them met with hearty concurrence so far as I could judge, when they clearly understood the facts, when they once clearly understood what had been the history in other fields where coal was put under a leasing system. For instance, I find the suggestion made that Canada was proceeding much more wisely and much more profitably and successfully in its coal development policy than the United States. But when I read the statutory law of the Yukon territory, and ascertained that every foot of coal land that is disposed of in that territory now is under a leasing system, I found that the argument went home. So it is with all of these other questions. There are great problems to solve, and it should be up to us to help solve them, although not entirely to us. The gentlemen on the other side, who are complaining of delay, have their share; but the responsibility, gentlemen, is upon us all, and we should all frankly recognize it.

What is the ordinary history of coal lands in this country? What has been the history in the East and the central West? That the coal lands have been originally entered or acquired in one form or another by private owners, and that the original private owner seldom developed the mines. He sold or he leased to someone else. If he sold, the chances are that the purchaser himself leased the land; until you will find that a great part of the coal lands of the United States that are now under development, are being operated under leaseholds of one kind or another. So in the far West. Take the railroad mines. I had the pleasure of riding with the officials of some of these railroads in the West, who have control of the coal lands of the companies. And when I asked them what their policy was for the development of these lands, without exception thus far—there may be exceptions, although I haven't heard of them—without exception this far, they stated they were developing their coal lands under the leasing system, and regarded it as the only proper way. If that is so we should at least pause long enough to consider whether that policy is not the right one for the Nation, and adopt it if right, and discard it if it is wrong.

After this coal is leased what do we find? We find that unrestricted development, that development which is thrown open to the laws of commercial competition, does not always work wisely. Our coal fields now generally throughout the country, are largely overexploited, with the re-

sult that during a considerable portion of the time the coal mines are empty, the miners are idle and depression reigns, and we find what always happens—demoralization and frequently disorder; for it takes, gentlemen, steady work to make steady men. And you have got to get that principle in your coal fields if you are going to be successful with them. (Applause)

THE HISTORY OF THE FORESTS.

Take the history of the forests to which I must hastily turn. When I talk with the lumber interests of the country—and inquire about the real facts as to the condition of the lumber trade—I find that large holdings throughout this country are being held in private hands and undeveloped, uncut, although they admit that much of it is ripe and ready for the ax and the saw. Why? Because of conditions in the market. I find them complaining of the fact that large areas have been thrown open to people without capital who have thought that there was a way to quick and easy wealth, who have made their obligations to the banks, and who have to meet the interest charges, and the minute that the price of lumber goes down the only way they can meet it is by throwing upon the market more lumber, with the result of consequent demoralization of the trade. And all the while the large interests protect themselves by buying at the lower prices and holding out of development as much of their areas as they can. Now, that, it seems to me, is fundamentally unwise. We should wish to dispose of our national resources in such a way that development will be absolutely assured and that holding them for future profit will be absolutely prevented (Applause), because in the last analysis, all of this burden comes back upon the consumer's shoulders. We never escape it. If we sell the coal land to the individual, and he sells to another at an added price, and he to another, and then finally it is leased to the fourth, who actually operates, we can depend upon it that the consumer is paying the carrying charge upon each of the profits that the first three have successively obtained. If we adopt the policy, as in Australia, that the mine holder cannot hold his lease unless he develops, that he must pay a fixed rental of a certain amount in any event, we will create an automatic check which will work largely to remedy the evil of which both the public and the honest dealer complain. (Applause)

Now, I want to turn for a moment to the irrigation question, because no one can have traveled over this Western territory as I have done and made personal investigation of the work of the Reclamation Service, and of the work being carried on by private interests in the same direction, without being tremendously impressed with the immense public benefit derived from activities of this sort. And yet that service presents certain concrete difficulties. For instance, our reclamation law provides that we must divide our payments into ten annual installments, and that the

settler does not obtain title to his land until he has paid all of the installments. It requires continuous residence as well as continuous cultivation.

CHANGES OF LAW NEEDED.

Some examination of the question has convinced me, as I now see the facts, that a modification should be made in both of those directions. I believe that the law should be so changed that the settler upon the irrigated lands who has cultivated his land for a certain period of time, who has lived upon it a sufficient period of time, to be fixed by law, to make sure that he is a bona fide settler, should be enabled to get title to his land and be enabled to borrow money upon it and develop it as any other individual should (Applause), subject at all times to the lien of the government for the unpaid installments. (Applause) I find that that suggestion meets one of the principal, if not the principal objection which has arisen in the West on the part of men who are enthusiastic adherents of the policy of irrigation through the government agencies and who still find that the law has not been completely adapted to their particular conditions. For instance, suppose the law required that a settler should continuously cultivate his land during the first two years, and that he should live upon it the last three years of a five-year period, and should then be enabled on proof of cultivation, continuous and progressive cultivation, and of residence for the time I have mentioned, that he could then acquire title subject to the lien of the unpaid five installments, I believe that it would be to the great advantages of the public and to the settler, to bring about that reform. What will be the result? In many instances the farmer, the settler, would transfer the burden of the debt from the government to the bank. He would go to the bank, make better terms than it would be possible for him to make with the government under the law with regard to the unpaid five installments, and the result would be that the banks would be carrying the burden of the indebtedness, as they should as a part of their legitimate function in the community; while the government would have released to it those installments for use in some other place where the settlers are crying for the advent of the Reclamation Service. These are some of the great questions that come up and which in very definite form impress me as being the most important that we can consider. I believe that we should undertake a solution of problems of exactly that character. I think when we do this that the objection which has been raised in many quarters to conservation as being theoretical will instantly disappear.

WATER POWER.

There is only one other topic on which I wish to speak, and that is the question of water power. I have very little to say about that. At the last meeting of this Congress in St. Paul, I presented in a somewhat brief and compact form my views upon that question. I believe

that no solution of the water power question will be worked out in the United States until state and nation are working together at the problem. (Applause) Not only is there no necessary or natural conflict between state interest and federal interest, but those two interests must be coördinated before we reach a right solution. We find a quite general attempt on the part of those who have interests that may not be free from suspicion to arouse a feeling of state pride, of state interest, as against the federal government. I think that those interests can be properly worked out and reconciled. I believe that the natural and legitimate interest of the state, the locality, is in the regulation of the service, and of the rates at which the power is sold. I believe that the interest of the federal government is in the development of the streams as units, and that no other instrumentality can so effectively work out that portion of the problem. Then why not adjust the two? Why not adopt, as the cardinal principle in our water power development, that the federal government shall make the grant subject to the reservation that the grantee will at all times acquiesce in whatever reasonable regulations of service and rates may be made by the state or by any delegated agency of the state. There should be compensation and there should be periodical re-adjustment of the compensation paid to the federal government, so that every ten years, or whatever the period may be, there will be enforced upon the public authorities, state and national, an inquiry into the condition of the water power grants, and their development. If with this we will adopt the fundamental principle that every dollar of the compensation paid to the federal government, except that necessary for administration, should go back into the development of the stream, and the water shed of the stream, from which the revenue was derived, so far as needed for that purpose, we, in my judgment, will have reconciled and coördinated those two agencies so that they will work together like the best team that any of you men drive on any of your farms. (Applause) And the protection of the public interest, in my opinion, will to some extent be automatic. For what will happen? If the federal government at the end of the first ten-year period wishes to readjust the compensation, it will make an inquiry, and if it finds that that particular grantee is furnishing proper service at proper rates to the community, that the state or its delegated agencies have properly exercised their functions of regulation, there will be neither opportunity nor incentive to increase the compensation. But if, upon the other hand, the state has been derelict in its duty, if it has not protected the public interest, the Nation will be able, by the increase of the compensation, to prevent undue profits and, indeed, to make it to the financial interest of the grantee to see that that situation does not happen again. And always the legitimate interests of the grantee must be adequately protected.

Now, these are some of the concrete questions which come up in the Department of the Interior with regard to the federal domain. They all relate to the general principle for which we stand. They all come

back to that fundamental proposition, that the purpose of conservation is to secure wise development in the interest of the public as a whole. (Applause)

Chairman COBURN—The powers that be, and over which I have no control, have seen fit to readjust this program, whereby Mr. Bryan, who was to have addressed us this evening, will speak this afternoon and again to this Congress tonight at eight o'clock. He is with us on the platform this afternoon, and I have asked him to stand up and say a word to you, in order that you might give him the glad hand. I take pleasure in introducing the Honorable William Jennings Bryan. (Applause)

Mr. BRYAN—Mr. Chairman, Ladies and Gentlemen. I did not come to this Congress to speak as an expert. I came merely to testify to my interest in a great and growing subject. When they told me that the time of my speaking was postponed from this afternoon until this evening, I consented on condition that they would appoint others to assist me in entertaining the audience. I was afraid that I might not be able long to satisfy the audience assembled. So they have arranged with two others, with whom I shall divide the time and I know that that may be an inducement to you to come. (Applause)

I feel that it is necessary for me to fortify my invitation with theirs. Now, if this were a subject upon which I had been speaking, I might make it a condition that no one else would be permitted to speak (Applause), for there are a number of subjects upon which I can speak at sufficient length to occupy an evening. But this is not one. I mention it at this time in order to emphasize the fact that as I have insisted that two others shall help me tonight you will understand why I do not attempt to divide my short speech into an afternoon and evening speech. I am afraid that I will have little enough to say if I put it all into one speech, and yet I confess to you that I do not know now how long I shall talk tonight.

I feel the spirit of the meeting taking possession of me (Applause); and by night I may ask my associates to limit their time. (Applause) I find that every time I hear a speech on this subject the subject seems larger. I am gratified that I could hear the speech made this afternoon by the Secretary of the Interior. Whatever others may say on this subject, his speech must of necessity be of paramount interest, because most of us can only advise without any great assurance that the advice will be accepted, but the Secretary of the Interior acts, and we are all interested in knowing the lines upon which he will act. I have been interested in the brief outline that he has given us this afternoon—the conclusions which will doubtless be set forth at more length in his official report. Tonight I want to speak on a little broader line. He has covered conservation as it commenced, conservation as it relates to his department; conservation of land, of the forest, of the water and of water power.

These are the things that are in his domain ; but I confess that as I have studied the subject it reaches out until it touches all parts of our lives, and that is why I am so uncertain as to how long I will talk tonight. I know the limit of my speaking, the maximum, but I would not attempt to fix a minimum. (Applause) I spoke once, twenty years ago, and more, at a little meeting not far from Lincoln. On the train as I was going out to this place I met a citizen of Lincoln who said that he did not think a man could be interesting on any subject for more than one hour. Well, I was in the habit of talking more than an hour, and it worried me a little to think that anybody believed that I could not be interesting as long as I talked. (Applause) I combated the proposition, but he seemed so fixed in his opinion that I soon gave up the discussion. When I arose to speak in the afternoon he was present, and his presence embarrassed me, and at the end of an hour he arose and left the meeting. (Applause)

I don't know how many of you entertain his views, and I may hesitate to run beyond the hour. I heard of a man who spoke in Yale, and just before rising to speak he asked the chairman of the meeting how much time he would be permitted to occupy. He was assured that he could speak as long as he pleased, but the chairman said that a very careful examination of the records revealed the fact that no one who had ever spoken at Yale had said anything after the first twenty minutes. (Applause) I do not know how many of you have received your training at Yale. I have a general outline in my mind ; I want to sum up some things ; I want to speak of the phases of conservation that are most prominently presented, and then I desire to show how this subject is connected with every large thing, with these larger things that underlie civilization itself, and I am afraid to commence on that speech this afternoon, for fear I may become so interested that I will give it to you now and have nothing to say tonight. (Applause)

Mr. WALLACE—A letter from Col. Roosevelt, Mr. Chairman, and Gentlemen of the Congress. We have had a great meeting, but we have not had everybody here that we wanted to get. We wanted Gifford Pinchot, but he had to go to Alaska. We wanted Mr. Page, but he was obliged to go into the hands of a doctor instead of starting here. We wanted James Garfield, and he was expected to come until the last moment, and then had to stop. We wanted Roosevelt ; I wrote him and he declined. I wrote him that I would not accept his declination, and then he wrote me a letter telling why. Then I wrote him for permission to read that letter here, as that would be the next best thing to himself, and here is the letter.

DEAR MR. WALLACE :

If only you could be in my office and see the numerous letters I receive requesting me to speak for matters which I regard as of very great consequence to the welfare of our people, you would realize, as naturally it is now impossible for you to realize, that I simply cannot possibly accept the invitation to speak at the Conservation Congress. I believe with all my heart in conservation ; I believe in the

movement against child labor; I believe in the movement against the white slave traffic; I believe in every rational movement to promote the cause of temperance; I believe in the cause of industrial and agricultural education; I believe in the movement for playgrounds in every great city; I believe in the movement for the betterment of rural life conditions; I believe in the movement to secure workmen's compensation acts; I believe in the movement for bettering tenement house conditions; I believe most emphatically in something being done carefully to investigate the increased cost of living, and to see just how much of the increase paid by the consumer goes to the producer, and how much is absorbed by the middleman, properly or improperly; I believe in a very great number of similar movements, all of them of very real importance. Within the last month, I have had requests to speak for each one of the movements I have mentioned, and for very many others; and each body of men who made the requests sincerely felt that their movement stood on a very different plane from any other, and that while they entirely agreed with me that I ought not to speak generally, and that especially I ought not to speak for the other movements, yet they were perfectly sincere in their belief that for their movement I must and should speak. Now, my dear Mr. Wallace, I cannot speak for one unless I speak for the other movements. After I came back from abroad, I felt that I ought to try to show my appreciation of what the American people had done for me in the only way that was possible—by trying to visit each section, and if possible each state, and speaking therein for some one of these causes in which I believe. In different sections and different states, I have spoken for all of them, and for innumerable others. In particular, I have spoken again and again for the cause of conservation, and as a matter of fact have spoken for it far more frequently than for any other of the great social and industrial movements for righteousness in which I so thoroughly believe. I have found by actual experience that every speech I make simply means that I am asked to make a hundred others, and that (and this is notably the case as regards conservation) instead of the fact that I have spoken with all my heart for any movement and said all I have to say for it, being accepted as a reason why I should not speak for it again, it is apparently accepted as a reason why I should keep on speaking, and keep on repeating these speeches I have already made. This, however, is not only true of conservation. In Berkeley, last year, across the bay from San Francisco, I delivered an address on the three hundredth anniversary of the authorized version of the Scriptures, and not only did this result in my being asked to repeat the address in New York, Detroit and Memphis and a number of other Eastern cities, but I was actually and in good faith urged to come back, only one month later, and repeat the address in San Francisco itself!

If I had gone on speaking as my good friends wished me to speak, I not only should have had to abandon all thought of doing anything else, and have become practically an itinerant giver of free lectures, but what would be much more serious, I should have lost all weight and power to do good to any cause and this purely by yielding to the demand of good men who wish me to speak for good causes. If I stop at all I have to stop entirely—at least for the time being. Now I hate to have to answer you in this way. If you will come on here to New York and give me the chance to have the talk with you that I would so like to have, I will show you a mass of correspondence which I am sure will make you realize that I cannot answer in any other way than I am now answering. I am very sorry.

Very sincerely yours,

THEODORE ROOSEVELT.

Chairman COBURN—The next number on this program is by Mr. A. P. Grout, of Illinois, representing the National Soil Fertility League, who will talk to you on "The Rape of the Soil." I may say in passing that Mr. Grout is one of the biggest farmers in Illinois, and this is he. (Applause)

Mr. President, Ladies and Gentlemen: I am to speak for a few minutes upon a subject or condition that has been developed in the soil management of this country. I speak to you as a farmer, one who has not only had experience as a farmer, but who must plead guilty to the charge of having been, in the no distant past, no better than the rest, for a due regard for truth compels me to admit that I have been something of a soil robber myself. In the course of time my connection and

familiarity with the work of the Illinois College of Agriculture, the Illinois Farmers' Institute, and the constant reading of Wallace's Farmer and other good agricultural papers, awakened and brought me to a realization of some of the facts or truths regarding soil fertility.

One of my first attempts at reform was with a tenant to whom I had rented a farm, for cash rent, for fifteen years, with full license to manage and farm as he pleased. On the occasion of the renewal of the lease after my awakening, I suggested that I have a part in directing how the land should be farmed, with a view of making a start toward a better conservation of the soil. One of the first things I mentioned was that the straw be put back upon the land and not burned as had been the practice. I was very emphatically informed by the tenant that he would not scatter straw on the land for any man, and so far as I know he kept his word. He is no longer my tenant, for having once been converted to the reform soil conservation movement I had no idea of turning back. From my own experience in farming and from a longer experience in renting lands and in watching the methods of many farmers and the results they obtained, I have formed some very positive opinions in regard to the subject of soil treatment.

The maintenance and increase of the fertility of the soil is paramount to all other industrial problems, and upon our ability to solve this problem and the extent to which corrections can be made in the present ruinous and destructive methods of soil management, depend the future prosperity and welfare of the Nation.

No country in the world has been so favored in those natural conditions and resources which are necessary for the maintenance of an independent and prosperous people. This wonderful heritage has been bequeathed to us, not to dissipate and destroy, but to use and enjoy and transmit unimpaired to our successors.

We are tenants in possession of this vast estate, but the obligation to maintain to the end of our tenancy in as good condition as when entered upon has been given little or no consideration, but has been recklessly disregarded.

We view with alarm the advent of the time when what remains of the forests, the coal, the iron and other valuable minerals and utilities shall become exhausted or come into the possession of purely selfish interests.

THE FUTURE AND ITS NEEDS.

We are solicitous not only regarding our own present wants, but are beginning to think of the future and of the results that will accrue to coming generations.

It is not surprising, therefore, that the conservation of our natural resources has aroused a deep and widespread interest, but the great and most important and far-reaching of all our resources, namely, the fer-

tility of the soil, is the last to receive recognition. While the situation regarding this most important resource, the very foundation upon which is based our national prosperity, is most alarming and fraught with great danger and disastrous results, it is not a new development, but is as old as the hills. It is the culmination of the customs and practices handed down to us from the earliest settlement of the country.

The attempt of a few men to monopolize and profit by the undeveloped resources of the country is an unimportant and trifling matter compared with the wanton depredations of thousands and tens of thousands of soil robbers in every part of the broad domain who are madly striving to mine and forever remove from the soil those natural deposits without which our once rich and fertile lands must become a barren waste.

We are now reaping the legitimate harvest of blindly and persistently following the traditional methods handed down from father to son. Traditions and practices based upon no scientific knowledge, but founded upon the belief that all of agriculture, all of the necessary knowledge and wisdom for its successful practice, is vouchsafed only to him who drives the team and follows the plow.

The fertility of the soil, the most important and valuable asset of this or any other country, is being dissipated, squandered, stolen and carried away to an extent that calls for serious and thoughtful consideration.

It is not an easy matter to discover or to frame an excuse for the dissipation of the thing that is now, and ever has been, the foundation of all our prosperity and upon which we are absolutely dependent for food and clothing as well as the comforts and luxuries of life. Perhaps the most charitable view of the situation is to attribute it to ignorance, to a lack of scientific agricultural knowledge, or to the fact that those who have classed themselves as farmers have been attempting to do business with little or no fundamental knowledge of the business in which they are engaged, and may be denominated only as "near farmers."

Surely it never was contemplated in the great plan of the universe that the provisions for the support and maintenance of millions of inhabitants should be gradually diminished until starvation and destitution are the ultimate end.

THE WASTE OF RAW MATERIAL.

Science has come to the rescue and demonstrates that the enormous waste and destruction of raw material, of the elements which go to make up what we denominate soil fertility and which should continue unimpaired for the benefit of future generations, is not only unnecessary but fundamentally and perniciously wrong. Who are the conspirators in this wholesale robbery, which sooner or later must result in national calamity? Contrary to every business principle and to every known law of compensation, and almost without exception, every land owner, whether

he be a farmer, a banker, a professional or business man, all have been imbued with the idea that the soil is an inexhaustible asset from which they can continue to draw indefinitely and without replenishment.

The banker is accustomed to look upon the ownership of land as a safe investment, and if he can rent it and make a fair per cent on his original investment he is content and takes no thought of any encroachment that may be made by the tenant farmer upon his principle, upon that which constitutes the real value of his land.

The same is true of most business and professional men who own farms. They do not appreciate or understand that every crop requires that certain essential elements must be in the soil for its growth and development, and that the removal of each crop takes away a certain amount of those elements, and the future productive capacity of their farms are thereby lessened. As a rule these men do not profess to have very much knowledge either of the art or science of agriculture, but they are guided in the management of their farms by the methods and customs of those who claim to be farmers and make farming their business.

They are led to do this on the presumption that the farmers know and understand the business of farming just as thoroughly and completely as the business man knows his specialty. They have overlooked the fact of the old prevailing idea that education, preparation, and even very much ability, is not only unnecessary, but a positive detriment to the business of farming.

The renting of land has, by long usage and practice, been construed as a license to rob and pillage without fear or hindrance.

The problem at this time is to combat the customs of long standing and introduce sane and scientific methods of farm management and soil treatment. The real offenders in this great wholesale scheme of soil robbery and dissipation are the farmers themselves. The men who are supposed to possess a thorough knowledge and understanding of the business of farming and who, above everything else, should most scrupulously guard, preserve and protect the thing that denominates and is the unquestioned and absolute measure of their success. When we judge of their qualifications as farmers by showing they have made in permitting the farms intrusted to them to deteriorate in productive power, the true situation reveals itself. There is no use in sugar-coating the situation. These men are not farmers, but soil robbers. I speak as a farmer or I would not dare to make such a statement. We have mined and shipped away the valuable constituents of the soil until its productive capacity has been, in a comparatively few years, reduced far below that of many European countries that have been farmed for a thousand years.

THE BUSINESS OF FARMING.

What further proof is wanted that there is urgent need of reformation in farm management? We cannot disguise the fact that many men have adopted the vocation of farming, and have thereby undertaken the

conduct of a business which requires not only intelligence of the first rank, but more fundamental, scientific knowledge, better judgment and greater ability than any other industrial calling in the world, with few or none of the necessary qualifications for the business. To be more explicit, in the great majority of cases, the man has not made good in his calling.

The business now demands a higher order of qualifications and more knowledge than is possessed by the majority of our farmers. I do not mean by this that the farmers of this country are incapable of better things or that they have not the ability, when properly directed, to do intelligent and scientific farming, but quite the contrary.

The farmers of this country need and must have more education and scientific knowledge along the line of their special business. They must learn what the farmers of the older countries learned through force of circumstances many years ago.

We have heard from this platform during this Congress that the average yield of crops in some European countries is more than double the yield in this country, although their lands were originally not so rich and fertile as ours and they have been cultivated and cropped for a thousand years.

There is one fact in connection with this statement that must not be overlooked. Mark it well. Those countries that are now excelling us in crop yields and are being referred to as proof of the assertion that all soils are inexhaustible and contain the necessary plant food for all time to come, have imported from this country millions and millions of tons of phosphate and applied to their lands to take the place of the phosphorus removed by the growing of crops and to supply in sufficient quantities the food necessary for plant growth, the plant food that has enabled them to double and even treble our yields.

This importation and use of plant food has not been confined to the phosphate imported from this country, but they have procured and used whatever elements of plant food their experience has taught them was necessary for maximum plant growth. They have fed and not starved their growing crops. They have replenished what they have removed from the soil and made it richer instead of poorer.

The importation by these countries of millions of tons of those elements which enrich their soil should cause us "to sit up and take notice" and then explain why they have been permitted to invade our shores and carry away such enormous quantities of phosphate when every pound is needed in this country and is just as valuable to us as to them. The intelligent use of this element, which has been allowed to get away from us, would have doubled the yield of our crops and proved the greatest investment on record. How shall these facts and the requisite knowledge be brought home to the farmer?

SOIL ROBBERS.

The great majority of the men who own and farm their own land fail to "play even" in the matter of soil fertility and must therefore be classed as soil robbers.

The retired farmer who has moved to town and rents his farm, as a rule, is a soil robber of a still higher degree. The renter who meets the exactions of the landlord and can make a living for his family has got to be an expert and accomplished soil robber. If our soil is to be conserved and not wasted as at present, there must be a universal or nation-wide campaign of education that will enlighten and bring home to the people, including the land owner as well as the tenant, the real facts of the situation.

The work of our colleges of agriculture, experiment stations, farmers' institutes and various agricultural organizations are doing a great work, but this work as yet is only effective in a small degree when we take the whole country and all of the farmers into consideration.

The plan proposed by the National Soil Fertility League and others, and to which reference was made by President Taft in his address from this platform, of placing a man with scientific agricultural knowledge in every agricultural county in the United States, to advise, direct and carry on experiments in every community with the aid and coöperation of the farmers themselves, and where they can see and know every step and every process and then note the results, is a most admirable one and one that will hasten and finally solve the problems of soil conservation.

As an illustration of what may be accomplished by actually doing things in a community where all other educational methods have proven ineffectual, I desire, briefly, to call attention to my experience in growing alfalfa in Illinois.

It was undertaken twenty years ago, and at first without marked success. Later, when inoculation was found to be necessary and dirt was brought from Kansas to sow upon Illinois land, the climax of folly in the eyes of neighboring farmers was reached. The idea of sending to Kansas for anything to put on Illinois soil was ridiculous in the extreme, and the sanity of the perpetrator of such an act was called in question.

Nevertheless, the study of alfalfa growing and its adaptation to Illinois conditions went on until this season I have harvested better than five tons per acre, in three cuttings, from a twenty-five-acre field, in less than one year from seeding. And the end is not yet, for it is still growing, and fear has been expressed that I may have to hay all winter.

I want to serve notice upon Mr. Coburn, chairman of the meeting, that Kansas must look well to her laurels as an alfalfa state, for Illinois is going to grow alfalfa and lots of it.

When I was preparing this ground for alfalfa and was applying manure, lime, phosphorus and inoculated soil, and when I was plowing

and following with a subsoil plow and making a perfect seedbed, my neighbors were not interested except to regard it as more folly and foolishness on my part, but when they saw the result and realized that the crop taken from one acre of that land was worth at least \$100.00, and that it represented ten per cent interest on \$1,000.00 as the value of the land per acre, they were compelled to take notice, and now they are, figuratively speaking, falling over themselves, to learn how it was done. There is no mistake about the effect of the demonstration. The farmers of that community saw the preparations; they saw the alfalfa growing; after it was cut; in the winrow; in the shock, and on the way to the barn. The lesson could not have been brought to them as effectively in any other way.

I want to reiterate my approval of the plan proposed, of placing a qualified instructor in every county devoted to agriculture, to do things on the farms that the farmers can see and show them how to procure the results they read and hear about.

I know that the plan is feasible and that it will bring results, for I have tried it.

We have reached the point in the extension of agricultural knowledge where less talk and more demonstration work is demanded.

If this Congress does nothing more than to get behind this movement and assist in making it the success it deserves, it will have accomplished more for the maintenance and increase of the fertility of the soil than any other agency, and helped to solve the greatest of all industrial problems.

Chairman COBURN—The report of the committee on resolutions, Mr. Fowler, chairman of the committee.

Mr. Fowler read the resolutions (which will be found in full at the beginning of this volume) to the Congress, framed and unanimously adopted by the following committee: Arkansas, E. N. Plank, Decatur; California, L. R. Glavis, San Francisco; Colorado, Dr. Hubert Work, Pueblo; Connecticut, Prof. J. W. Towney, Hartford; District of Columbia, W J McGee; Illinois, A. P. Grout, Winchester; Indiana, H. E. Barnard, Indianapolis; Iowa, J. R. Doran, Beaver; Kansas, Thomas Potter, Peabody; Louisiana, Oscar Dowling, Shreveport; Massachusetts, W. P. Wharton, Groton; Michigan, Henry N. Loud, Au Sable; Minnesota, A. W. Gutridge; Mississippi, H. L. Witfield, Columbus; Missouri, Dr. W. H. Black, Marshall; Montana, C. Q. O'Neil, Kalispell; Nebraska, Geo. Coupland, Elgin; New York, Albert B. Sheldon, Sherman; Ohio, Edmund Secrist, Wooster; Oklahoma, Thos. P. Smith, Muskogee; Oregon, M. J. Kinney, Portland; Pennsylvania, Dr. Harry S. Drinker, South Bethlehem; South Dakota, R. Newbanks, Pierre; Texas, W. H. Gray, Houston; Washington, Everitt Griggs, Tacoma; Wisconsin, Herbert Quick, Madison.

Chairman COBURN—You have heard the report of the committee on resolutions.

Delegate POTTER—I desire to move its adoption by this Congress of the able report that we have just heard read by the chairman of the committee on resolutions.

The motion was duly seconded.

Chairman COBURN—It has been regularly moved and seconded that the report of the committee as read be adopted. Are you ready for the question?

Delegate JOHN C. SHOFFER, of Chicago—As one looks over this hall and compares the number of suggestions made by the committee on resolutions, it would seem that there are more resolutions offered than there are delegates here. I think it is an unfortunate thing, sir, that this platform or these resolutions should go out as expressing the sentiment of this Congress. There are too many absentees to vote on this question at this time. If we are going to put this forward as an expression of this great Congress, the delegates should be here to vote on it, and not be bound by the vote of the few who are here this afternoon. It is not fair that this should go out as an expression of this Congress when there are only a handful of delegates left to vote on it.

Delegate CONDRA—We have a committee, one from each state. It is perfectly regular, and there is a pretty big handful here to vote on it.

Chairman COBURN—Are you ready for the question?

(Cries of question, question.)

All in favor of the motion to adopt the resolution as read, signify the same by saying aye. Contrary no. The motion is carried and the resolutions as read adopted.

[Resolutions will be found in front part of this volume.]

Delegate A. W. STUBBS, of Kansas City, Kan.—I realize what the gentleman has said, that the resolutions are very long, and I am greatly embarrassed by the enormity of the subject taken in hand by this National Congress. There has been one disappointment to me, and I have embodied that in a resolution which I believe will be appreciated by every delegate present, as well as by the officers who have had to sit and listen to some of the addresses, well intended, on this floor, but not germane to the subject at hand, and I have prepared this brief resolution to submit now, not as a part of the platform, but more as an expression from the delegates to this Congress.

Resolved, that we recommend to the executive committee of this Congress that in the preparation of future programs care be exercised to prevent the time of delegates being taken up by papers and speeches

not germane to the purposes of the Congress, and that provision be made for brief discussion of papers presented by the delegates from the several states.

I move the adoption of this resolution.

The motion was duly seconded.

Chairman COBURN—You have heard the motion. It has been moved and seconded that the resolution as read by the gentleman be adopted. Are you ready for the question?

Mr. CONDRA—Will you please read the last section of that resolution?

Chairman COBURN—Will the gentleman read the last, about the several states?

Mr. STUBBS—And that provision be made for brief discussion of papers presented by the delegates from the several states. Many interesting papers have been read here, and many delegates have come hundreds of miles who would have been glad to say just a word perhaps, not any extended discussion, but express themselves from the body of the Congress, and expressions from a body like this would be found invaluable to the entire audience.

Mr. CONDRA—I asked the question because I misunderstood. I thought that he meant representation on the program from the various states, which would absolutely kill this Congress.

Mr. STUBBS—Oh, no.

Mr. CONDRA—I hope that the matter he refers to may be taken up and by departments, thus giving opportunity for further discussion.

Delegate POTTER—I don't want any misunderstanding of the intent of this resolution. The author of it, as I understand it, does not mean to embody this in the general resolutions, but only as a suggestion of the desire of this Congress through our committee to make arrangements for the future.

Delegate STUBBS—That is correct.

Chairman COBURN—Those in favor of the adoption of the resolution as read say aye. Contrary no. Motion carried.

Chairman COBURN—Our program for the afternoon is now concluded and a motion to adjourn until 8 o'clock this evening is in order.

Upon motion to adjourn, duly seconded, being put, was unanimously carried, and Congress adjourned until 8 o'clock p. m.

CLOSING SESSION.

President WHITE—Ladies and Gentlemen of the third National Conservation Congress will now come to order. I will introduce as the first speaker Prof. William Hoynes, Professor of Law at Notre Dame University.

Professor HOYNES—Mr. Chairman, Ladies and Gentlemen: In the limited time at my disposal, aware as I am that Senator Owen and Mr. Bryan are to follow, I recognize the need of brevity, and though I shall contend that the conservation movement is but the fulfillment of a natural impulse or instinctive privilege as old as the human race, yet I shall do so in as few words as practicable. In short, what I have to say may be viewed in a threefold aspect, as conservation in respect to soil fertility, conservation in respect to waste and extravagance in the affairs of daily life and the utility of education as a means of furthering the efficacy of conservation and common sense in these matters.

As viewed by many the principle of conservation is of recent origin. But this is a mistake. It is as old as mankind. In reality it amounts simply to the natural protest of reason and experience against waste and extravagance. It originated simultaneously with the consciousness of the need of food, raiment and shelter for the protection and preservation of life.

As men struggled in the primitive ages to procure food for sustenance, the pelts of animals to cover their bodies and the shelter of caves or rudely constructed huts to protect them from the rigors of the elements and the incursions of prowling beasts and venomous reptiles, they at the same time realized the indispensableness of these things and the necessity and wisdom of conserving them.

As in the case of our own Indians, the struggle they made to obtain the necessaries of life taught them to be saving of what they procured in that line and to be vigilant in providing for the future. They took no more fish from the waters of lake or river than seemed necessary for actual use, they did not destroy wantonly the wild creatures of the forest, and the denizens of the air were free from trap and arrow beyond the range of hunger and necessity. Thus they conserved carefully the sources of their food supply, and the pathetic story of a Hiawatha had rarely to be told.

It was only on the coming of the white man, who did not specially rely upon such means of livelihood, that the wild creatures of the air, forest, prairie, plain, lake and river were heedlessly slaughtered, or wantonly destroyed in sport, or driven to hiding places in swamp or mountain.

It may thus be seen that when things are deemed essential to the maintenance of life the lesson of care in using and conservation in protecting and preserving them is brought home to the comprehension and

firmly fixed in mind and habit. But when, on the other hand, things appear to be measurably superfluous or easy of acquisition, the sense of their value becomes abated and the spur of conservation blunted.

And so with the land, which to civilized man is the source of life's sustenance and the basis of progress and prosperity. Heretofore in abundance and easily procured at moderate cost or for the mere taking of it under the homestead law, but little attention was bestowed upon the preservation of its fertility. When there came manifest and pressing occasion for keeping it up by the restoration of its exhausted elements the owners sold it for whatever it would bring and migrated to the easily procurable new lands of the great West. But now this movement has met with a decided check, for there is hardly any more arable free or cheap land to be had. The most desirable government land has been taken by settlers under the homestead law, and that which has been reclaimed under the irrigation system is held at comparatively startling prices. Thus exists a condition which is measurably responsible for the overflow of nearly a million of our people into the British possessions on the North, actuated by the lure of virgin soil and cheap lands. And even this door is now less ajar through the taking by first comers of the choicest holdings and the failure of our reciprocity negotiations.

The comparatively impoverished lands sold by those who sought new homes in the West were usually purchased by persons who knew little about farming, or took them as an experiment or for speculative purposes, and placed tenants on them—tenants whose chief aim was, not to restore the fertility of the soil, but to make it yield all the profit possible with the least possible outlay of money and labor.

But a halt has been called in this state of things, and mainly so, as it seems to us, through the instrumentality of the many agricultural boards, alliances and societies, not to mention the Grange and Department of Agriculture, that appear to have united or coöperated in the organization of this great conservation movement. There is a marked tendency, as observers must admit, to look backward to the neglected lands and abandoned farms. These are being sought again by the returning pioneers of the West or their descendants, and so probably to a greater extent relatively in the South than in the East. This counter-movement is unmistakable and has led to a notable and increasing advance in the prices of these lands during the past decade. The cause lies not alone in the acquisition by settlers of all the desirable free and cheap lands of the West, but also in the expected restoration of soil fertility in the South and East.

To this end the deliberations of the present Conservation Congress have in large measure justly and wisely tended. Much has been said, and well said, touching the study and utilization of scientific means to restore soil fertility in the case of impoverished lands throughout the

country. It is a subject of paramount importance. It points to the possibility of increasing at least twofold the productiveness of our present acreage.

It will not be considered as digressing if I refer in this connection to the Agricultural Department at Washington and the state agricultural colleges, boards and societies as having conferred incalculable benefit through work in this line on the people and the country. Well would it be, too, if the suggestion of President Taft, made in the course of his address in this hall last Monday evening, could be realized and the Agricultural Department represented among the people by an intelligent and practical farmer in each county of the several states. It would bring directly to the notice of farming communities the most approved means of cultivating the soil and lead to wholesome emulation in restoring its fertility and insuring abundant crops.

I am strongly optimistic in regard to the natural resources of the country and would not venture to set bounds to the possibilities of our soil and climate. We know historically that for thousands of years untold millions of people have lived on the same land in China, Japan, Egypt and Europe. They have treated it as a living thing, feeding it with the elements requisite for its productiveness. So judiciously and systematically has this been done that in some quarters it yields twice as much to the acre as the average of our own land. I venture to predict, however, that the present movement toward soil enrichment will not fall short of attaining to a like standard of productiveness.

While the restoration of soil fertility has fittingly been the dominant theme of these proceedings, I am pleased to observe that they have taken a much wider range. Thus are vastly broadened the activities and usefulness of this body, and correspondingly is strengthened its claim upon the confidence, approval and coöperation of the public.

So much has been said in relation to the conservation of health, morality, religion, municipal government, deep waterways and the public welfare that it would be superfluous, even if time permitted, to touch again upon these subjects.

I may be pardoned, however, for referring somewhat specifically to education in the light of its saving and helpful influence. It inquires into, searchingly examines and intelligently determines what to do in the practical phases of conservation. It penetrates proposed plans and theories and warns against mistakes, waste and extravagance.

With the diversification and expansion of labor in the industrial domain its products became marvelously varied in form and utility. With the machinery which labor invented and introduced one man could accomplish tenfold as much in a given time as could previously be done by hand. The things produced by labor were thus enormously multiplied and cheapened, and this very fact, as in the case of land superabundance, led to deplorable waste and senseless extravagance.

Ignorance may appropriately be called the mother of these evils.

Education is the antithesis of ignorance and may be depended upon to curb them. Ignorance is imitative rather than original, and the wastefulness attendant upon it grows with the expansion of luxury. The wage or income of unfortunates upon whom it has set its mark usually passes through their hands as freely as water through a conduit, often going for the purchase of things unnecessary and tawdry, if not actually harmful.

But they are not alone in this regard. It happens that no matter what may be the income of some men it goes promptly forth again on its merry round, and they are as poor at the end of the month or year as they were at its beginning. The cause ordinarily lies in absurd vanity or inexcusable wastefulness and argues lack of self-control and common sense.

Edison is credited with having recently stated as the result of his observations abroad that a French family could live comfortably on what an American family throws away. Other travelers have spoken to like effect, but with remarks applicable to Europe generally. It must be admitted, however, that the French rank first in this respect or in the practical application of domestic science and economy. They have evidently learned to apply the principle of conservation in the management of kitchen, dining room, household and purchases in the market. Were we to use like foresight, discrimination and economy the cost of living might be reduced from one-third to one-half. Would not this be an easily achievable and reasonably satisfactory solution of the harassing problem of high prices?

The knowledge that creditably adorns the mind and makes for independence should show the wisdom of such economy and not be humiliated by betrayal into imitation of the reckless extravagance characterizing the vulgar rich in pomp, dress and prandial excesses. Intelligently and sagaciously inculcated along these lines, such knowledge would revolt at the conditions indicated. To this end education of wider scope and a more practical turn is needed. It should be of a nature capable of grappling successfully with such problems and conditions.

Education, genuine and practical, is the most precious of possessions, surpassing in value to honorable and useful manhood all the vulgar hoards of selfish and pleasure-seeking wealth. True education teaches independence and self-respect and scorns temptation to compete with showy vulgarism in dress, dining and deportment. It is the key that unlocks the arcana of knowledge and surpasses all the dross of mine or mountain in bringing man into soulful communion with God. It makes clearer and more acceptable the duties we owe to country and to one another. It teaches courage in adversity and fortitude in affliction. It is a light that penetrates the gloom of doubt and makes plain the path of honor and usefulness. It illuminates in all directions

the activities of this great movement and I congratulate you upon having recognized the fact and so generously acclaimed it in the proceedings of this Congress. (Applause)

President WHITE—I now take pleasure in introducing to the audience United States Senator Robert L. Owen of Oklahoma. (Applause)

Senator OWEN—Ladies and gentlemen, and delegates of the Conservation Congress, when called on to pay my respects to this great meeting for the purpose of bringing about a public sentiment which should sustain the conservation movement, I felt in duty bound to respond, and for that reason I delayed my departure from this city to spend a few moments to present my respects, my sympathies, and my support to this movement. (Applause) I believe in the conservation of our national resources, and I believe that no government should go beyond the sentiment of the people, of the Republic, in the direction of conservation, or of any other important progressive policy. (Applause) This audience, therefore, and this Congress, have a duty to perform, and that duty is to sustain public opinion upon these important matters, and give it a concrete form, that will make its impress upon the legislative and administrative branches of this government. I believe in the conservation of our forests; in the conservation of our land; the reclamation of arid lands; the reclamation of swamp lands; making accessible the lands that we have, by good roads and by the improvement of waterways. I believe in the conservation of our water powers, that they shall not pass into private hands for speculative purposes, but I believe above and beyond all in every form of conservation that may be well discussed. I believe in the conservation, above all other things, of human life and human efficiency. (Applause) It was for that reason that I took occasion to draft a bill, providing for a department of health with a secretary in the cabinet at the head of it. (Applause) And I was actuated to do that by the pitiful history which we had recorded in the last great war, the war with Spain. I remember so well that over 900 of our chosen young men, those who had offered their lives upon the altar of patriotism, those who were willing to fight the battles of the Republic, instead of being able to die in the service of their country upon the battle field, facing a hostile foe, were laid in their graves by a malignant disease, at Chickamauga. We lost nearly a thousand of our best men at Chickamauga. And why? Because of the gross, unspeakable ignorance of those who were charged with the preservation of the lives of those young men. (Applause) It is a noted fact that the flies came from the cesspools where the offal and waste of the camp was thrown, came from those cesspools, with the slime on their feet, with typhoid germs on their feet to poison the chosen youth of our land by thousands. That is not only a national tragedy, it is a national humiliation, and it is a disgrace to this Nation. Therefore I desire, together with thousands of other men, to put an

end to that sort of thing by a department of health. I remember Herman Biggs' map of lower New York where in a single house twenty-three cases of tuberculosis were recorded, and in the house next to it eighteen cases. So that those houses where the poor workmen go, without notice, were in fact nothing but charnal houses where they went to their death. We ought not, in a civilized nation, to permit that to continue. And I glory in the man who has been trying to preserve the health of this Nation. I glory in our magnificent Dr. Wiley. (Applause) And I feel a sense of personal happiness that the millions of microbes that move and have their being in impure food and drinks, did not get Wiley's goat. (Applause)

I am reminded in this connection of one of the stories of the champion of health, Mr. Lutz, of Indiana. It is called the story of the "Little Mother and the Fat Hog." There was a little mother in Indiana. She was only twenty-three years old. She had three children. She began to notice that she was feeling ill, that the children, in whom she had had great happiness, were commencing to worry her, and become a care. She knew that she must be sick, and she went to the doctor. He looked at her and said, "You are all run down." He gave a prescription in Latin. It was a little ginger, and a little alcohol, and a little water and some other things. She paid a dollar for it at the drug store, and she took it, but did not get well. She checked her strength out in a little while, and then one day she felt a sharp pain in her breast, a coughing spell came on, and putting her handkerchief to her mouth, it became covered with blood. She had a hemorrhage. She sat down and wrote a letter to the secretary of health of Indiana: "My dear sir:— I am a little mother of Indiana. I have three children, I would like to raise to be good citizens of Indiana. I have just had a hemorrhage. Can you tell me what to do or where to go, so that I may get well? I do not want to die now." He wrote her back an official letter right away in typewriting, and said something like this: "My dear madam, the state of Indiana does not make any provision for a case like you have described, but in case you die the state of Indiana will take care of your three children until some good people can be found who will take them from the asylum. Yours respectfully, Secretary." (Applause)

A fat hog squealed in the back yard of a man, and the hired man looked at him and he said, "He has got the cholera." The man said, "Telegraph to Uncle Jimmy Wilson right away." And he did. And a man came with a little black satchel marked D. V. S., with a bunch of serum in one hand and a syringe in the other, and he shot a load into the hog and the hog got well. MORAL: Be a hog and worth saving. (Applause)

Now, last year as a United States Senator from Oklahoma, I had the opportunity and I sent out 25,000 bulletins on how to take care of the hog. And I didn't have a single bulletin on how to take care of

babies. I believe that the babies and the youth of this land ought to be given the preference, if necessary, over the swine family. (Applause) In New Zealand they have a death rate of 9.5 per thousand. In this Republic, where we have the fancy that we know more than other people do, and where it is largely a matter of fancy and not one of reality, we have a death rate of 16.5 to the thousand. In other words we lose by death from preventable causes seven persons to the thousand that we might save. That makes a vast army of 630,000 human being who march to their graves every year from preventable causes. And we have on an average nearly three millions of people who are sick on an average throughout the United States from preventable causes. A careful calculation on a money basis, putting each individual as worth \$1,700 apiece, and I do not think that is a high estimate for an American—it would make a loss of four thousand million to this Republic every year. And I think that is worth conserving. (Applause) Therefore in the few moments which I have at my disposal I call the attention of this great audience to its duty as American citizens, and I call the attention of this great Conservation Congress to its duty to this Republic to put on record a declaration in favor of a department of health. I thank you for your attention. (Applause)

President WHITE—Ladies and gentlemen, I now take pleasure in presenting to you an American citizen who in all this broad land requires no introduction. (Applause)

Mr. BRYAN—Mr. Chairman, ladies and gentlemen, I am sure that whatever you may think of my speech you will agree with me that I was justified in asking you to listen to these other speakers. (Applause) I believe in the Conservation Congress. The good that it does is difficult to calculate. How many of the thousands who are assembled tonight have given to the subject of conservation the thought or study that it deserves. The arguments that are presented at such a meeting as this help make up the public opinion that controls our governments, state and national. A large number of subjects are brought before a Congress for its attention. The speeches made present the subject from different points of view, and each one turns upon the subject the light of his intelligence, and the warmth of his heart. When we go from such a meeting, we go enlightened, and with our views enlarged. We go prepared to communicate to others something of the information that we have received, and to impart to them something of the zeal that we feel. A number of subjects have been presented here, and I am sure that this meeting will be worth all that it has cost those who have brought it about or participated in it.

Take the thought, for instance, that has been presented by Senator Owen. I am so glad that I insisted upon his speaking, for his ability and public spirit are only equaled by his modesty, and if I had not insisted, I am afraid you would have lost the benefit of the speech that

he has delivered. (Applause) And yet what one of us will forget the splendid illustration that he has given us in the story told of the difference we make between the human being with a priceless soul and the animal that can be converted into dollars and cents on demand. (Applause) We need to have this matter brought to our attention, and I venture the assertion that there is not one present in this audience that will not go from this meeting tonight with the conviction that our Nation could afford to subtract a little from its appropriations intended to prepare us to kill people, and spend the money in the preservation of human life. (Applause) Is it not strange how much more interest we can feel in the battleship and in the new gun than we feel in the preservation of the life and health of those about us? We need a speech like this to wake our consciences to our own neglect, and to give us a better idea of proportion when we look at things about us.

You heard last night a speech upon public health from one who has done so much to arouse the Nation to the unspeakable iniquity of the adulteration of food. Who will estimate the benefit of such a speech as that delivered to an audience with such intelligence as this audience represents?

AGRICULTURAL EXPERTS.

The President presented, as I understand it, a thought that has been emphasized today. The idea that there should be in every agricultural county of the Nation a representative of the Government, an expert on agriculture, to assist the people of that community to a better and more intelligent production of the crops to which the soil and climate are adapted. An idea like that needs only to be presented in order to be accepted and approved. The fact is that what we need is instruction. In Leeds, England, a year ago, I was speaking at a dinner in the mayor's office. I was emphasizing the fact that our difficulties and controversies are largely due to misunderstandings and that misunderstandings are largely due to a lack of acquaintance with each other, and there flashed into my mind that quotation from Holy Writ, the last prayer of our Savior: "Father, forgive them, for they know not what they do." And I was impressed, as I had never been before, with the fact that ignorance is a large cause of sin. It is ignorance that we have to combat; when the people are once enlightened and understand a subject, you can trust their patriotism, their good intent, and their sense of justice. (Applause) These meetings help by instructing, and we go from them not only with larger information, but with a stronger determination to do our part in the correction of evils that need a remedy. As I sat tonight and listened to those who spoke before me, a thought came into my mind, and I venture to impart it to you. It is a proverb of Solomon's; I do not know of a better motto for the conservation movement. It was suggested by the gentleman from Indiana that necessity compels us to conserve the Nation's resources when we become aware

that they are being impoverished, and I thought of this proverb of Solomon's: "The wise man foreseeth the evil, and hideth himself, but the foolish pass on and are punished." What is conservation except looking ahead, the making of provision against coming dangers that may be prevented? Wisdom manifests itself in foresight. If we had had more foresight we would not have need of as much energy as is required today to protect that which is being wasted. I suggest, therefore, as a proper motto for the conservationists this wise saying of Solomon, "The wise man foreseeth the evil, and hideth himself, but the foolish pass on and are punished." (Applause)

Let me gather up some of the scattered threads of the discussion to which the delegates have listened. I am not an expert in any part of this conservation work. I confess that I am one who has been blind, during a part of my life, to the needs that are now so clearly recognized. I have had work that has engrossed my attention; I have been busy, but not with matters of conservation such as have been discussed. Possibly I represent some in the audience who have not had their attention turned to these subjects. I am grateful to those who have brought me into contact with this information, and I shall endeavor to make up for lost time by larger effort along these lines. (Applause)

The subject has grown upon me as I have examined it, and have listened to those who have spoken upon different branches of it. The first thing that claimed my attention was the preservation of the forest. I found that we were exhausting our timber supply. I found that it was a matter merely of calculation, a simple matter of mathematics; that we could take the number of acres of timber land remaining, subtract the yearly cut, and calculate how long it would be before it was practically destroyed, and then, when on the other side, we examined the amount of land planted in trees and compare that with the yearly destruction, it was easy to see we were approaching a time when our timber supply would be exhausted. I became interested at once, as you must be interested, in legislation that has for its object not only the protection of that timber which remains, but the re-planting of such ground as can be re-forested. I am interested, as you are, in protecting this country from exhaustion of its timber supply.

THE NATION'S WATER SUPPLY.

Then, my attention was next called to another reason why our timber should not be destroyed, and I am a little ashamed to admit to you, that it is not very many years ago since I first began to think of the protection of our water sheds. I wonder how many in this audience have felt, until tonight, as indifferent as I felt until a few years ago. I wonder how many tonight realize how serious a question it is? Two years ago last June I crossed the crest of the Rockies,

and as I went over the ridge, I saw patches of timber, and then areas of naked land. I found that wherever there was timber there was snow; and when I came near to these patches of timber, I found little streams running down to make the brooks and rivers. But wherever the timber was gone there was no snow; it was perfectly dry, and then I realized, as I had not before, how God in His infinite wisdom had established these great reservoirs that never need repair, while man in his folly has been destroying them, and then endeavoring to replace them by building great dams, and forming great lakes that will in time fill up and have to be abandoned. What supreme folly it is to allow the water sheds to be denuded and these natural reservoirs destroyed, only to spend money after a while to replace them with inferior substitutes. What does it mean to have a Nation's water supply imperiled? Have you ever been in a city that was threatened with a water famine? Have you ever been where they discovered the necessity of a larger water supply? What would it mean to the people living upon the slopes of the Rockies if these water sheds were destroyed, and the rain of the winter ran off, and left us with no reservoirs to supply our surface streams and the veins from which we draw through wells? When people tell me that the water shed question can safely be left to the states in which these water sheds are, I tell them that while I am glad to give every reasonable presumption to the state, I insist that the people of this Nation have, on the fundamental doctrine of self-preservation, the right, when necessary, to protect their water supply in the mountains, and I may add, I have no fear that this will cause a conflict between state and nation. (Applause)

My observation is that you very seldom have a conflict between state and nation unless some private interest is attempting to ignore the rights of both state and nation. Back of this controversy which we sometimes hear suggested between the state and the Nation, you will find the interest of the predatory corporation that is as much an enemy to the people of the state as it is the enemy of the people of the Nation; whenever we reach the point where the people recognize that they are greater than any corporation which they create, the settlement of state and national questions will become an easy matter, for patriots can then agree. (Applause)

After one has acquainted himself with the necessity of preserving the forests on the water sheds, he naturally comes to the control of the water that comes tumbling down the mountain side. It is a little more than two years since my attention was called to this subject; the facts were given me by one who is in a position to know, and since that time I have had a fixed opinion that has been freely expressed in regard to the control of these mountain torrents, the commercialization of these mountain streams.

THE LANDLORD SYSTEM.

One who has not visited the Old World cannot understand the land-

lord system there. If you ask me what I regard as the greatest burden of the people of Europe I reply "Landlordism." (Applause) In some of those countries the people are so situated that those who till the soil transmit from generation to generation the right to pay rent, with no possibility of ownership; while a few families transmit from child to child the right to collect rent, with no disposition to till the soil. I regard that as the greatest burden of Europe, and one of the blessings that we enjoy in this country is freedom from such landlordism as they have in the Old World. I know of nothing that nearer approaches the system of landlordism in Europe than the proposed giving away of these mountain streams in perpetuity to great syndicates that through the years and generations to come could exact their toll from a toiling people. Therefore, when we consider the use of these mountain streams, the first thing we must decide is that there shall be no perpetual grant to a water power. Who can tell what that right will be worth a hundred years from now? Look back twenty-five years. Who could have estimated then the value of a water power today? Within the last quarter of a century we have had a development of electricity that makes it possible to carry, for hundreds of miles, power generated by falling water. If you visit Canada you will find in the Province of Ontario great towers carrying to the various cities the power generated at Niagara Falls. We are now in the very beginning of the use of electricity. No human being can measure the value of one of these water falls. What criminal folly, then, for this generation to barter away the sacred rights of posterity to syndicates and corporations. (Applause) So, it seems to me, that one of the important questions to be decided in the conservation of our natural resources is that the principle of monopoly shall not be permitted in this country under any guise or in any form. (Applause)

Let us insist that wherever and whenever a franchise is granted it shall be granted for a term of years, and that that term shall not be so long, but that we can reasonably estimate today the value of it at the end of the term. No other principle is tenable in the discussion of this subject.

But one cannot visit the mountains; one cannot consider these streams that we are trying to protect without thinking of the reclamation of the arid lands. And here I think we have a subject too that is only beginning to be understood. Go along a road and see on one side a desert and on the other side a garden, and understand that the only difference is that one is not watered and the other is, and then irrigation becomes a subject of thrilling interest. Investigate and find how large a per cent of the people of the world live upon lands cultivated by irrigation. Learn how ancient and honorable an industry it is. Visit the communities, where, by the use of the water under systems of irrigation, a man can make a living for his family on twenty, thirty or forty acres,

or even less. See how the people are brought together; how every advantage of the city is brought to the farm, and then you will understand why the country has at last yielded to the demand that has come from the West, that some money should be spent in the reclamation of these lands.

We have next the impounding of water, the building of storage reservoirs. It is in its infancy. It ought to be continued until not one drop of waste water is allowed to run down and flood the valleys in the spring. All of this water should be conserved. It ought to be spread out on the lands which need it, and then we can invite people from the crowded cities to avail themselves of the light and liberty and larger life of the country. (Applause)

SOIL WASTE.

But one subject leads on to another. You begin to reclaim arid lands, and then you ask yourself, Why should we attempt to bring land under cultivation at large expense while we waste the land that we have? And that brings us to the very interesting subject that is presented at all of these congresses, the conservation of the fertility of the soil. A farmer this afternoon spoke of some people as robbers, who robbed the soil of its fertility; I suppose I am one of the guilty ones, although I have done most of my robbing of the soil through agents rather than directly myself. (Applause) And yet, I had my apprenticeship upon the farm, and when I was farming it never occurred to me that I was wasting the soil. I was one who could claim pardon under the plea, "Forgive them for they know not what they do." (Applause) And yet, we cannot be guiltless hereafter now that we understand of what we have been guilty.

Here is a subject that must interest every man who owns an acre of ground. What right has one to impoverish the soil? As was suggested today, we are not owners, we are merely tenants. The life of the individual is short. He lives, he works, he passes away. What right has the tenant of today to impoverish the estate upon which generations to come must live? Is it not worth while to have these experts tell us? Is it not worth while to have this fact impressed upon our minds and our consciences? And when we come to the conservation of the soil on the farms, we then understand the importance of the agricultural college. I rejoice that the agricultural college has shown such wonderful growth and development during the last twenty-five years. The interest which has been manifested in these schools is wonderful, and what does it mean? Not merely that our farms are to be better tended; not merely that our crops will be increased in quality and in value; that is not all. To my mind two important influences will grow out of this agricultural school in addition to the material advantages. I expect to see more inventions; I expect to see a quickened interest in improved machinery; that these men who go out from college to till the soil will

add more and more of brain to the muscle when they till the soil; that the character of the work is to be dignified and elevated just as in the factories we have found the character of the work constantly lifted up as larger and larger intelligence is brought into play in our industries. I expect to see this on the farm. But more than that, I expect to see the farmer a larger political factor in his government with the rising intelligence of the farmer boy. (Applause)

The farmer has suffered; if you ask me why it is that we have the young men drifting into the city, why we have seen so many farms abandoned, or regarded as less desirable, I say that one of the reasons is that our consideration has been given to the things of the city, and not to the things of the country. Our laws have been made for the factory and not for the farm. (Applause) The men who represent industry in the city have been more numerously represented in the halls of legislation than the men who represent industry upon the farm, and one of the results of this higher education of our farmer boys will be, in my opinion, an increasing influence of the agricultural classes in all matters of legislation. I mention these as some of the subjects that are brought to our attention as we consider the various phases of this work of conservation. I am a believer in doing everything that can be done to make the farm an attractive place. It is the nursery of our great men and great women. It is the place where we train men in industry, in self-reliance, and in character. The man who comes nearest to nature has a tremendous advantage in the years of his youth. He deals with the works of the Almighty, while the boy in the town deals with the work of man. Is it strange that from the country and from the country life come the strength, the purity, the character that help to make our city strong, without which our cities would not be what they are today? (Applause)

TO MAKE FARMS ATTRACTIVE.

The man who lives upon the farm sees the miracle wrought about him constantly. The man in the city puts his eyes upon a man-made machine; the man upon the farm comes daily in contact with those irresistible forces that lie back of all the products of the farm and the orchard. It is a splendid training; we cannot allow it to be destroyed. Tributes for the farm have come from the poets of every land:

"Princes and Lords may flourish or may fade,
A breath can make them, as a breath has made:
But a bold peasant, a nation's pride,
When once destroyed, can never be supplied."

Take from any nation its bold peasantry, and you have impoverished it to an extent that figures cease to be valuable.

What will make our farms more attractive? It seems to me that just now there are a number of things that conspire to add to the attractiveness of the farm. Invention has already added largely to the com-

forts and the conveniences of the farmer. I live nearly four miles from the city. The telephone enables me to send and receive telegrams; it enables me to call the physician in a moment. I know of no one thing that hung more heavily on the mother than the fact when sickness came, or accident, it took so long to secure a physician. Today, with the telephone, we cut half in two, at least, the time between the accident and the relief. We find improvements that can be carried to the farm. Water in the house, light as good in the country as in the city. The light that I use in the country is as good as I ever had in the city, and it can now be furnished in small quantities, so that even the smallest house may be supplied. We find the rural free delivery grown until now in almost every section of our land the country is supplied as well as in the city. The good roads movement is a growing movement, and will grow because the farmers (applause) will not long be content to have a "mud embargo" upon their liberty, so large a part of the year. It is not a matter of economy merely. I believe the good roads movement is a social need as well as an economic requirement. With the good road you can have the union school, the community library; you can have a place for the farmers and their wives to meet other farmers and their wives; where you can have entertainment brought to them; where more light can be put into the life, and larger opportunity for social communion be had. Electric lines are bringing the country and city nearer together. All these things are possible. All these things are coming, and with their coming I hope to see the tide turn and the farm population increase rather than decrease in proportion to the urban population.

But, my friends, I have saved for the last the suggestion that I regard as most important. I have mentioned some of these things that have contributed to the desertion of the farm, some of the things which I hope will accelerate the return to the farm. I am interested in everything that has been said by those of whose speeches I have only heard, and by others to whose speeches I have listened. I believe in all of these things, but I believe there is one thing that we cannot neglect. I am not sure but it is the most important factor in this whole discussion, the great need of the human race, less in this country than in any other, but a need here as well, is a proper conception of the dignity of labor. (Loud applause) The struggle of mankind has been to avoid work. It has been to put the drudgery of life on somebody else, and Tolstoi has well said that, as soon as we can make somebody else do the unpleasant work we do not want to do, we then look down upon them and regard them as of a different class. Lack of sympathy is the chief cause of human injustice and human misery. I repeat that what the world needs, and we as well as the rest of the world, though not so much, for we have made more progress here than anywhere else in the world, is a proper conception of the dignity of labor. (Applause) Our education is at fault if it separates the idea of intellectual progress from the idea of moral advancement. Sometimes our children are taught that they should get an

education in order that they may escape from work that seems unpleasant. Education will not be a blessing to the world, but instead a curse, if it lifts man above the willingness to toil. (Applause)

THE NECESSITY OF TOIL.

The most important thought that can be put into the mind of any child is that his education is to enlarge his capacity for work, not to relieve him from the necessity of toiling. (Applause) We find in the cities young men earning small wages in a store where they can wear good clothes, keep their hands clean and do a work that is considered more respectable, when they might earn larger wages if they were willing to bear a larger share of the manual labor of the world. (Applause) Not only do they escape from manual labor, but they miss the physical development that that toil brings. We find young men upon the farms taught that, if they manifest a little brightness, if they are a little more ambitious than those about them, they should look to the law, to medicine, to journalism, to the ministry or to politics—that they must get away from the farm. I hope our conservation congresses will not overlook the fact that we shall make little progress towards making farm homes more inviting until we teach men that the farm with all its toil and drudgery gives them a position where they can be independent, and give their children an environment that contributes to stature and character. (Applause) I believe that we shall only be doing our duty to ourselves, to our fellow man, to our country and to posterity when we emphasize the fact that it is the idler, and not the man who toils, who is a disgrace to society.

Here is a place where all of us can work; here is a public opinion which we can all join in cultivating. The mother who has a daughter approaching womanhood's estate can help when she teaches that daughter that she ought to be more willing to link her fortunes with the fortunes of a poor young man, with high aspirations, education, ambition, good health and character, than to seek an alliance with an idle degenerate who spends the money somebody else has earned. (Applause) The father can do his duty, and can help, when he teaches the son that he is more proud of him when he sees him at work, trying to become a useful factor in society, than when he is simply waiting for some money to be left him that he may squander it, and be the worse for having had it. (Applause) Every member of society everywhere can serve in this great war upon the largest enemy we have to meet. The teacher in the college has his work to do; the preacher in the pulpit—oh, what an opportunity he has to present to his congregation, Sunday after Sunday, the idea that Christ Himself made a living reality, that greatness is to be measured by the service rendered, and that happiness, as well as greatness, depends on the contribution one makes to the world. (Applause) Here is a work that is large enough for us all. Here is something that invites us, an opportunity as large as we can crave.

MAN AND SOCIETY.

I present, therefore, as the most important thing that the conservation movement can consider, the raising up of an ideal of life that will give a man a proper conception of his relation to society. Where better than on the farm can a man learn God's law? What is the Divine law of reward? God wrote it upon the face of the earth; He proclaimed it from the clouds; He burns it into us through the rays of the sun, namely, that God has given us the material and that in proportion as man shows industry and intelligence in converting natural resources into usable wealth he can rightfully draw from the common store of the world. That is God's law of rewards. If a man lack intelligence, God punishes him by failure. If he lack industry, God whips him into poverty by laws that are inexorable. That is the Divine plan, but we have allowed the speculative craze to take its place, and man, instead of earning his bread in the sweat of his brow, rushes into the city to get some short cut to riches, and society has given respectability to the man who goes on the Board of Trade at 10 o'clock and by betting on what the farmers raise makes more than he can make raising it, while it looks down upon the people who feed us and clothe us. (Applause)

But, my friends, I have already talked longer than I intended to when I came. (Cries of Go on! Go on!)

I am here because I am interested. I am here because I am a debtor to society. Who in all this land has been placed under greater obligations than I? Who is more bound in duty to contribute as best he can to any improvement that is possible? This is one of the great avenues of effort; one of the great reform movements. It enlarges as you consider it. I am here to testify to my interest; I am here to listen to those who speak that I may gather from their matured thought ideas that I can put into use. My part is an humble part; it is not to discuss any question at length; it is not to speak as an expert upon any branch of conservation; it is rather to come and emphasize, so far as I can, the work that others have done—to show you how large it is, to increase your interest in it, to quicken your zeal, and to have you go from here determined, as I go determined, to contribute more largely than in the past, not only to this, but to every movement that has for its object the elevation of the human race and the advancement of the civilization of the world.

I thank you. (Continued applause)

On motion of Professor Condra, duly seconded, the Congress adjourned subject to the call of the executive committee.

SUPPLEMENTARY PROCEEDINGS

LIVE STOCK FARMING AND SOIL FERTILITY.

By F. B. MUMFORD.

Of the University of Missouri

The agricultural industry has been and will continue to be the greatest and most fundamental industry in the economic life of the American nation. Not only does agriculture supply the means of livelihood to a larger number of people than any other calling, but because of its intimate relation to many other arts, it occupies a most important place among American industries. From reliable statistics, the materials of manufacture drawn from agriculture constitute 42 per cent of all the materials used in the manufacturing industries. Any conditions tending to decrease these necessary materials of manufacture will react unfavorably on this industry and result in hardship to great number of laborers engaged in this occupation.

The dominant place of agriculture in the commercial and economic life of the Nation is indicated by the enormous aggregate wealth invested in agricultural enterprises. In 1910, there was invested in lands, buildings and equipment used in agricultural pursuits \$36,703,418,000. The value of agricultural products for the one year of 1910, according to the Secretary of Agriculture, was \$8,926,000,000. A sum so large that the human mind is unable to grasp its real significance.

All this enormous wealth comes directly from the soil. Any factors which tend to diminish the productiveness of this fundamental resource are of national concern.

The fertility of the soil is not inexhaustible, it is not self-perpetuating. Soil fertility can be mined out of the soil as coal can be mined out of the earth. When the fertility of soils has decreased beyond a certain point, then the cost of cultivation becomes too great, and farming becomes unprofitable and we may have abandoned farms. This fact has been repeatedly demonstrated in the history of ancient and modern agriculture.

But it is also true that soil fertility can be so utilized that the continuous production of crops on the same land can be indefinitely and successfully accomplished. It is also a fact that the conditions of fertility are of such a nature that the natural productiveness of the average soil can be greatly improved and the total production of food crops largely increased. Improved systems of farming based on perfectly definite scientific principles are now being practiced, which are not only more profitable, but likewise maintain successfully the productiveness of the soil.

A permanent agriculture can only be established through a rational system of soil conservation. The most important factor in all agriculture is the productiveness of the acre of land. No system of farming can endure which is not profitable. Any scheme of conservation which aims to benefit succeeding generations but fails to provide for the necessities of the people now living on earth will surely fail.

Systems of farming which are recommended should then fulfill two conditions; they must maintain or improve the fertility of the land, and they must be profitable. The failures in agriculture in the past have resulted from the failure to recognize one or the other or a combination of these two causes. Either the productiveness of the soil has been exhausted by unintelligent system or the agriculture has been unprofitable. In fact, the exhaustion of soil is rather to be regarded as an economic term which means that the operations of agriculture are no longer carried on at a profit rather than that the elements of fertility have been entirely removed from a one-time fertile soil.

In considering live stock farming, then, it is only necessary to determine first whether it is and has been successful in maintaining soil fertility.

What is needed to maintain and improve the fertility of the soils? The investigations on this matter are clear. There are four things needed under existing conditions to supply directly or indirectly to agricultural lands: vegetable matter or humus, phosphorus, nitrogen and potash. Does live stock farming, as a system, provide these materials in sufficient quantity to conserve the fertility

of the soil? Without going too much into detail, it is correct for us to say that in any well planned system of stock farming, the humus supply can easily be sustained; the nitrogen can be rapidly increased and the phosphorus and potash supplied either through the application of fertilizers directly or by the purchase of foods to be first fed to animals and the manure later applied to the land.

In attempting to determine whether or not live stock farming is to be considered as a system calculated to conserve soil fertility, one cannot be greatly impressed with the unanimity of opinion in favor of animal husbandry as a means of soil improvement. When soils have become exhausted and unprofitable from continuous grain growing, the almost universal advice is to change the system of farming to stock husbandry and feed out all crops on the land. Nor is this advice to be regarded as emanating from theorists whose conclusions have been drawn alone from the test tube of the chemist, but more often such advice comes from men who are trained in farm management, and have themselves demonstrated that a rational system of animal husbandry will not only maintain but improve the fertility of the average farm located in the corn belt. Live stock farming carried on for the purpose of soil improvement is not an untried experiment. Not only individual farms but whole communities have been brought up from a condition of exhaustion and unprofitableness to a condition of productiveness by animal husbandry.

Exclusive grain farming as practiced from New England westward to the Dakotas has left behind a trail of depleted soils and where carried on for too long a time ruined farms and abandoned homes have marked the way.

These same soils are today being reclaimed and profitably tilled as the result of changing from grain farming to dairy and stock farming. This change has taken place in Ohio, Michigan, Wisconsin, and is now occurring in Minnesota. The result of profitable system of live stock farming on even the poorest of soils is to be seen in Holland. On thin, sandy lands reclaimed from the sea, dairy farming has increased the value of the farming lands until now they are valued at \$500 to \$1,000 per acre. Holland today supports a population twelve times as dense as Illinois, and yet has an annual surplus of cheese and butter for export amounting to more than four dollars per acre.

Fifty years ago Denmark was a wheat producing country. Its soils were gradually being depleted of fertility and agricultural ruin was imminent. The system of farming was at that time radically changed to a system of live stock production, with the result that after forty years of dairy farming the agriculture of Denmark is regarded as a model of farm management, both from the standpoint of the conservation of soil fertility and profits per acre.

Farmyard manure is now and always has been the greatest resource for maintaining soil fertility on the typical Middle West farms. Dr. C. G. Hopkins says that "Farm manure always has been, and without doubt always will be, the principal material used in maintaining the fertility of the soil."

Director Thorne of Ohio has pointed out that the increased fertility of English farms as measured in increasing wheat yields has, in his opinion, been due to the fact that the cattle, sheep, hogs and horses have increased rapidly per cultivated acre since 1865. In that year Great Britain was maintaining the equivalent of one cattle beast for each acre cultivated, while in 1900 the live stock population had increased until there was maintained on British farms the equivalent of one cattle beast for each cultivated acre.

When Great Britain maintained one cattle beast for each two acres of land cultivated in grain, the average wheat yield was twenty-eight bushels per acre. When she had increased her live stock population to the equivalent of one cattle beast to one acre of land cultivated in grain, the yield of wheat had risen to thirty-two bushels per acre.

The limits of this paper will not permit me to quote the opinions of all the leading agricultural and soil experts who have publicly expressed themselves on the important relations of animal husbandry to soil fertility. But such national authorities as Henry Wallace, President Waters, Dean Davenport, Dean Curtis, Governor Hoard and a host of others have publicly placed themselves on record as favoring live stock husbandry for conserving soil fertility on the American farm.

The production of farmyard manure in this country now represents a value greater than the total value of the corn crop. The estimated annual value of farm manure produced in America is two and one-third billion dollars. All authorities agree that more than one-third of this material is absolutely wasted by the farmers. Here is a source of fertility ten times as great as all the commercial fertilizers annually sold in the whole United States. If this manure now wasted could be intelligently applied to the corn lands of America, there would be added \$800,000,000 annually to the agricultural wealth of this country.

In planning systems of live stock farming for permanent agriculture, it is necessary to apply the amount of phosphorus removed in the annual products sold, either as commercial fertilizer or by the purchase of supplementary foods. This amount will be comparatively small, and if added by the purchase of supplementary foods may be supplied at little or no additional cost, as the profits from feeding will pay for the phosphorus used.

No scheme of soil conservation can be successful unless it is profitable. If live stock farming conserves fertility, but is unprofitable, then it need not be further considered. But live stock farming is profitable, and is more profitable than any other system of permanent agriculture which has been devised.

The latest census figures show conclusively that the net income per acre is greater from stock and dairy farms than from hay and grain farms.

The average annual net income from stock and dairy farms in the United States for the ten-year period ending with the year 1899 was \$11.42, while the income from hay and grain farms was only \$7.72 per acre.

Not only was the average income in the United States as a whole greater from stock farms, but in some of the more strictly grain growing states the same increased profit from stock farms is shown. In Illinois the income from grain farms was \$10.60 per acre; from stock farms, \$12.55. In Missouri, the income from grain farms was \$7.69, and from stock farms, \$9.55. In Iowa the income from grain farms was \$8.88, and the income from stock farms, \$13.17 per acre. In other words the profits from stock farming in Illinois were 18 per cent, in Missouri 24 per cent, and in Iowa 48 per cent greater than from grain farms.

In any ten-year period of the agricultural history of this country, the net income per acre from live stock farms has been greater than from grain crops.

I think all fair minded students of farm management problems in the Middle West will agree that the most prosperous and best managed farms throughout the corn belt today are the farms where live stock is a large, if not the chief, factor of production.

The argument that live stock farming can be profitable only on cheap land is fallacious. The highest priced farming lands in the world are utilized for stock and dairy farms.

In all systems of exclusive grain farming which have been planned for the maintenance of soil fertility, it is recommended that considerable quantities of clover be plowed under and that all of the straw and stover likewise be added directly to the soil for keeping up the humus supply. While this practice unquestionably will accomplish the results intended it is true that from an economic point of view such materials are too valuable for the nutrition of animals to be thus employed. When we remember that at a very conservative estimate, the stover or stalks, leaves and stems of the corn plant contain not less than 25 per cent of the total feeding value of the entire plant, and that under systems of exclusive grain farming, all this material is so utilized that only its humus value is secured, we must conclude that if there is another method whereby this valuable feedstuff may be first converted into animal products, such a method is certainly to be recommended in a convention assembled to discuss the broad problem of conservation.

Plowing under green clover likewise is to be regarded as a practice of doubtful economic value. At the Missouri Experiment Station, for a series of two years, the average income from such clover pastured off with hogs amounted to \$34.11 per acre. This was estimating the pork product at only six cents per pound. As a matter of fact during the years in which this investigation was conducted, the pork was actually worth seven cents per pound, and the actual income from the clover alone amounted to \$40.00 per acre.

I submit that when an acre of clover can be so utilized through animals as to return to the farmer the equivalent of \$40.00 in cash, that it is doubtful economy to use this material solely for its humus value by plowing under.

In accomplishing the above result, it was necessary to feed an average of 3,000 pounds of grain per acre with the clover. This grain at prevailing market prices was charged to the hogs at sixty cents per bushel, the market price, and the \$40.00 per acre is therefore net income. The large amount of grain fed to the hogs on the clover undoubtedly returned to the soil as much phosphorus as was removed in the body of the animals, and the ultimate result of this experiment was therefore not only to secure a greater profit from the land by this method of utilization, but also to provide generously for the plant food losses incurred by the storing up of such materials in the bodies of the hogs.

On the average Middle West farm, there are now and will continue to be great quantities of stover, hay, straw, grass and other materials which are too valuable to be used solely for manurial purposes and are yet too bulky to be profitably

placed on the market. All such materials can be profitably marketed through animals, and by so doing at least 50 per cent of the humus value of the materials can be retained and a considerable profit secured from feeding to animals.

The development of animal husbandry in modern farm practice is fundamentally important. Exclusive grain farming has never yet been satisfactory or permanently successful. History and present practice have clearly demonstrated the important relation of soil fertility to the keeping of animals. The productiveness of the acre of land is the most important factor in profitable agriculture. If it is true that the productiveness of the acre of land is maintained and often increased by the large use of domestic animals, this is a sufficient reason for large attention to live stock farming.

Animal husbandry is more profitable than grain farming. In any ten-year period of American agriculture, skillful live stock farming has been more profitable than exclusive grain farming. It is no argument to say that the average stock farmer would have secured larger temporary gains by selling his grain instead of feeding to animals. Statistics have shown a larger net income per acre from live stock farms throughout the United States than grain farms.

The highest type of farming is found in those localities where skillful stock farming is the rule. In Denmark, Holland, Great Britain, France, Canada and the United States, it is undoubtedly true that greater intelligence, skill and efficiency are required for the successful management of a live stock farm than a grain farm.

The yield of wheat in England has increased in direct proportion to the increase of the number of animals per cultivated acre.

The Middle West farmer will always produce large areas of grass, of corn stover, cheap hay and other products having little cash value. The profitable utilization of these materials involves the feeding and keeping of animals. The permanent prosperity of the Middle West farmers, and the conservation of our soil resources both require increased attention to successful methods of stock husbandry.

THE CONSERVATION OF THE FARM

By EX-GOVERNOR W. D. HOARD

Of Wisconsin

In the limited remarks I shall have to make on this subject, I wish to preface by saying that it seems to me that one of the crying needs of conservation today is to conserve conservation. There is an immense waste of talk and time and crude unconstructive thought on this subject. Too many men are crying, "Lo! salvation lies in this direction, or that." Too many are talking with an ulterior purpose of personal gain in notoriety or politics. Forests, mines and water powers claim the principal part of the thought and attention, when they are not the paramount subjects of conservation we consider. It is too easy to generalize or denounce or set up impractical standards of action by men who have not a constructive, practical thought to offer whereby the desired things we might wish for may be obtained. But here stands a great necessity, a glaring mistake, the result of gross ignorance on the part of the farmers of the American nation for many generations. They have wasted their heritage; they are continually wasting it.

Eighty-three millions of people are depending today for food on the wisdom, the skill, the conserving good sense of seven millions of farmers. By another decade a hundred million will face the same dependence. The cry goes up from this vast army of consumers against the high cost of living. The contingencies of the seasons, serious as they are oftentimes, are enough for producer and consumer to face. But we are confronted with the most serious danger of all in the wasting of fertility, the steady decline in the productive power of our arable lands. Here stands the question: An increasing demand and necessity for food and a steady decline in our lands of the power to produce food. How long shall that reproach to our intelligence continue?

Before that great and overwhelming necessity all other questions of conservation pale into insignificance. Study the situation as it exists today: From the Atlantic to the Rocky Mountains the American farmer has blazed a pathway of destruction to fertility and forests. His is the hand that hath wrought this great destruction until today vast stretches of territory are hardly able to produce enough in an ordinary season to pay the cost of production.

The Commissioner of Agriculture of the State of New York asserts that that state alone has lost a hundred and sixty-eight millions of dollars in thirty years in the decline of farm values. In my native county of Madison in that state I can buy farms today for \$20 to \$30 an acre that once sold for \$100 an acre. The same is true of the famous old Western Reserve in Ohio, of many sections in Indiana and proportionately so in the southern portion of Illinois. Who hath wrought this fearful destruction of the original productive power of the state and Nation? The farmer. Why? Because of his ignorance of the principles of fertility and of the methods that belong to intelligent agriculture.

Until very recently the forces of education, all under the control of the states, have done nothing to educate the farmer to a better understanding of his duty to himself, his calling as a farmer, and the millions who must depend upon him for food. The people have gone mad, so to speak, in the pursuit and worship of so-called higher education, and neglected the basic subsidiary schools where the main body of farmers must be trained, if trained at all, into an understanding of what they are about. You know, as every man knows, that the country district school is the only school where 90 per cent of all of the farmers of the land have received or will receive for many years to come the schooling they will get. The teachers of the state and the political forces of the state are solely responsible for the character of the country school. There has been but little vital pushing force among the teachers for the uplift of the country schools. The politicians have given it the go-by because as yet there are no votes in it as an issue. The farmers do not believe in it as a vital energizing principle in their midst for their own enlightenment and that of their children concerning the things that make for the betterment of agriculture.

Do you for a moment suppose that all of this appalling waste of fertility that exists and consequent destruction of farm values would have taken place if the country district school had been organized to teach the farm children the elements of fertility as science and common sense knew them to exist? We must then charge upon the past and present system of education the responsibility for this ignorance that has wasted the productive power of the Nation. And the processes of ignorance and indifference are going on today with but little, if any, check. Our schools of agriculture reach but a thousandth part of the farm children with their corrective knowledge. The agricultural press is doing what it can, but not more than 50 per cent of the farmers are readers and students of this vital question.

We flatter ourselves that we of the Middle West are to be saved from this tide of destruction because God has given us a soil of such marvelous fertility. But our farmers are just as great spendthrifts of this God-given heritage as were the Eastern farmers. The trouble lies in our lack of knowledge, real helpful knowledge. Think of the millions of acres of corn stalks in the great corn producing states of Illinois, Missouri, Kansas, Nebraska and Iowa that will stand next winter unharvested, and in mute reproach of the lack of a little conserving intelligence sufficient to store them in silos where the contents might be fed to cattle and sheep and so produce an abundance of meat cheaply for the people. An average acre of that corn in an average season, if placed in a silo, will yield ten tons of the finest meat and milk producing fodder known on earth. Thirty pounds a day with ten pounds of alfalfa hay is sufficient to fatten a fifteen-month-old steer to the pink of condition in a year. Each acre, then, and an acre of alfalfa, would suffice to feed two steers for the year. What a tremendous feeding power at low cost is here disclosed, and yet it is annually wasted and not a country district school or school teacher is telling the farmer and his children any better. Think of the thousands upon thousands of poor cows that are kept by the farmers of the dairy states because they do not know better. Think of the wasted labor to raise the feed to support those cows, the wasted time and effort to milk and care for them, when, by exhaustive research it can be shown that not half of those cows are producing enough to pay for their keeping. You ask: Don't the farmers know better than to keep such cows? Can you believe they would continue to breed and keep such cows if they did know better? Everywhere is seen the appalling waste of our farming—in fertility, in poor live stock, in lack of breeding knowledge, in lack of sanitary understanding, in a lack of intelligent methods of farm management. The discontent of the farmer is great. Let us be thankful for that, for we are told that "discontent is the vice of noble minds." But, likewise, everywhere is he misled by contending politicians to believe that his salvation lies in politics, in the tariff up, or the tariff down, in fighting the corporations and the trusts, in order that certain leaders may have place and power. And all the time this mighty demon of waste is getting in his work. When will the farmer see that

he must educate himself and his children back in the country district school to know good from evil, to understand the conservation of the soil and the great economic laws that underlie his very existence?

He cannot escape the demand of the millions who wait upon his hand for bread and meat. He is responsible to his own good citizenship not to waste the productive energies of the state. He owes it to himself and the hoped for profit of the labor of his hands that he make of this question of the conservation of the farm the foremost question of the age, as it truly is.

Dairy farming, if rightly understood and conducted, has the power to "knit up this raveled sleeve," to reindow all of these wasted farms with their original fertility and productiveness. For, understand, the true dairy farmer must be a wise manipulator of the soil, of plant life as well as animal life. No man in the domain of agriculture is confronted with a greater necessity of "knowing good from evil," at every turn and in more ways, than is the dairy farmer. Ignorance is at work here to destroy fertility and profit as well as in all other branches of agriculture. But there are certain natural advantages that govern here more than in other lines of farming.

(1) The dairyman must so handle his farm as to support sufficient animal life to give him a living profit for his time and labor.

(2) That animal life is a constant contributor to the fertility of the soil through the abundant manure that is made.

(3) As a rule the dairy farmer is a buyer as well as grower of feed, particularly of nitrogenous feeds. This gives added fertilizing value to the manure.

(4) He builds silos and so consumes the coarser roughage of the farm, enabling him thereby to carry a much larger stock of cattle, hogs and sheep than he otherwise could.

(5) He is obliged to build barns and sheds whereby the forage of the farm shall be stored with the least possible loss of its nutritive powers, and consequently this saves waste very greatly.

(6) He is compelled to become a large producer of legumes, like clover, alfalfa, vetch, etc., whereby by natural means, nitrogen is more largely restored to the soil.

All these are the natural and inevitable things that belong to his vocation if he is a man big enough to comprehend them. But there are some things he must do of an extra character if he handles his farm so as to constantly increase its fertility. He must be a liberal feeder of the land as well as his animals. He must comprehend that nothing can be grown on the farm without an expenditure of nitrogen, phosphorus and potash. The nitrogen, to a large extent, the legumes will evolve and deposit in the soil. But the phosphorus and the potash must be purchased. He must know something about these important elements, and he must accept it as one of his fixed expenses of the farm that these elements, as well as lime, must be yearly supplies.

Certain forms of dairying, like milk shipping, cheese making and condensing, are wasteful of fertility, unless the farmer guards against such loss, by artificially supplying the lime, and phosphate potash. It is largely through this taking of the whole milk from the farm without adequate making up of the loss, that so many farms in the eastern states became depleted of their fertility. Whenever butter dairying was carried on, and consequently the skim milk was used to grow calves and pigs, the live stock complement of the farm was kept up and the manure supply greatly enhanced. Such sections like Delaware county, New York, have suffered much less in the depletion of the soil in the past fifty years, than did Herkimer, St. Lawrence, Madison, Oneida and other of the cheese making counties of that state. The same depleting process has been going on in New England, New Jersey, Pennsylvania, Ohio, and farther west. The wonderful growth of villages and cities calls for an enormous consumption of dairy products. This means taking the whole milk from the farm in a large degree and thereby greatly reduces the growing of live stock. We well remember sixty years ago how that central New York produced great crops of clover and a large supply of cattle, hogs and sheep. The tops of the hills were kept covered with the splendid forests that characterized that state. The springs and small streams were by that means maintained and we fished for trout in brooks that have not known a trout for the past thirty years, and which are dry most of the year. All this has been changed and sadly so for the worse. Had the farmers kept the tops of the hills covered with trees it would have conserved the water supply and helped maintain the side hill pastures.

Fifty years ago Horace Greeley, through his *Tribune*, warned the farmers of New York against the destructive effect of stripping the forests from the hill tops. Dairying in all its branches of butter production, milk shipping, cheese making and condensing, must, of course, be kept up for the necessities of the great army of consumers who demand it.

But the demand is just as imperative that the dairy farmer know what he is about and conduct his farm with an eye single to the preservation of its fertility. He must know more of the scientific side of his calling. He must be more willing to use some of his revenue in the purchase of fertilizers to produce against the natural waste that is constantly going on. He must adopt the principle that it is to his ultimate greater profit as well as the well being of the state that he farm towards an increase rather than a decrease of the fertility of his land.

These are some of the paramount problems of the day and hour that confront the dairy farmer. The trouble is that here as well as elsewhere in this broad field of agriculture, ignorance has held sway. "We all, like sheep, have gone astray." The wise live teachers of agriculture are becoming more obsessed every day with the thought that if the future millions of this country are fed, the American farmer must wake up, and that right soon, to the fearful mistakes he has been making through his ignorance and indifference in destroying the productive capacity of his land.

Every man, woman and child in the Nation is vitally interested in the promotion of conserving intelligence among the farmers of this country.

BACK TO THE FARM

BY HENRY IDE WILLEY.

This is the slogan of our clan; too long has the farm been deemed the dumping ground for those whom poverty or mediocre ability has kept out of the professions, arts and sciences.

"Anyone can farm" was the ancient idea. Not so the modern maxim. It is "back to the farm," with education, intellect and experience that more than double the production of our soil and elevate the farmer to the same high plane occupied by others of equal ability and intellect in other callings.

Back to the farm is the maxim of our chief executive as he tours our country in the interest of progress.

It is not the aim of this article to enter into a scientific dissertation upon the chemical properties of all fertilizers, or to cover the entire ground with reference to the art of fertilization, it would prove too scopey a work to attempt any such a thing within the time and space that could be prudently allotted upon an occasion like this.

All that I shall attempt to do will be to touch upon some salient features of the art, and deal briefly with the most important details to be kept in view by the progressive farmer, who seeks to get the maximum results from a minimum area and amount of labor. Also I want to warn you of the danger of being victimized by unscrupulous dealers in fertilizers, and suggest some basic precautions to be observed, and finally to convince you that there is no dearth of fertilizing material in the United States that should be available at a reasonable price, to all who may require it. A just and beneficent Deity seems to have wisely provided abundantly all of the factors required to enable us to equalize the productions of our country, only demanding that we perform a certain amount of prefatory labor and wisely use the brains He has endowed us with.

Generally speaking we are required to do a dollar's worth of work to obtain a dollar's reward in all vocations. One dollar's value in any of the precious metals requires a dollar's worth of work or outlay; the same is true with a dollar's worth of wheat, oats, beans, or anything else.

Where rains are not abundant and opportune, there are adjacent mountains with their precipitating possibilities and lakes, or reservoir sites in which to store water to irrigate about all of the lands capable of being profitably watered. Just so within our area are vast deposits of calcium, phosphates and other fertilizing factors, only requiring a certain amount of labor, to enable us to place them where they will do the most good.

Florida probably produces the greatest volume and best quality of calcium phosphates. Tennessee next. Then the Carolinas, Utah and Idaho, the former only needing railways to provide transportation facilities to provide abundant and cheap supply throughout the west.

In 1889, Albert Richter, Esq., discovered these last named deposits which are gigantic reserves for the future.

When tillage begins, other arts follow. Daniel Webster says: "The farmers therefore are the founders of human civilization."

Farming is as much a business as any other vocation, and primarily, the farmer should be a good business man to be successful. In the main he follows his calling for the money he can make thereby, like other prudent men, seeking the largest possible return from his outlay.

It is not enough to raise a crop, a profit must be realized upon the labor and capital invested.

He must understand his business, must observe needed economics, yet must be ever ready to spend a dollar when he can see a fair interest to be derivable therefrom.

Farming is not only a business, but equally an art—the art of producing animal and plant life needful and useful to mankind.

A true knowledge of agriculture and kindred occupations necessitates a complete grasp of the principles upon which the art is based. In this enlightened age such knowledge is indispensable. When our country was new and only the most fertile soil was tilled, "anyone could be a farmer." To sow and reap were all that was required, so lavish was Dame Nature in giving of the fertility stored up for centuries. But this soon sapped the vitality of the soil, its tillage ceased to be profitable, and in many instances abandonment of the farms ere long would follow.

This unfortunate result is greatly to be lamented, because, by intelligent precautions the calamity could have been averted. The farming of the future must be carried on by intelligent, educated men of liberal training.

Geology, botany, zoology, chemistry and physics have already done much toward the conservation of the fertility of the soil, but not generally, as should be the case.

Importance of water, as a source of plant food and a conveyor thereof, is one of the most important factors developed by chemical analysis. The enormous proportion of water entering into the composition of the plant and its incalculable value as a conveyor of plant food to the roots. Nearly 900 of 1,000 parts of the matured corn plant are water, exclusive of exhalations, which are considerable, or 1,000 pounds of corn during its growing period use about thirty tons of water. As this amount of corn can be raised on one-thirtieth of an acre, 900 tons, or an eighth inch depth layer, would be required for an acre, and about the same amount being lost by percolation and drainage gains as 1,800 tons of water per acre, thus proving the need for the conservation of the moisture of the soil. In fact 300 to 500 times more water in pounds is required, than dry matter.

First, as it composes 80 per cent of the mature crop, it is the most essential plant food. It also furnishes the hydrogen and oxygen found in dry matter equal to 10 per cent more, making 90 per cent in all derived directly from water.

Water also dissolves the plant food, facilitating its distribution. It stiffens, or prevents the wilting of plants to replace losses by evaporation, probably controls the temperature of the plants, and water is indispensable for the movement of food within the plant, constituting this the most vital single factor in determining the fertility of land, hence the great importance of irrigation where moisture is not abundant.

Within the time and space allotted, it would be impossible to deal with every factor relating to question of fertilization such as carbon, nitrogen, etc. I will therefore proceed to treat of the most potent and effective fertilizing compound. Phosphoric acid, tricalcite phosphate of lime or calcium phosphate. This is present in normal soil, in much smaller quantities than potash, and experience demonstrates, is more likely to become exhausted. In fact in some regions no other fertilizer is used.

The phosphates may be subdivided into two general classes, natural and the manufactured phosphates: The natural phosphates have two general sources—the bones of dead animals, and certain phosphates containing minerals which will be designated. Raw bone meal is made by the grinding of raw bones to a powder, and the finer it is, the more valuable the product. This contains about 22 per cent of phosphoric acid and 4 per cent of nitrogen. Raw bones contain a small quantity of fat also, and as this promotes rapid decay of the bone, the phosphoric acid and nitrogen are quite slowly disseminated to the crop.

Most of the bone meal of commerce is made from bones previously steamed to remove the fat, and a portion of the nitrogen compounds. Bone so treated contains about 28 per cent to 30 per cent of phosphoric acid and 1½ per cent of nitrogen. As these can be ground finer and decay more rapidly, they are more valuable and effective than the raw bones.

Tankage is an important source of phosphoric acid in so-called animal politogess. When the product contains a very large proportion of bone, it is sometimes designated as bone tankage, and may contain 7 to 18 per cent of phosphoric acid.

Bone black or animal charcoal is made by heating bone in air-tight vessels, until the volatile matter is drawn off, and is used in the refineries to purify sugar.

After it has become spent or used by refineries, it is sold for fertilizing purposes. Bone black contains from 32 to 36 per cent of phosphoric acid. In a number of places rock deposits are found that contain varying percentages of phosphate of lime. These phosphates are usually named after the place where they are obtained, as "Carolina," "Florida," "Tennessee" phosphates.

These rocks contain from 18 to 32 per cent of phosphoric acid, and differ from the bone products in that they contain no organic matter, and are purely mineral substances. Ground to a fine powder, they are sometimes sold under the name of "floats," but the rock phosphates are used only to a limited extent in the crude condition.

The phosphoric acid in all the natural phosphates described is combined with lime, in a form that is extremely insoluble in water. In order to render the phosphate soluble it is sometimes treated with sulphuric acid which unites with part of the lime, leaving a phosphate which contains only a third as much lime as the natural phosphate and is soluble in water.

The lime and sulphuric acid make a compound which is the same as found in gypsum or landplaster. This combination of soluble phosphate and gypsum made by treating the natural phosphates with acid is called by various names of superphosphate—soluble phosphate, acid phosphate, acidulated rock, etc. For its manufacture the rock phosphates are generally employed, both because they are cheaper, and because the organic matter in the bones interferes with the use of sufficient acid to make all of the phosphate soluble. A good sample of phosphate contains about 16 per cent of phosphoric acid in a form that is soluble in water.

Sometimes when insufficient acid has been used a part of the soluble phosphate will change into a form intermediate in solubility, between the natural phosphate and the acid phosphate, and this is said to have undergone "reversion." The new compound being called "reverted phosphates." The latter product is supposed to be more available to the plant than the insoluble or natural phosphate, hence, the soluble and reverted phosphoric acid taken together are known as the "available phosphoric acid."

Sometimes, bone meal is treated with a limited amount of sulphuric acid and the product is called "acidulated bone." This contains a much smaller proportion of its phosphoric acid in soluble form, than does the rock superphosphate. When soluble phosphates are added to the soil, they combine soon with the mineral matter and are converted, first into the reverted phosphate, and finally into the insoluble form, such as is found naturally in the soil. In this way the phosphoric acid is fixed and there is no danger of its being lost by leaching.

The soluble phosphate present in acidulated goods is generally considered the most favorable form of phosphoric acid for use as a fertilizer.

At first sight it seems useless to go to the expense of making the phosphate soluble when it is again rendered insoluble by the soil, before the plant can make use of it. The true object in making it soluble is to aid in its distribution to the soil and thence to the plant.

When an insoluble phosphate is applied it remains where it falls, except for the slight distribution it receives by cultivating. In the case of the soluble phosphate, on the other hand, the phosphate dissolves in the soil water, and is widely distributed before it becomes fixed by the soil. In the former, also, the roots must go to the phosphate, while in the latter, the phosphate is carried to the roots.

It will therefore be observed that after the soluble phosphate is distributed throughout the soil, the individual particles must be very much smaller than is the case with the insoluble phosphate. The importance of fineness of division can not be too strongly emphasized.

Too much stress cannot be laid upon the need of intelligent use of fertilizers. A little expense and effort in carefully analyzing the soil to be treated, proving its component parts and proportions, then leaving what should be added to result in the largest production of the crops desired. No guessing nor conjecture should be indulged in, it can only lead to disaster, whereas a little scientific investigation and analysis will render success certain.

Analysis alone will not suffice. Actual testing of the various classes of soil, dividing same into small blocks and using different proportions of fertilizers on some, none on others, will insure the best results.

Farmers are furnished with a great variety of so-called fertilizers of greater or less merit, and a vast variety of mixtures almost too numerous to classify, many of which I regret to state are not at all what they are represented to be, and often are worth less than one-third the price charged therefor. No one should under any circumstances be induced to purchase anything claimed to be a fertilizer, without first having had an analysis made of the same by some chemist of unimpeachable

integrity. A failure or refusal to observe this precaution will be certain to defeat the purpose in view and result in loss, instead of the gain desired. There can be no good excuse given for the unfair adulteration of fertilizers, because the supply of basic material is abundant, cheap, and can be reasonably transported, leaving a good profit for all dealers, when an absolutely pure article. As the product is now sold it ranges from 1 to 3 per cent ammonia, 6 to 12 per cent phosphoric acid, 4 to 10 per cent potash.

The unit basis of purchase is a fair one to both vendor and vendee. A unit means 1 per cent on the basis of a ton, or twenty pounds.

For example, a unit of available phosphoric acid would be twenty pounds, and if the quotation was \$1.00 a unit, the phosphoric acid would cost five cents a pound. The system is applied to the sale of nitrate of soda, the potash salt, blood, meat, tankage, superphosphate, etc., and in nitrogenous goods the price is usually stated as so much a unit of ammonia.

The number of units in the material is determined by chemical analysis. This system could be applied as well to mixed as unmixed goods. But home mixing would prove by far the wisest policy, as none of the frauds common to commercial fertilizers could then be perpetrated.

It is little less than idiocy to buy any mixed fertilizer for any specific tract of land, because you may be paying for an excess of many elements, when the addition of some one single acid, such as sulphuric, for instance, would double its production. Lime, marl, muck, wood or coal ashes only would at times produce better results than the most perfect and elaborate mixed fertilizer.

Apropos of this subject, permit me to call attention to a little work of great value to every farmer. None should be without it. *Viz.*, A treatise on "American Manures, and Farmers' and Planters' Guide," by Wm. H. Buckner, Analytical Consulting Chemist, and J. B. Chynoweth, Eng., published in Philadelphia.

The great lawyer, Theodore Cuyler, and others, give this work unqualified approval, and any farmer, after its perusal, is amply advised as to the many frauds perpetrated in the name of fertilization, and can guard against being victimized thereby.

To attempt to deal with the fertilization question without giving ample scope to the question of water supply, would be a waste of effort, as water is the most important of all elements to be considered.

Not all land is to be benefited by irrigation, but vastly more is improved than is generally supposed. There are few sections where the natural supply is precipitated at the right time, and in proper proportion, and wherever this is the case irrigation can be profitably resorted to always, providing the supply can be economically obtained and distributed.

For example, take the rich Willamette valley in Oregon, where the rainfall is excessive during the entire spring, but little or none falls during the summer months, and it has been proven that larger or more frequent crops can be raised there with irrigation, even in this "Web-foot state."

Perfect production is only attainable when control of all the elements is possible, and this can be accomplished only in a hot house or conservatory. But the nearest approach thereto in the open, is in an almost rainless country, where the sunshine is constant by day, the soil fertile, and irrigation possible.

Where these conditions prevail, as in Sinaloa, Mexico, as many as three crops a year can be produced upon the same area, and it is safe to state that there are few regions where the irrigation of the land will not prove beneficial. In most instances the providing of irrigation carries with it the necessity for a drainage system as well. It is not the placing of water on the land which causes the benefit, but the passage of the water through the soil, carrying the fertility or plant food to the roots, hence flow must be kept up, and often this can only be insured by providing a drainage system.

Our country is so new, and our soil was so fertile originally, that abundant crops were produced thereon for many years, but this constant cropping of the same product, year after year, has exhausted vast areas and their life must be renewed.

Fertilizers are abundant and accessible in the United States and can be laid down on any farm near to lines to transportation, and if of genuine character and properly applied, crops can be doubled or better each season.

Professor Hopkins of the Illinois university more than doubled the production of wheat on a certain tract of land under this supervision. The natural yield was about twenty-four bushels; fertilized, fifty-six bushels per acre.

Although the phosphate deposits now known to exist are of vast area, it was not until 1889 that the Florida deposits were accepted as valuable and extensive.

Pebble deposits of Florida are supposed to underlie an area of about 2,000 square miles, and are on lands about 160 feet above sea level.

Overburden:

1. Soil and sub-soil, few inches to six feet.
2. A light colored sand, few inches to ten feet.
3. Stiff clay vari-colored at times, capping of sandstone color brown to pure white.

MATRIX 212°.

| | |
|--|--------|
| Organic matter | 2.40 |
| Phosphoric acid | 15.29 |
| Carbonic acid | 6.70 |
| Lime | 20.00 |
| Iron and aluminum | 13.06 |
| Fluoride and magnesia..... | .60 |
| Insoluble silica and sand | 41.95 |
| | 100.00 |
| Equivalent to tribasic phosphate of lime | 32.33 |
| Equivalent to carbonate of lime | 15.20 |

Land pebbles average from 65 to 70 per cent tribasic phosphate of lime.

River pebbles are of the same origin, but slightly less value, 60 per cent to 63 per cent phosphate of lime. The whole Peninsula of Florida is underlaid with white limestone of the Vicsburg age (Lower Eocene), according to Professor Lyall, upper middle Eocene, according to American geologists, which is the oldest rock in Florida. Florida was submerged until the end of the Eocene period, after which its elevation occurred. Then came the Miocene submergence followed by a second elevation, next the Champlain period and submergence, when it was covered with a mantle of sand and clay, before it arose to its present elevation.

The phosphate pebbles were formed before this last submergence, and hence washed into the depressions of limestone and over same.

ANALYSIS GRAVEL ROCK.

Many Samples.

| | |
|---------------------------------|-------|
| *Phosphoric acid | 36.08 |
| Carbonate of lime | 2.17 |
| Oxide of iron and aluminum..... | 1.94 |
| Silica | 4.50 |
| Moisture | 2.50 |

European Analysis of some organic matter—water.

| | Voelker | Gilbert | Marat |
|---------------------------------|---------|---------|-------|
| Phosphoric acid | 36.56 | 36.33 | 36.84 |
| Lime | 52.08 | | |
| Oxide of iron | 1.36 | | |
| Aluminum | 1.39 | | |
| Magnesia carb. phos. | 7.17 | | |
| Insoluble | 0.85 | | |
| | 100. | | |
| Tribasic phosphate of lime..... | 79.81 | 79.31 | 80.43 |

Early in this century the marl beds of New Jersey were worked and used for fertilization. This led to the discovery of similar deposits in South Carolina. One Lardue Venaxen, who made the first geological survey in 1826, discovered same, but no work was done until 1842, when Edward Ruffin of Virginia confirmed the reports of previous explorers.

First carbonate of lime only was evolved; 20 per cent up to 90 per cent, but later from 2 per cent to 9 per cent of phosphate of lime was found by Dr. C. W. Sheppard and J. Lawrence Smith, Esq.

During the war, nodules and strata of rock phosphate were found by Dr. N. A. Pratt near Ashley River.

It was not until April 14, 1868, that any systematic production of phosphate was accomplished in South Carolina, when the first cargo was shipped from Charleston and the arrival of same created a veritable epidemic of phosphate fever in New York, Boston, Philadelphia and other cities.

ANALYSIS.

Mean of many hundreds of samples.

| | |
|---------------------------|--------------------------------------|
| *Phosphoric acid | from 25.0 per cent to 28.00 per cent |
| !Carbon acid | from 2.50 per cent to 5.00 per cent |
| Sulphuric acid | from 0.50 per cent to 2.00 per cent |
| Lime | from 35.00 per cent to 42. per cent |
| Magnesia .. | traces |
| Aluminum .. | traces |
| Sesqui oxide of iron..... | 1.00 to 4.00 per cent |
| Fluoride | 1.00 to 2.00 per cent |
| Sand and silica | 4.00 to 12.00 per cent |
| Organic matter and water. | |

*Equivalent to 55 to 61 per cent tribasic phosphate of lime.

!Equivalent to 5 to 11 per cent carbonate of lime.

In 8 per cent there was shipped from

| | |
|----------------------|--------------|
| Florida | 250,000 tons |
| North Carolina | 150,000 tons |
| South Carolina | 200,000 tons |
| Alabama .. | 125,000 tons |
| Virginia | 150,000 tons |
| Mississippi .. | 50,000 tons |
| Louisiana .. | 25,000 tons |
| Tennessee .. | 25,000 tons |
| | <hr/> |
| | 975,000 tons |

In Ontario there exists one area of from seventy-five to one hundred square miles, and another from fifteen to twenty-five miles wide, and 100 miles long of commercial phosphate.

It is found in many other places, but not proven.

Here it occurs in flint and has been worked by farmers in a desultory way, costing much and yielding little profit to the operators.

On the Lievre River, two and one-half miles from Highfall and twenty miles from Bushman, there was the famous Watt mine, where, from a cone-shaped mountain, a vast amount of pure apatite was mined, once called "Emerald." Quite a number of deposits have been worked in Canada, but not any with great profit.

ANALYSIS.

| | |
|-----------------------|---------|
| Phosphoric acid | 40.868 |
| Fluoride | 3.731 |
| Chloride .. | 0.428 |
| Carbonic acid | 0.105 |
| Lime .. | 48.475 |
| Calcium .. | 4.168 |
| Magnesia .. | 0.158 |
| Alumina .. | 0.835 |
| Sesqui oxide..... | 0.005 |
| Insoluble .. | 1.150 |
| | <hr/> |
| | 100.823 |

Tribasic=89.219

About the year 1880 a stratum of calcium phosphate was discovered near Mount Fairview, Tennessee. At first it was not believed to be of great extent, or good quality, but ere long both were abundantly proven, and a large quantity of high grade phosphates was mined.

But owing to the rush of producers in every direction, without any system or unity of action, the crazy competitors soon glutted the market, forcing the price down below cost of production.

Of recent years, a few big operators have gathered in most of the choice areas, and by introducing up-to-date methods, etc., have gradually brought the production down to a normal basis, and the price up to a profitable figure.

The volume of deposit in this region is very great, extending from about ten miles south of Mount Pleasant to the line of the Tennessee Central Railway and beyond, and a width of over fifty miles.

In and about Mount Pleasant the deposit lies under a very thin over-burden, often only the surface soil of ten feet thickness or width, a layer of from two to eight feet of white sandstone beneath this, the substratum of limestone being near the

surface, and of vast thickness. Also somewhat uneven or undulating, making depressions of twenty-five feet at times, which are in turn filled with the phosphate deposit.

As the topography becomes uneven the plains cease and foothills occur, the character of the over-burden changes and that of the phosphate likewise.

As an elevation of 600 feet above sea level is reached, and exceeded, the over-burden becomes of greater thickness, and chert or flint and some limestone and conglomerate overlie the phosphate.

In and about Mount Pleasant the deposit is mixed with sand and is soft and easily excavated from the surface, whereas in the higher altitude, the same becomes hard as stone and has to be excavated by tunneling under the chert, as drift mining is done.

The protection of this latter deposit from atmospheric action and percolating waters, both, or with the compression, renders the phosphate of higher class. Although the stratum is not so thick as out in the valley, it ranges from two to six feet. Two is a fair mean. Quite an extensive area of this deposit has been bought or leased by a Cincinnati company, which plans to develop same upon an intelligent modern plan and gradually upon a large scale.

At Mount Pleasant, Mr. John Ruhm, Jr., a college-bred man of rare intellect and great capacity, has devoted many years to a study and operation of his phosphate deposits, in the most scientific manner possible. He has kept in close touch with the most advanced men of the age, such as Prof. Hopkins of the State University of Illinois, who has given more time to the study and practice of fertilization than any man in the United States. Prof. Hopkins finds it necessary to reduce the phosphates to a 100-mesh fineness to enable him to obtain the best results, and Mr. Ruhm has for years been experimenting with the grinding machinery to discover the best and cheapest for this purpose. Only this year, in July, did he discover that the "Hardinge" tube-mill is, in all respects, the best machine tested. He got 90 per cent duty from over 200 tons a day at 100-mesh, and some of this over 200-mesh fineness; 100-mesh is possible, grinding the same either wet or dry.

I had the good fortune to witness these July tests and can confirm Mr. Ruhm's claims for his process, which he does not selfishly try to keep, but generously gives to all who ask information.

The Tennessee phosphates of commerce are not quite as high grade, and do not command as high a price as others, but this is entirely due to the careless preparation of same for market. So soon as Mr. Ruhm's plan is followed, the grade will be raised, and price follow to topmost.

ANALYSIS.

| | |
|---------------------------------|-------|
| Phosphoric acid | 35.33 |
| Lime | 52.08 |
| Oxide of iron | 1.36 |
| Aluminum | 1.39 |
| Magnesia and carbonic acid..... | 7.17 |
| Insoluble | 0.85 |

99.19

The above represents a mean of about thirty analyses of samples taken from over a 10,000-acre area, principally from exposed outcrop, hence a test of protected product would give larger percentages.

As the United States Geological Survey has not been extended over the area embracing a large part of these phosphate lands, one can only conjecture concerning their scope although it is safe to assume it to be very great.

I believe this crude treatment of this question will suffice to suggest two important facts:

First. That we have available in this country an abundant supply of phosphates to enable us to replenish the fertility of our soils at a reasonable cost.

Second. That this feature should be carefully studied by every farmer in the country, and the maximum result obtained from every acre tilled and every day's labor performed.

In addition to the deposits of phosphate in Idaho, Utah and Wyoming, which only need equal transportation facilities to introduce their product, we must have others, as yet undiscovered, because few laymen, and not all engineers, recognize the deposit when found, and it is not always discoverable without excavation where it does exist.

"A little farm well tilled" can be made to produce more abundantly, more

profitably, than one larger and less effectively handled, hence no matter how rich and fertile nature may have made your farm, it is hardly possible that it may not be improved and reward you abundantly for it.

During the summer of 1911, I had the good fortune to be employed to examine an area of phosphate deposit some fifty miles above Mount Pleasant in Tennessee, and, in order to better understand the subject, first visited Mount Pleasant and vicinity to note conditions, progress, etc., hence my data relative to this section is fresh and new.

I know I am justified in asserting that there is a vast field for the exploitation of this valuable deposit in this region, with ample assurance of the development of a vast area that can be profitably worked.

One thing is certain, nowhere can the deposit be more fully determined, and nowhere be more economically worked, hence this region should become the most productive of any ere long.

Over an extensive area there is spread out a layer or blanket of this phosphate rock, lying under a huge mass of chert or flint rock and resting on a bed of shale or slate, which in turn rests upon a vast bed of limestone several hundred feet deep.

The phosphate seam is from six inches to four feet in thickness and lies about 600 feet above sea level and about 150 feet above the valleys that cut through it, so that tunnels can readily be run in under the seam at any desired place, and the phosphate be stoped out *ad libitum*.

Only a very small portion of the country has been surveyed by the United States Geological Survey, hence but little is known of its contents and characteristics.

But my investigations prove that a very large area contains this deposit, extending for many miles east and west and north and south from Boma on the Tennessee Central as a center.

It is therefore quite certain that there is no dearth of this commodity, and there is not likely to be for many years to come, as other deposits are likely to be discovered as the known ones are exhausted.

Now! the moral of the foregoing: We have available at reasonable cost the elements to reënrich our soil. Hence, our farmers should first cultivate their minds, that they may be able to discover in what elements their soil is defective, or what is wanting, to enable them to get best results. A very liberal education should be obtained, if possible, for in no walk of life is a greater scope of knowledge required and profitable to a farmer. Then, the farmers should unite all over the country to endeavor to elevate and ennoble labor and the laborers, which can be done only by example, by acts and deeds, not by preaching.

Every honor, reward and benefit of every character should be open to and be given the farmer and artisan laborer, and, in the degree that each deserves credit for work well done, the reward should follow.

Why not offer prizes for workers? Why not fill all of our executive and administrative government bodies with the best farmers, business men, carpenters, etc., instead of lawyers? Just think of it. Everyone knows lawyers are proverbially poor business men. Yet our Nation, states, counties and cities all are governed principally by men who privately are considered as inferior business men.

By compelling the lawyers by some labor, some successful work, to first prove their business ability and capacity, and making labor—work—the honest, real basis for the elevation of men and women to places of trust and profit, and by this course only can labor be exalted and every child in the land be led to look with pride and pleasure upon the laborers, who are the true bone and sinew of the world.

Preaching that "labor is ennobling," then bestowing honor and benefits upon those who never have cheerfully done a day's hard work will not exalt the laborer.

Let us get back to the farm and honor the farmer, that our days may be long in the land that the Lord has given us, and let the laborer be truly ennobled.

If farmers "were the founders of civilization," as Mr. Webster states, then are they also the main pillars supporting the same, and should be looked up to, be honored and rewarded as such. And far above any lawyer, merchant or millionaire, we can trust our workingmen and women. Let us try it at once, one and all of us.

ADDRESS.

By E. G. GRIGGS

President of the National Lumbermen's Manufacturing Association

It was my pleasure to attend the Second Annual Conservation Congress a year ago in St. Paul. That I am here today representing a lumber producing delegation would intimate that my interest in these proceedings is at least perennial. I deplored the introduction of politics and regretted the delay in publication of the excellent reports submitted with leave to print at the Congress. Just recently I have read the many excellent technical reports, the discussion of which I deemed of more importance to the upbuilding of the conservation movement than the political outbursts that rankle in our breasts and tend to array class against class. Conservation is education, and we all have something to learn. The experience of the older and great states of this Union should profit the younger and perhaps greater.

As a lumberman, conservation to me is not a theory. It is the proper utilization of a great heritage and the elimination of waste in the process of manufacturing and logging. What theory is more vital commercially to the lumberman than that? The establishment of values will determine to what extent conservation will be practiced and reforestation followed. When men devoted to the general welfare of these United States are giving liberally of their time and money and energy to protect the vast resources of this country from wasteful extravagance. I feel it is little enough to expect those who are actively engaged in commercial enterprises to second their efforts.

The importance of sane laws and wise legislation must be apparent to all of us. Unless the business interests of the country heed the call and guide the effort, an outraged public will some day awaken to its lost opportunities.

As an official of the National Lumber Manufacturers' Association, I feel that we, as lumbermen, are vitally interested in the proceedings of this Congress. I come to you from a state that stands in the front rank as a lumber producer—a citizenship interested from its lowliest to its highest in the proper utilization of its wonderful forest growth. It is true that there is a divergence of opinion among some of our Washington state officials as to state and federal control—but to me, the important issue seems a national one. The value of our timber resources is determined altogether by the demand existing outside our own states. If conservation depends on values, then I say the price you in the Middle West must pay for lumber has a great deal to do with reforestation and utilization of our raw product. It is therefore entirely a national issue, and the question of supply and demand, that inexorable commercial law, concerns us all.

I am a strong believer in the knowledge of conditions and in the benefits of cooperation. The final outcome of the reciprocity pact, conceived, as it was, in secret, emphasizes the fact that our Canadian brethren intend to adopt a conservative policy of their own. As a lumberman, I have never agreed with our honored President in the belief that the trade was a good one for us. To a man not concerned in politics, it seemed that our Canadian traders out-traded the Yankee. Why the argument for a permanent tariff commission, non-partisan and thoroughly competent, should apply on wool, cotton, steel and not on lumber, hardly appeals to me. Now that we know where we stand, is it not high time the tariff issues be studied as in foreign countries, particularly Germany, by a body of experts permanently engaged, that Congress hear and discuss officially its report and that facts be placed before the people? I am democratic enough to still believe in the great American people.

No industry not unduly protected need fear the light or a business upheaval. Today a presidential year causes stagnation in business, either assumed or real. Our country never will settle the tariff issue right until business integrity governs. The revelation in accumulated wealth and control of millions can only be justified if our country prospers. Neither should the people be taxed to accumulate swollen fortunes. The prices at which the same commodities are sold to the people of different nations ought to determine the tariff issue. America is for Americans; let us develop our latent resources, not squander our heritage with prodigality. Golden opportunities or luxurious surroundings do not warrant idleness, but rather a higher sense of individual and national responsibilities. To get the best out of that which we have should concern us all.

Our taxation problems, the methods which have prevailed so long, do not encourage timber holding. Lumbermen have one crop and yearly taxes, while the farmer has yearly taxes and annual crops. A timber investment of \$5,000, say at \$1.50 per thousand, with taxes and interest compounded, in twenty years will

equal \$7.50 per thousand, allowing no profit at all, nor considering the fire risk. In President Taft's address a year ago, he says that "States must legislate to protect their individual holdings from waste and private greed." Had the Reciprocity Agreement become a law, the Nation would have been responsible for an increased competition and uncalled for development of timber resources in no way beneficial to the United States, except those speculators who have invested in British Columbia timber. The development of Canadian timber holdings will not save our trees as long as growing trees are taxed, capital invested and timber is sold on time contracts. The more competition, the more will be left in the woods, as only in the higher grades will there be profit. Lumber is constantly rising in value because of its increasing inaccessibility and the distance it has to travel to market.

Why deprive our great lumber producing states of the great purchasing power resulting from the manufacture of this resource? Over three-quarters of the cost at the mill of one thousand feet of lumber represents pay-roll, and to the Western states this means outside capital. Of the money received for 1,000 feet of 2x4's delivered on a fifty-cent rate of freight today, the railroad takes \$13.00 freight money, leaving \$7.00 to pay for logging, manufacturing, selling and stumpage. What your retailers charge I do not know. As manufacturers, we have no trust controlled product and do not control the price to the consumer. Suffice it to say that there is little or no margin in the price of common lumber today to the manufacturer. A comparison of the selling prices at home and abroad, with due regard for grades furnished, should determine the existence of a lumber trust, and the same reasoning applies conversely to steel and other industries. Harassed as the industry has been by government proceedings and investigation of alleged trust and monopoly, we feel that a great injustice is being done that should be righted. If the marketing through retailers is not legal, I predict a commercial upheaval is due in all lines of industry.

Reforestation will come when it is profitable—when the land is more suitable to grow trees on than to sow annual crops or build cities. The methods followed in the East will not apply to the South and West. The character of the timber must be studied to determine how it can be profitably handled. Its proximity to market, and the rail and water haul are to be considered. This was emphasized in the Congress last year and is more apparent today, as the completion of the Panama Canal approaches. It was stated that adequate and economical transportation facilities are viewed among the means of conservation, and realizing that the growth of the country has exceeded its transportation facilities, I trust a comprehensive resolution will be adopted by this Congress regarding the Panama Canal tolls. With our coastwise shipping laws and regulations governing shipments from one American port to another, the benefits of this canal will be seriously menaced unless Congress acts intelligently in the matter, and with due regard to the development of our country. If we are to have tariff revision or free trade, let us at least be consistent and give to our own manufacturers access to ships on a competitive basis.

In my judgment, it will not do to merely resolute and spread high sounding, well-meaning platitudes on the records; we should organize to actively acquaint our citizenship throughout the states with the prevailing conditions and the benefits to be derived through experience of others and knowledge of conditions. Educate the people, and a great public sentiment will demand improved conditions. The efforts of conservationists are often misjudged because considered impractical. I say eliminate the visionary and theoretical, get down to the practical and immediate remedies. We will have a movement so widespread and effective that the Nation will rejoice and problems undreamed of now will be solved by an enlightened, unprejudiced public.

We should encourage men and money in the development of our resources, but by wise supervision control their operations. This government is bigger than any of its component parts, and not only have railroads and corporations felt its guiding hand to their betterment, but the court of final resort must always and forever be the people of this, our native land.

Let us strive for the highest type of citizenship which demands the best that is in us, and we will play our part in the ascendancy of the star of the greatest of empires—the American Republic.

INCREASING THE YIELD BY PROPER CULTIVATION OF THE SOIL

BY A. M. TEN EYCK

Professor of Farm Management Kansas State Agricultural College and Superintendent Fort Hays Branch Experiment Station.

How to increase the acre yield of staple crops is the important problem which the American farmer must solve in order that the world may not go hungry, and also that his own prosperity may continue. The average crop yields in this country are too low. It is possible to double our acre-yields of staple crops by adopting better farming methods.

There are three principal factors which have to do with increasing crop yields: (1) increasing the productive power of the land by fertilizing the soil; (2) planting seed of high-bred and better producing varieties; (3) practicing proper and more thorough cultivation of the soil.

The work in testing varieties and breeding crops at the Kansas Experiment Station has shown that it is possible to increase the average yield of the standard crops in this state twenty-five per cent by the single factor of introducing and planting pure seed of well-bred and high producing varieties. To illustrate,* one of the improved varieties of winter wheat grown on the Kansas Agricultural College farm actually produced twelve and one-half bushels more grain per acre each year, or a net profit of nearly \$7.00 per acre per annum, as an average for three years, above that produced by common scrub wheat of the same type. Farmers all over the state who have planted this improved wheat have reported similar results, the increase in yield from the well-bred wheat being often much larger than the differences secured at the station. It is hard to believe that one variety of wheat, improved by breeding and selection, will outyield another strain of the same variety, which has not been improved, as much as fifty per cent; but a large number of reports from reliable Kansas farmers indicate that this has occurred, when the two strains of wheat were grown in the same field side by side.

Corn is more susceptible to soil and climatic changes than wheat, so that the well-bred seed does not always give the best results from the first year's planting; but breeding will tell in the corn crop, as shown by experiments at the Kansas Station.*** in which the "high-yielding-row, seed has produced from ten to twenty per cent larger yields per acre, and twenty-five to thirty-five per cent more good seed ears than the average corn from which the improved strain was originated.

The possibilities along this line of increasing the yield of corn by the planting of better seed are shown by the reports which have been received from Kansas farmers, reporting sixty and eighty-bushel yields where the average for the county was twenty or thirty bushels.

The soil of our western states is abundantly fertile; but mismanagement and continuous cropping with corn and wheat have reduced its productive power. It is possible by the proper use of barnyard manure to double the yield of corn and increase the yield of wheat thirty-three per cent, as shown by the results of the experiments at the Station. A single experiment in manuring wheat land previous to planting to alfalfa increased the wheat yield thirty-three per cent, and doubled the crops of alfalfa for the first two years after seeding, making a total increase in the returns per acre of nearly \$45.00 for the three years, or \$15.00 net increase per annum.**

It is possible by a proper rotation of crops, including alfalfa, clover and grasses, to double the productive capacity of thousands of acres of our western corn and wheat lands. This is shown by the experiments at the Kansas Station, and by the reports of farmers. In 1906, a careful investigation of the corn yields of Jewell County, Kansas, made by Hon. J. W. Berrv, formerly a member of the board of regents of the Kansas State Agricultural College, showed that the average yield from land previously in alfalfa was over eighty bushels per acre, while similar land on the same farm and adjoining farms, which had not been in alfalfa, yielded less than sixty bushels per acre on the average, and the average yield of corn in Jewell County for that year was less than thirty bushels per acre.

It has been shown by the experiments carried on for the last six years at the Station that it is possible to increase the yield of corn ten per cent simply by practicing better methods of preparing the seed-bed. When corn has been planted with the lister, winter or early spring plowing or listing of the ground

* See Kansas Experiment Station Bulletin 144.

***See Bulletin 147.

**See Kansas Experiment Bulletin 155.

previous to the planting has given an increase in crop as an average for six years, amounting to six bushels of corn per acre each year, as compared with ground which received no cultivation previous to planting.

Different methods of cultivation of corn, deep or shallow, etc., have not affected the yield so much as different methods of preparing the seed-bed, except where the cultivation of the corn was neglected. The lack of sufficient cultivation means greatly reduced yields or crop failure.

It is possible to increase the wheat yield of Kansas fifty per cent by practicing better methods of seed-bed preparation. As an average for two years' trials, 1908 and 1909, at the Station the yield of wheat due to preparation of seed-bed alone varied from 21.6 to 37.4 bushels per acre, an increase of seventy-three per cent in yield due to the better preparation of the seed-bed.*

In 1911, one of the driest years which Kansas has ever experienced, this experiment was repeated with remarkable results. The most poorly prepared seed-bed (ground disked, not plowed) yielded a little over four bushels of wheat per acre, while the largest yield was thirty-eight bushels per acre from early deep plowing, which received frequent cultivation after plowing until seeding time. Ordinary loose ground, plowed late, yielded fourteen bushels per acre, while ground cultivated early with the lister plow and leveled with the disk harrow gave thirty-five bushels per acre. The better methods of seed-bed preparation employed in these experiments are such as may be successfully practiced throughout the Western winter wheat belt.

Of the three factors concerned with increasing the acre-yields, the last named, "Practicing Proper and More Thorough Cultivation of the Soil," is the simplest and most readily applied. Probably more low yields and crop failures are due to insufficient or improper cultivation than to any other single factor over which the farmer has control in the production of any particular crop. With a soil of average fertility, the preparation of the seed-bed by the proper tillage and cultivation methods very largely determines the yield of the crop.

There are four important objects to be accomplished by cultivating the soil:

1. To secure a proper physical condition of the soil favorable to sprouting seed and promoting plant growth.
2. To kill weeds.
3. To conserve soil moisture.
4. To develop or prepare plant food.

The texture of the soil is nearly always more important than mere richness. Many "worn" lands have simply been robbed of their organic matter, often still containing an abundant supply of the mineral elements of plant food. Others have been injured in texture and hence in productiveness by careless or faulty management.

The maintenance and improvement of soil texture are more dependent upon plowing than upon any other operation of tillage. A finely divided, mellow soil is more productive than a hard lumpy one of the same chemical composition, because it affords greater feeding ground and more favorable environment for the plant roots; absorbs and retains more moisture, has better aeration, and less variable extremes of temperature. Also, because it promotes nitrification and the development of available plant food by giving favorable conditions for the development of soil bacteria, and for the decomposition and solution of the soil minerals. In all these ways and others, "mellowness" renders plant food more available and affords a more congenial, comfortable place in which the plants may grow.

Plowing, especially in the spring, tends to ventilate, warm and dry the seed-bed, and if properly done, lessens evaporation from the deeper soil by the development of a soil mulch above it.

Deep plowing brings up new stores of inert plant food, enlarges the moisture reservoir, deepens the seed-bed, gives more root room and more material for the soil bacteria to work over into available plant food. Deep plowing or subsoiling also serves to break up the plant food, to break up the "furrow-sole" or "hard-pan," thus loosening up compact, impervious, clayey subsoils.

Plowing is an efficient means of destroying weeds and many kinds of injurious insects which prey on farm crops. Hard, clayey or "gumbo" soils are mellowed by late fall or winter plowing, and further, proper and timely plowing is the most efficient and practical means of preparing a suitable seed-bed for nearly all farm crops. Too many farmers who have allowed their land to become deficient in fertility seek to restore its productivity by application of expensive commercial fertilizers, without first putting it in good tilth. This is a great mistake. The way to treat such land is to "plow" it well, and work up a physical condition suitable for the best growth of crops. After all this is done, the application of concentrated commercial fertilizers may give profitable returns.

In order to secure the ideal condition for seed germination and plant growth,

*See Kansas Experiment Station Circular, 2.

a seed-bed for planting small seeds should not be too deep and loose; rather the soil should be mellow, but well pulverized only about as deep as the seed is planted. Below the depth at which the seed is planted it should be firm and well settled, making a good connection with the subsoil, so that the water stored therein may be drawn up into the surface.

The firm soil below the seed, well connected with the subsoil, supplies the moisture to the seed, while the mellow soil above it allows sufficient circulation of air to supply oxygen and favors warming by gathering the heat of the sunshine during the day and acting as a blanket to conserve the soil heat, maintaining a more uniform temperature during the night.

The mellow soil above the seed conserves the moisture, acting as a mulch to keep the water from reaching the surface, where it would be rapidly lost by evaporation. The same condition favors the upward growth of the young shoots into the air and sunshine.

The loose, deep seed-bed is almost wholly dependent upon rains for sufficient moisture to germinate the seed and start the young plant. If the crop starts, it is very apt to be injured by short periods of dry weather, because of the rapid drying out of the loose surface soil. In such a seed-bed the crop is more apt to "burn out" in the summer, or "freeze out" in winter, than a crop grown in the "ideal" seed-bed described above.

It should not be inferred from this description of the "ideal" seed-bed that the soil should not be plowed deeply; rather, deep plowing should be encouraged, but timely, so that the soil may settle and fill with moisture, and such cultivation should be given after plowing, so as to secure a favorable physical condition of the seed-bed.

So far as cultivation is concerned there are three principal steps in the conservation of soil moisture:

1. The soil must be loosened to a considerable depth in order to prepare a reservoir to receive the rain and carry the water downward. This may be accomplished by deep plowing, by listing, or by disking unplowed lands.

2. The water which is carried down into the subsoil must be brought back again into the surface where the seed is germinating and the young roots are growing, and to accomplish this a good connection must be made between the furrow-slice and the subsoil, and this is the purpose in the use of the sub-surface packer immediately after plowing.

3. Finally, in order that the water which is drawn up again towards the surface may not reach the air and be wasted by evaporation, the upper two or three inches of the soil must be kept mellow in the form of a soil mulch, and this is accomplished in the growing of crops, by frequent cultivation, which is not so practicable with wheat, and other small grains, as with corn and other intertilled crops.

The most important step in soil moisture conservation is to get the water into the soil. When this has been accomplished, the keeping it there and returning it gradually to the growing crop is a relatively simple matter. Many farmers have yet failed to learn this most important fact of dry farming, that the storing of the moisture is the first and great principle of soil moisture conservation. The firming and pulverizing to prepare the seed-bed, and the surface cultivation to maintain the mulch, are each without avail unless there has been stored in the deeper soil a sufficient amount of moisture to support the growing crop in time of drouth.

Now the moisture should be stored at all times during the season, but especially during the interval between harvest and planting. This requires early plowing so that the soil may be in condition to catch the rain and absorb it.

In order that there may be room to receive and store a heavy rain, deep plowing is desirable. If plowing can not be done early, the cultivation of the unplowed land with a disk harrow will keep the soil in good condition longer and favors the absorption of rain.

A good rule, but it cannot always be followed, is to plow when the soil is in such condition that it will drop from the mold-board in a mellow, friable condition.

Loosening the soil by deep plowing favors the absorption of moisture, but if rains do not come in time such land will suffer from drought more quickly than though it had been plowed shallow.

The loose soil dries out and capillarity is broken, preventing the furrow-slice from receiving moisture from the subsoil rapidly enough to sustain the growing crop. The depth and frequency of plowing should vary according to the nature of the soil. A light or sandy soil requires less depth of plowing and less frequent plowing than a heavy, or compact clayey or "gumbo" soil.

As a general proposition, plowing should be shallow when it precedes planting only a short time.

Plow deep in the fall, and plow deep for summer fallow.

A long interval between plowing and seeding allows the soil to settle sufficiently, while freezing and thawing mellow the raw, hard subsoil which has been brought to the surface.

The relative depths of plowing may be stated as follows:

| | |
|----------------------|----------------|
| Shallow plowing..... | 3 to 4 inches. |
| Medium plowing..... | 5 to 6 inches. |
| Deep plowing..... | 7 to 8 inches. |

Plowing deeper than eight inches with the common plow is not usually practicable, but the soil may be stirred twelve to eighteen inches deep with a tillage plow or subsoil plow, and in heavy soil with hard, compact subsoil, such deep stirring may occasionally be desirable.

When land is allowed to lie for a considerable period after plowing before the crop is planted, the settling of the soil, together with the surface cultivation to preserve the mulch and the cementing due to rain, usually causes it to repack and firm up to a sufficient extent to make a good seed-bed.

The use of the packer is most essential on late spring plowing, when the purpose is to plant at once. It is not so necessary to use the subsurface packer on fall plowing which is not intended to be planted until the following spring, but for sowing fall wheat, if the plowing precedes the sowing by a very short interval, the subsurface packer may be used very advantageously.

The principle involved in the use of the subsurface packer is correct, and the lighter the soil and the greater its tendency to remain loose and mellow the more necessary becomes the use of the sub-surface packer or similar implement, in order to prepare a proper seed-bed.

In plowing under trash or manure, subsurface packing, by pulverizing the bottom of the furrow-slice, sifts the soil through the coarse trash and causes a better union with the subsoil below, so that the capillary water may be drawn up into the surface, whereas, if a heavy coat of stubble or manure plowed under in this way is left without packing or pulverizing, the furrow-slice is apt to dry out and the crop that is growing on the land may be injured by a short interval of dry weather.

By setting the disks rather straight and weighting the harrow, a disc-harrow may be used as a substitute for the subsurface packer, resulting in a pulverizing and firming effect at the bottom of the furrow-slice. Very often, however, early plowing, with the proper use of the common harrow, may largely accomplish the results required in preparing a proper seed-bed. It is usually advisable to weight or ride the common straight-tooth harrow in order to cause it to stir and pulverize the soil deeper and prevent the "slicking" effect which is apt to result from light harrowing.

The cultivation necessary, after early plowing, to destroy weeds, in the experience of the writer, has usually been sufficient to settle and pulverize the seed-bed. For the early cultivation after a good rain and after the weeds have started, there is no implement superior to the disk harrow. The double disk which gives two cultivations and leaves the ground level, being preferred. For late cultivation the common harrow or the Acme harrow should be used with the purpose of not loosening the ground too deeply just previous to planting or seeding.

It is very essential that sufficient and proper cultivation be given to destroy weeds. This is more important than to maintain a soil mulch, since weeds exhaust both the soil moisture and the available plant food. If a proper mulch is maintained, however, the weeds will be kept in subjection. In the ideal system of culture the purpose is to keep a mellow soil mulch on the surface of the land all of the time, not only during the growing of the crop, but also in the interval between harvest and seeding time. Thus, after the corn is planted the land is cultivated with the weeder or harrow in order to break the surface crust and prevent the loss of moisture, and following out the same principle the harrowing or work with the weeder is continued after the grain or corn is up, and during the growing period frequent cultivation is required for intertilled crops.

Again, after the crop is harvested, the cultivation is continued; the land is plowed at once or listed, or the surface of the soil is loosened with the disk harrow, and thus the land is kept continually in a condition to not only prevent the loss of water already stored in the soil, but also this same condition and mellow surface favors the absorption of rain and largely prevents the loss of water by surface drainage.

The smooth, finely-pulverized surface left by continuous light harrowing really defeats the purpose of the cultivation, since soil in such condition will shed heavy rains, causing a waste of water which should have been stored, and the surface often becomes too fine and compact, preventing the proper aeration, and

producing an unfavorable seed-bed condition. Thus during the interval between crops, it is often advisable to use the Acme harrow or the disk, or spring-tooth harrow, in order to keep the surface of the soil open and mellow.

A new method for preparing the seed-bed is now coming into general practice in Western Kansas. In preparing land for wheat, the plan is to list the ground with the ordinary corn lister as soon after harvest as possible. The lister furrows are run about three to three and a half feet apart, very much the same as when the lister is used for planting corn. Later, when the weeds have started, the soil is worked back into the lister furrows by means of a harrow or disk cultivator.

Several cultivations are usually required by the harrow, and disk harrow, in order to level the field and bring it into good seed-bed condition. Once over with the disk cultivator is usually considered sufficient, the further work necessary to prepare the seed-bed being given with the common harrow or other cultivating implement.

In a dry climate this method of preparing the seed-bed has several advantages, as follows:

The cultivation of the land soon after harvest tends to conserve the moisture already stored in the soil. The furrowed land is in good condition to catch and store the rain and the later cultivation clears the land of weeds and volunteer wheat and leaves a mellow soil mulch to conserve the moisture which has been stored in the subsoil. The early and continued cultivation of the soil favors the action of the bacteria and the development of available plant food.

By practicing this method the farmer may cultivate a larger area early in the season when the soil is in good condition, when if it had been necessary to plow the whole area, some of the land might become too dry to plow well. Likewise the later plowing leaves the soil too loose and not in good seed-bed condition. In preparing land for corn, the listing may be done late in the fall or during the winter, or early spring. The usual plan being to split the ridges with the lister later in the spring when the corn is planted. It is advisable to harrow the listed field once or twice before planting to destroy weeds, or prevent soil drifting and to preserve a mellow soil mulch to conserve the water which has been stored in the subsoil. In preparing land for corn, the early listing has proved equal to early plowing and superior to early disking, as shown by the experiments at the Kansas Station.

In the drier portions of the great plains area and throughout the mountain states, where dry farming is practiced, the annual rainfall is not sufficient to produce a crop every year, and it becomes necessary to practice a system of summer fallowing every third or fourth season, or in alternate years in localities of least rainfall, in order to store moisture and develop plant food and thus insure the production of a profitable crop each year.

Deep plowing either in the fall or spring, and frequent surface cultivation as described above is the method of summer fallowing which has given the best results at the Montana, Western Nebraska, and Western Kansas Experiment Stations.

The weeder is better adapted for harrowing wheat and other small grains than the common harrow, but the harrow may be used when the ground is firm. I question whether it is necessary or advisable as a rule to harrow wheat if due precautions have been taken in preparing the seed-bed.

Under certain conditions, where heavy rains firm and puddle the soil, it may be advisable to harrow, but very young grain may be injured by harrowing, and after the wheat covers the ground, harrowing is unnecessary. The harrowing of wheat at regular intervals at the Kansas, Nebraska and Montana Experiment Stations has not resulted favorably. Without question, the proper preparation of seed-bed is a much more important factor in the growing of small grains, than the cultivation after seeding.

While it is a disputed point among authorities whether it pays to harrow wheat and other sowed crops, there is no difference of opinion regarding the necessity or value of frequent cultivation of corn and of all other crops usually planted in rows. Regarding the depth and frequency of cultivation desirable, I favor rather deep cultivation in our drier, hotter climate, and after every hard rain, if possible, or at least sufficient to keep the weeds in check.

It is not necessary or practicable to attempt to cultivate after every rain and there is no virtue in the admonition "Keep the Cultivator going in a dry time." If the soil has been well stirred and the mulch is of sufficient depth, to cultivate again would be loss of time and might do actual harm by drying out the deeper portions of the soil mulch and also causing a too fine and dusty condition of the surface soil, unfavorable to the absorption of moisture when the rain comes.

It is not necessary to have extra machinery in order to successfully practice the system of culture outlined above. The only implements required or recommended which are not in general use on every well equipped farm, are the sub-surface packer and the weeder.

The principles stated above have been known and practiced more or less for a long time and are mostly included in the "Campbell" system of culture. H. W. Campbell was among the early apostles of dry farming in the West, and has perhaps done more to call the attention of western farmers to the necessity and advantages of thorough cultivation of the soil than any other investigator.

Scientific farming pays, everywhere. I believe in the practicability of thorough tillage and good cultivation on every farm, and the increase in crops by such farming will more than pay for the extra labor. But the great problem in Western agriculture today is not how to get larger crops out of the soil for a few years, but rather how to produce paying crops every year and at the same time maintain the fertility and productiveness of the land.

Simple tillage will not maintain soil fertility. It becomes necessary finally to replace the plant food, exhausted by the continuous growing of crops, with the application of manure, or chemical fertilizers, and by green manuring and the rotation of crops, in which the legume crops, such as alfalfa and clover are introduced in order to restore again the nitrogen and organic matter, the supply of which has only become more rapidly reduced because of intensive cultivation.

There is little question regarding the value and even the necessity of the summer fallow in the drier areas of the West. The tests at a number of Western stations and the general experience of farmers prove this; yet there are serious objections to the continued practice of bare summer fallowing.

First, there is the tendency for the soil to waste by drifting in strong winds and by washing away in heavy rains.

Second, summer fallowing with frequent cultivation hastens nitrification and decay, thus more rapidly exhausting the organic matter in the soil.

It is possible for the soil to become more rapidly exhausted in fertility by alternate bare summer fallowing and cropping than by continuous cropping. At least the bare summer fallow does not add any fertility to the soil. In order to maintain the productivity of our Western lands, it will become necessary to add fertility to the soil preferably during the year of fallowing.

I am beginning the practice of a method of green manuring and partial summer fallowing, which I believe to be superior to bare summer fallowing and which will largely overcome the objections to summer fallowing.

The plan is to plant some fall crop or early spring crop and plow it under late in May or early in June, practicing a summer fallow with surface cultivation for the rest of the season, until seeding time.

Certain crops adapted to the West are being tested for this purpose with some degree of success. The more promising are sweet clover and sand vetch for fall seeding and field peas for early spring seeding. These crops are hardy, rapid growers, and somewhat drouth resistant and may be used also in part for pasture, thus giving some return other than their fertilizing value. Some experiments have already been made at the Hays Station in Western Kansas and the yields of wheat secured from the green-manuring summer fallow compare favorably with the yields from the bare summer fallow. And in my judgment, this method of fallowing will soon be generally adopted and will solve the problem for a long time at least, of increasing the organic matter and maintaining the productiveness of our western lands.

This method of green manuring and rotation of crops will largely prevent soil drifting, the control of which is a very serious problem in western agriculture. Our experience at the Station at Hays has demonstrated also that large areas in wheat may be protected and largely prevented from being injured by the drifting of soil within the field itself. The spreading of straw or coarse manure and packing the straw into the soil with the subsurface packer was the most effective means employed for protecting the fields from injury by winds last spring (1911). The subsurface packing alone helped to prevent the starting of the drifting soil within the field, but was not very effective in preventing the soil from adjacent fields from sweeping over the wheat field, but the straw covered area actually stopped the drifting soil, causing it to lodge, and thus protected the field beyond the straw barrier.

It is quite as necessary, however, to prevent the drifting of adjacent fields, as to protect the wheat field itself. This may be done by early listing or disking of the fall plowed fields and corn or kaffir stubble fields which are almost sure to drift in a violent wind, when the soil is very dry at the surface. Disking or other surface cultivation will prevent drifting of soil for a time, until the looser portion dries out, then the soil can only be held by deeper cultivation as by listing

or plowing. For putting the surface in the best condition to resist wind force a long time, I prefer to break the ground with a lister, forming deeper furrows and higher ridges than may be prepared with the disk or cultivator.

During the season of 1911, which has been extremely dry and hot, the wheat on summer fallow at the Station at Hays made a larger growth and a much better showing in the early part of the season than other wheat, but before the crop matured the conditions of drouth and heat became so severe that the wheat was greatly injured, and the summer fallow produced a little larger yield but a poorer quality of grain than was secured from other land not summer fallowed.

The yields compare approximately as follows: Summer fallowed, five bushels per acre. Not summer fallowed, two bushels per acre. In other localities in Western Kansas where the rain was greater and the condition less severe, the summer fallow made a better showing.

It was also true last season, at the Western Kansas Station, that the extra cultivation in preparing the seed-bed was without beneficial effect, in producing a larger yield of wheat. However, in ordinary seasons the reverse has usually been true; summer fallow has given much larger yields than continuous cropping, and early plowing and extra cultivation have usually given a marked increase in yield in the comparative tests which have been carried on at the Experiment Stations, both at Manhattan in Eastern Kansas and also at Hays in the western third of the state. At the Manhattan Station the careful preparation of the seed-bed was very effective in increasing the yield of wheat in 1911, even doubling and trebling the crop. The results of much of this work are summarized in the succeeding pages.

Three general methods of tillage for preparing the land for winter wheat are practiced in this state, namely: plowing, listing and disking. There may be variations of these three methods; as early plowing, shallow plowing, deep plowing, single listing, double listing, disking without plowing, disking before plowing, little cultivation after plowing, frequent cultivation after plowing, etc., and local conditions may determine which method is the best. That certain methods are superior to others may be readily shown by comparative trials which have been carried on at the Kansas Station during the past two years. These experiments include the several general methods of tillage named above with variations as described in Table I, which gives the yield of wheat per acre and other data determined by those experiments. This work was done at the State Experiment Station at Manhattan, located in the middle eastern part of the state.

TABLE I.—METHODS OF PREPARING SEED-BED FOR WHEAT.†

| Methods of Preparation. | Yield per Acre, Bushels. | | | | Data for 1919-11 Crop Only. | | |
|--|--------------------------|------------|------------|-----------------------------|--------------------------------------|------------------------------------|---|
| | 1907-1908. | 1908-1909. | 1910-1911. | Average for Three Years. | Cost per Acre for Preparation. | Value of Crop at \$0.80 per bu. | Value of Crop Less Cost of Preparation. |
| Plowed Aug. 15, 7 inches deep..... | 34.74 | 40.12 | 27.74 | 34.20 | \$3.90 | \$22.19 | \$18.29 |
| Plowed July 15, 7 inches deep..... | 28.84 | 35.02 | 38.36 | 34.07 | 4.95 | 30.69 | 25.74 |
| Plowed Aug. 15, 7 inches deep; not worked until Sept. 15..... | 30.53 | 38.12 | 23.62 | 30.76 | 3.55 | 18.89 | 15.34 |
| Listed July 15, 7 inches deep; ridges split Aug. 15..... | 23.67 | 31.33 | 34.35 | 29.78 | 3.75 | 27.48 | 23.73 |
| Listed July 15, 7 inches deep; ridges harrowed..... | 20.02 | 32.17 | 35.07 | 29.09 | 3.70 | 28.05 | 24.35 |
| Plowed July 15, 3 inches deep..... | ---- | ---- | 33.45 | ---- | 4.45 | 26.77 | 22.32 |
| Disked July 15, plowed Aug. 15, 7 inches deep..... | ---- | ---- | 32.68 | ---- | 4.70 | 26.14 | 21.44 |
| Disked July 15, plowed Sept. 15, 7 inches deep..... | 20.11 | 30.56 | 23.57 | 24.75 | 4.35 | 18.85 | 14.50 |
| Plowed Sept. 15, 3 inches deep..... | 21.19 | 30.76 | 14.46 | 22.14 | 3.05 | 11.57 | 8.52 |
| Plowed Sept. 15, 7 inches deep..... | 19.50 | 27.98 | 15.79 | 21.12 | 3.55 | 12.63 | 9.08 |
| Disked at intervals until seeding; not plowed..... | 14.95 | 28.24 | 4.29 | 15.83 | 1.95 | 3.42 | 1.47 |

†See Kansas Experiment Station Circular No. 2 and Bulletin No. 176.

‡Disked only once just previous to sowing wheat.

Much of it was done by myself or under my direction during eight years of service as agronomist at that station.

Observe that the largest yields have been secured, as an average for the three years from July and August plowing seven inches deep. The July listing has ranked next to early plowing, but yielding on the average nearly five bushels less wheat per acre than early plowing, or a decrease in yield of 14 per cent. The decrease in yield from listing was less in the dry year of 1910-11.

All of the higher yielding plots were cultivated at intervals after plowing or listing with the harrow, disk or Acme. Thus the weeds were destroyed, the soil was well pulverized and well settled and put into excellent seed-bed condition by the first of October, when the wheat was planted.

One or two cultivations after August plowing, at an extra cost of thirty-five cents to fifty cents per acre, has given an average increase in the yield of wheat of three and a half bushels per acre. Land disked before plowing, July 15, and plowed August 15, 1910, gave an increase in yield of five bushels per acre in 1911.

Deep plowing in July, 1910, gave nearly five bushels more wheat per acre in 1911 than shallow plowing. As an average for the several seasons, the September shallow plowing has given a little larger yield than the deeper plowing.

The beneficial effect of early plowing and of frequent cultivation after plowing in preparing the seed-bed for fall wheat was most marked in the dry season of 1910-11, when plowing a month later each time decreased the yield at the rate of ten and one-half to twelve bushels per acre.

The preparation with the lister has proved to be a little less effective than early plowing, but has given better results than early disking followed by plowing a month later. Filling the furrows by harrowing, versus splitting the lister ridges and leveling with the harrow have given about equal results. The second listing is not necessary and makes the preparation somewhat more expensive. Preparing the seed-bed by listing and harrowing is cheaper than early plowing and frequent cultivation. The largest yield and largest net income, however, has been secured from early plowing followed by sufficient cultivation to kill weeds and maintain a mellow soil mulch.

Preparing the seed-bed by disking has given the lowest yields and least income. The disked land has produced on the average each year eighteen bushels less wheat per acre than early plowing. That is, the well prepared seed-bed has given 114 per cent the greater yield, or more than double the yield of the poorly prepared seed-bed, and at very little greater cost of preparation.

The next lowest yield was produced by late plowing, a week or two before the wheat was planted. The average decrease in yield from September plowing compared with July plowing was over twelve bushels per acre per annum, or early plowing increased the yield fifty-four per cent. In the drier seasons of 1910-11 the difference was greater, the early plowing producing more than double the yield received from the late plowing.

"Disking in" wheat in the dry season resulted in an almost complete crop failure, giving a small yield of only four bushels per acre; compared with thirty-eight bushels per acre produced by deep early plowing. This is certainly a marked example of the value of "proper" cultivation in preparing the seed-bed for wheat.

The seed-bed for corn should be deeper and more mellow than the seed-bed for wheat, and the early cultivation of the corn land previous to planting may cause a marked increase in yield, as shown by experiments which have been recently completed at the Kansas Station. These experiments relate to different methods of tillage which may be practiced during the winter or early spring in preparing the seed-bed for corn, and include deep and shallow plowing, double disking, and listing, namely, plowing land into ridges with a double mold-board plow or lister.

In these experiments corn has usually been planted in listed furrows, except that the surface and lister methods of planting have been compared each year on the plowed plots. Table II gives the yield of shelled corn per acre secured by the continued practice of the methods described, for a period of six years. The average yield for three years (1906-08) and for six years (1903-08) is also given.

TABLE II.—PREPARATION OF SEED-BED FOR CORN.

| Early Treatment. | Method of Planting. | Yield Per Acre in Bushels. | | | | | | Average | Average |
|--------------------------|-----------------------------|----------------------------|-------|-------|-------|-------|-------|---------------------------|---------------------------|
| | | 1903 | 1904 | 1905 | 1906 | 1907 | 1908 | 3 years, 1906- 1908 | 6 years, 1900- 1908 |
| Disked twice..... | Listed..... | 68.61 | 55.12 | 34.74 | 70.29 | 41.30 | 73.60 | 61.73 | 57.28 |
| Disked twice, harrowed. | Listed..... | 65.18 | 50.27 | 41.48 | 75.34 | 44.38 | 78.80 | 66.17 | 50.24 |
| Listed..... | Listed in old furrows..... | ---- | ---- | 44.00 | 80.10 | 49.81 | 70.40 | 66.77 | ---- |
| Listed..... | Listed breaking ridges..... | 74.28 | 52.37 | 40.40 | 82.29 | 45.31 | 74.00 | 67.20 | 61.44 |
| Untreated..... | Listed..... | 64.14 | 58.35 | 38.17 | 68.61 | 40.87 | 72.40 | 60.63 | 57.09 |
| Plowed shallow..... | Listed..... | 61.26 | 54.96 | 40.82 | 84.23 | 56.48 | 76.90 | 72.20 | 62.28 |
| Average of listed..... | ----- | 66.69 | 54.21 | 39.94 | 76.81 | 46.10 | 74.35 | 65.78 | 59.47 |
| Plowed shallow..... | Surface planted..... | ---- | ---- | 42.40 | 71.90 | 46.87 | 68.40 | 62.39 | ---- |
| Plowed deep..... | ----- | 73.74 | 70.95 | 41.66 | 81.89 | 51.28 | 75.40 | 69.46 | 65.79 |
| Av. of surface planted.. | ----- | 73.74 | 70.95 | 42.06 | 76.80 | 49.08 | 71.90 | 65.98 | 65.79 |

While the relative yields vary somewhat from year to year, it is very clear that the early plowing and early listing have given increased yields of corn, ranging from six to twelve bushels per acre for the three years, and four to five bushels per acre as an average for six years.

As an average for three years the double disking and harrowing early in the spring has given an increased yield of five and one-half bushels of corn per acre. It will be observed that in the above comparison all of the corn was planted in listed furrows.

Comparing the two methods of planting it appears that the highest yield for three years was produced by listing in the early shallow plowed land: The average yield for six years, however, was 3.3 bushels per acre in favor of the surface method of planting.

The results may be explained by the fact that the seasons of 1904 and 1905 were very wet, hence there was less necessity of conserving soil moisture, and the early cultivation gave little benefit, while the lister method of planting was placed at a disadvantage. The method of planting corn in listed furrows is adapted to dry climate and warm soil. Corn planted in the bottom of a furrow four to six inches deep develops a deeper root system than surface planted corn; hence listed corn is not readily injured by drouth. The effect on the root system is shown by the study of corn roots made at the Station.*

* See Bulletins 127 and 147.

It is quite evident that the best method of preparing the seed-bed for corn and the best method of planting corn will vary for different climatic and soil conditions. Yet it is very important that the farmer test these methods and determine which is the better for his particular conditions, since the method of seed-bed preparation and the method of planting may be very important factors in securing large yields.

In the cultivation experiments carried on at the Station during the past six years the practice has been to "lay the corn by" with a final cultivation about the first of July. In these experiments the plan has been to cultivate duplicate plots by four different methods, as follows: shallow; deep; deep early and shallow late; shallow early and deep late. The shallow cultivation has been performed with the knife or gopher type of cultivator, while for the deep cultivation, the six-shovel cultivator has been used.

The plan has been not to cultivate excessively deep but only medium deep, three to four inches. The depth of the surface cultivation has averaged one and one-half to two inches. The corn has usually been cultivated four times each season, and the practice has been to cultivate by the same method twice in succession those plots in which the method of cultivation was changed during the season, that is, certain plots were cultivated shallow at the first two cultivations and deep at the last two cultivations, and vice versa. The yield of shelled corn each year and the average yield for seven years, by the different methods of cultivation, are given in Table III.

TABLE III.—CULTIVATION EXPERIMENTS WITH CORN, 1903-1909.

| Method of Cultivating. | Yield of Corn Per Acre, Bushels. | | | | | | | Average 3 years, 1907- 1909 | Average 7 years, 1903- 1909 |
|---------------------------------|----------------------------------|-------|-------|-------|-------|-------|------|--------------------------------------|--------------------------------------|
| | 1903 | 1904 | 1905 | 1906 | 1907 | 1908 | 1909 | | |
| Shallow, 1 to 2 inches..... | 51.65 | 57.51 | 45.61 | 56.19 | 41.21 | 75.72 | 36.1 | 50.69 | 51.86 |
| Shallow, early; deep, late..... | 52.96 | 57.25 | 49.68 | 51.07 | 42.17 | 87.12 | 34.7 | 54.66 | 53.56 |
| Deep, 3 to 4 inches..... | 50.87 | 53.96 | 50.86 | 50.56 | 38.73 | 78.81 | 33.7 | 56.41 | 51.07 |
| Deep, early; shallow, late..... | 53.66 | 49.82 | 49.39 | 50.09 | 43.11 | 76.98 | 31.3 | 50.45 | 50.30 |
| Wrong time..... | --- | --- | --- | --- | --- | 79.7 | 44.1 | 61.9† | --- |
| Right time..... | --- | --- | --- | --- | --- | 82.9 | 51.2 | 67.0 | --- |

The average yield for the seven years favors the shallow-early-deep-late cultivation by a little over three bushels per acre per year, when compared with the deep-early-shallow-late cultivation, which gave the lowest average yield.

The variation in yield by the different methods of cultivation from year to year and the nearly uniform average yields for the long period of seven years, indicate that the method of cultivation practiced, whether shallow or deep, may not make much difference in the yield of the crop, provided the cultivation is done well and at the right time.

The factors heretofore described, which have to do with seed germination and plant growth, are largely controlled by cultivation. There are, perhaps, no exact rules or methods for cultivating corn, but a farmer observing the crop and soil conditions, and understanding the principles of soil cultivation, may vary the manner and practice of cultivation somewhat to suit the conditions and accomplish the objects desired.

It is very important to cultivate corn at the "right" time. An experiment which has been carried on for two years in cultivating corn at the "right" time and the "wrong" time, has resulted as follows:

Average yield for "wrong" time cultivation, 61.9 bushels per acre. Average yield for "right" time cultivation, sixty-seven bushels per acre, or six and one-tenth bushels per acre in favor of cultivating the corn at the "right" time. The "right" time means soon after the rain, when the weeds have started and the soil is just dry enough to cultivate well; the wrong time is a week or ten days later, when the weeds have become larger and the soil is hard and dry and turns over in clods and lumps. It costs more to cultivate corn at the "wrong" time than at the "right" time, because of the slower and more difficult work and greater draft of the cultivator due to unfavorable soil conditions—and yet the "right" time cultivation increased the yield 10 per cent.

It is important also to use the best implements, but doing the work well and at the right time is even more important than the type of cultivator used. No one type of cultivator can be recommended as superior to others, but different kinds of cultivators are useful for different work and for different conditions. The corn grower should have more than one kind of corn cultivator. I prefer at least two types, one for shallow and one for deep cultivation. The knife and shovel cultivators serve their purpose well, but the disk cultivator may be used in place of shovels, and is especially recommended for use during the early cultivation of listed corn.

It is possible, as shown by the work at the Station, for the wheat farmer who will practice the best culture methods, to increase his yield of winter wheat 50 to 100 per cent by careful and proper preparation of the seed-bed, with practically no greater cost for cultivation (See Table I.).

The skillful corn grower may readily increase his corn yields five bushels per acre by a little extra cultivation of the corn land early in the spring before planting. He may add another five bushels to the crop by practicing the correct method of planting, which experience has proved to be the most suitable to his soil and climate. And finally, by the simple factor of sufficient cultivation of corn at the right time and in the right way he may still further increase the yield at the rate of ten bushels per acre.

Thus it is possible for the farmer who is not now doing these things to add 40 per cent to the average corn yield of his farm by practicing improved culture methods. The yield of other crops may be likewise increased, but the farmer should bear in mind this fact: that the increase in yield by better culture may be secured only by maintaining the fertility of the land and planting well bred seed, adapted to the soil and climate.

THE CHURCH IN THE OPEN COUNTRY.

BY WARREN H. WILSON,

Superintendent of the Department of Church and Country Life of the Board of Home Missions of the Presbyterian Church of the United States.

It is my purpose to answer the question, "What is the use of the church in the open country?" We have some people who call themselves "spiritual," who do not believe there is any permanent use of a church. Their religion consists of an insurance against fire; and as soon as they get a policy from an evangelist, they have no more use of a church, certainly not of a strong church. I want to speak to you of the church as an efficient institution, the builder of rural civilization.

We have other folk who are without land and without ownership of productive tools: they are under economic pressure; they are our American poor. They think they cannot afford anything that is not a necessity. I am here to argue that the church in the open country is a necessity, especially to the poor.

We have also some theorists, who believe that all rural institutions should be assembled in towns and villages, and that ultimately the farmers should reside there, going out every morning to their fields. I hope the time will never come when American farmers will so live. And I wish to speak to you of the church in the open country as the conservator of the soil, of the social life, the family and the school in the country.

The first reason for the existence of the church in the open country is the fact that "the soil is holy." Already we are faced with a depleted soil in some of our richest agricultural states. But when the soil produces less, the poor will have to pay more for food and for wearing apparel. We have been warned that the time will come when the workingman cannot any longer wear wool or eat white bread. I have observed in the last two years that the clothes which I buy from a tailor who has supplied me for seventeen years do not any longer attract the moths. The moth turns up his nose at cotton, and cries for wool. The business of the farmer and of the sheep raiser is a religious business, because it is in the interest of the whole people. Whatever makes for the prosperity of the farmer will enrich and dignify all the people. The church is an institution essential to good farming, and it should be maintained where the farmer lives, out in the open fields.

Religion is a valuation of life. It values some things high, and some low, but it is, in the opinion of a recent scholar of repute, a system of values. Its highest word is "holy." The land in which the Hebrews were settled was called "the Holy Land," and nowadays the teachers of modern farming are declaring to the young, "The land is holy." At a recent summer school for country ministers a professor lectured upon "the Holy Land," meaning Palestine; and a great agriculturist came also to lecture upon the soil of the state in which the school was held, announcing his theme as "The Holy Earth." We are entering a new era in religion, in which the values of life will be estimated by their services to the poor. In this consecration of the soil to the interest of the whole people the church of the open country will have a great place.

I know a minister in Maryland, where the soil has been exhausted by generations of peach-culture, and the farmers are turning to other crops in order to make a living. There the minister has found that his business is to preach scientific agriculture, and his most impressive service has been to raise a great crop of potatoes, with a dust mulch, the greatest ever raised at that time in that region. He became the leader of those farmers in the actual struggle for a livelihood. He helped them set their business on a firm footing. He preached as he worked, and his people responded accordingly.

The second reason for the maintaining of the church in the open country is the fact that it is the best school by which to teach the farmers to give of their prosperity to the community and to the common good. Farming is an austere occupation. The best farmers are always economically austere, which is defined by an economist as "the condition in which men produce much and consume little." The very definition shows that of all occupations farming must be the most austere. But the practice of this austerity makes the farmer close and often mean. He stints himself and he stints everybody else. He refuses to support good roads, and he declines to pay for better schools because he is not a spender but a producer.

The church, of all institutions, makes the closest and most intimate appeal to the farmer. It is his school of giving. It has an agent living in the community, needing to be supported. The salary of the minister, and the supplying of his needs, are a constant education in the building of community utilities. The schools will be better maintained, the roads will be sooner reconstructed, even at greater cost, and the poor will be better cared for, where the church exists in the open country; to fertilize, with its appeals, the sour soil of the farmers' austerity, with the needed ingredients for benevolence.

The third reason for the church in the open country is the fact that the church is a family builder. The rural household, which for three generations was the spring of American idealism, has been dissolved, in the past twenty years, by speculation. The exploitation of farm lands has made so many families nomads, and has retired so many farmers to the towns, that there is need of a new era of home building in the country.

The best fitted of all institutions for this service is the church. Her work, as she well knows, is with the young. Her membership is always made up largely of women, and with them lies the future of the American home in the country. The moving force in the exodus from the farm is too often the woman. The church will do more to make life worth while for her on the farm than all other institutions.

The fourth use of the church in the open country is as a center of the concern for the farmer's income. The church in the country which does not sanctify the livelihood of the farmer will not survive. "The most successful farmers in America," says an economist, "are the Mormons, the Scotch Presbyterians and the Pennsylvania Dutch." All these are religious farmers, and their churches are their coöperative associations for farming. They all idealize country life. They are organized for agriculture. But, mark this, in all these country churches—and their churches are out in the open—the church has concern for the prosperity of its farmers as farmers. The income is the man's job, and when the church would get the men it will care for the income. The Lord Almighty cares more for the feeding of the whole people than for any other thing. First of all God is the Father of men, and He cares most for their satisfaction in material things than for their having books, or for their having any of the higher refinements. If the people have not abundance of food and warm clothing, all moral and religious values will suffer. Therefore the farmer is the Lord's hired man; and the church's first business in the open country is "to produce the spirit in which the knowledge will be used, which will enable the farmer to succeed."

The transition in economic affairs, through which we are passing, is working its effects upon the country churches. For the church is the best of all thermometers of the social economy. Many churches in the country are being closed. In the South alone, according to the Southern Baptist organ, sixteen hundred Baptist and Methodist country churches are closed every Sunday of the year. In the state of Illinois, our sociological surveys have shown that about seventeen hundred country churches have been closed and abandoned. It is the elimination of the unfit. It is the realignment of the religious people for greater efficiency, at new centers. There is no sign that country people are less religious than they were. But there is every indication that the churches are being sifted on the principle of efficiency.

The churches are suffering at the farmers' hands another process, which I would like to describe as dehorning. It is like the removal of the horns from the heads of dairy cows; and it has the same purpose. Doctrinal subjects which divide are being tabooed, and the churches are no longer to hook and horn one another, but to live together in peace and produce the most of the milk of human kindness, with the greatest economy in the fodder of doctrine.

This transition is showing also in the inventing of a new type of church. It is appearing all over the land at the same time. I find it in all denominations, and it bears the marks of the same spirit everywhere. My friend, McNutt, at Plainfield, Illinois, has become the most eminent exponent of this new ideal of the pastorate, but he is far from being the only man who is so succeeding. He has a unique power of telling of his work; but many others, who cannot tell of it, can do as well. His church has the heart of the community; and there all the people, especially the young, gather for musical culture, for recreation, as well as for worship.

The modern church for the open country will be a community center. It will bring all the people together, by serving the needs which are common to all. For the community has taken the place once held by the farm household, as the circle of the life of country people. Tradition once ruled farming, but its place has been taken by science. The farmer can no longer teach his son to farm the

land, therefore the household cannot dominate the country, as once it did. The new ideals of country life are community ideals. And the churches which are succeeding in the country are community churches.

The community center church cares for the young, for the growing boys and girls of the community, and for the farm hands. It is a center for the recreative life of the people. Music has its home in that church. Plays are presented under its auspices. The holidays of the year are celebrated at its instigation. Every needful enterprise that the country community requires for its development is fostered by the community church. I have known side paths to be made on country roads, in this manner, the whole countryside coming together for a "frolic" for the purpose of laying out these walks. I have known a country bank to be started in this way. There is no limit to the good that can be done in the country, in making country life worth while, by a church which has the community spirit.

My friends, worship is the symbol of the community. The church spire out in the fields is the center around which the whole locality revolves. The common assembly, on Sunday, does more, all over the open spaces of this great land, to organize people in neighborhoods, and to cultivate a country life ideal, and to make country life worth while, than all other institutions combined.

For there is nothing in the high price of farm land to keep the boy and girl on the farm. The only way for the conservation of the highest value of country life is to secure pastors who will live in the country, and churches through which they may build men into communities of farmers, contented, devoted to the work of a Divine Providence, and crowning the productive labor of the week with worship on the Lord's Day, in the place where the community meets most fitly, in the church of the open country.

THE EXTENSION OF THE POSTAL SAVINGS SYSTEM TO OUR
SCHOOLS AND ITS VALUE TO THE PRESENT AND
COMING GENERATION.

BY F. A. FILSON,

President of the Missouri Association of Assistant Postmasters.

Of the three great forward movements which have marked the history of the postal service during the past dozen years the inauguration and extension of the postal savings system is, we believe, destined to be the greatest and most far-reaching in its effects on the general welfare of the great mass of our people. Rural delivery, the first of the three great forward movements, it is true, has been not only a phenomenal success but has been of untold value to all classes of our people and is sure to grow in popularity and efficiency as the years go by. And the parcels post, the third great movement which we believe is sure to be inaugurated will in a measure revolutionize many branches of business, but in the end be of untold blessing and value to the masses; and whatever in our country is of great and lasting benefit to the masses is sure to be accomplished notwithstanding the opposition of wealthy corporations and selfish personal interests.

The postal savings system, like all other great forward movements, in its infancy met with violent opposition from many classes of our citizens, who for selfish reasons or lack of information violently opposed the enactment of the necessary legislation for its installation. Many of the same arguments which have been worn threadbare in the discussion of rural free delivery, parcels post and other progressive measures, were again brought into use and vociferously enunciated through the press and from the public platform and on the floors of Congress; but after mature deliberation and thorough discussion the right prevailed, as it generally does, and the necessary bill was enacted by Congress and a committee appointed who immediately got busy and laid plans for the inauguration of the system and adopted rules and regulations for the conduct of the business. Be it said to the everlasting honor and credit of this committee and its co-workers that the system evolved is, in the judgment of your humble servant, one of the very best, most comprehensive and practical of any system of its kind in use throughout the world.

In fact, it is the product of the experience of all other nations plus the practical common sense American ideas of our illustrious chief and his co-workers on the committees. While our system is yet in its infancy, the phenomenal record it is making and the ease and celerity with which the machinery of the same is moving quietly along proves conclusively that while it may not be perfect it is founded upon correct principles and with a few alterations will become famous throughout the world as the American system of postal savings. It is with considerable pride that its advocates and promoters can point to the fact that every one of the predictions which they made before its inauguration and during the long campaign for the enactment of the necessary legislation has already been fully and conclusively demonstrated and proven beyond the possibility of a reasonable doubt. In fact, many of the bankers and those who so violently opposed the inauguration of the system have become fully convinced of the fact that it will be no detriment to the banking business of the country, but, on the other hand, will be of inestimable value in bringing from its hiding place the idle currency of the country and placing it in the banks and putting it into circulation. Not only has it demonstrated that it does and will do this, but it has, in the localities where depositories have been opened, originated and is continuing a sentiment favorable to creating and maintaining savings funds among many classes of people who have never before given the matter as much as a serious thought. The experience of our postal savings depository at Cameron is, I presume, about the same as that in other localities, namely, that over sixty per cent of our 300 or more depositors are men, women and children who never before had a bank account of any kind.

From our standpoint we believe that the fact that the system thus induces such thrift and frugality will be of untold blessing to the present as well as coming generations, and that as a result our nation will become richer and greater in the coming years and its people more prosperous, contented and happy. While the system inaugurated by the committee in charge is complete and comprehensive, yet in the very beginning of our experience at Cameron we saw the need of a little further extension of the same, and after giving the matter much thought and serious consideration we laid plans and have inaugurated in all the schools of our city penny savings banks, to be operated in each room of the schools, under the direction and charge of the superintendent and teachers. This system of penny savings banks in the schools works in connection, and is really a part of, our postal savings depository at the post office; and while it is an idea of my own, yet I have submitted it to the postmaster general and the postal savings system committee, and hope in the near future to see it adopted and extended to all the schools throughout the country. It is very simple and easily instituted and operated, and we believe will be heartily and enthusiastically received by the teachers of a majority of the schools throughout the country.

A brief explanation of the system, as we have it in Cameron, I believe would be of interest to all postal officials that have to do with the postal savings system, and I therefore take pleasure in presenting at this time a brief outline of the same, and would be pleased at any time to explain the workings more in detail or answer any questions that may be propounded.

The extension of the postal savings system to our schools and the establishment of the penny savings banks therein is based upon the facts that many of our children do not receive as much as ten cents at one time for their labor or for their spending money, and that they, like many of their elders, find it very difficult and at times almost impossible to keep money in their pockets for any given length of time. In fact, in many cases it immediately begins to "burn their pocket," and must be spent at once. Hence their pennies and nickels are spent before they can accumulate the necessary ten cents with which to purchase a saving card at the Post Office. Then again, the tendency of our time for years has been for the youth of the land to spend all they have or get, be it much or little, with great rapidity and absolutely without any idea of its value. In the inauguration of penny savings banks in our schools we endeavored to impress two valuable admonitions on the minds of every pupil: First, that every boy and girl should, as soon as he enters school, make it a point to earn a small amount of money each week; and, second, that they should make it an invariable rule to save at least one-half of all the money earned and given them and place it in a savings fund. In giving these two admonitions we made the assertion that if those in the primary department would follow these rules and deposit their money in the postal savings banks and invest it in government bonds, compounding their interest by withdrawing and depositing same, that at the age of twenty-five years the larger majority of them would have amassed sufficient capital to enter into any retail business in our city.

In introducing this extension I first laid the matter fully before our superintendent and received his unqualified endorsement of the same, and then arranged for a meeting with all the teachers of our schools and to them presented the postal

savings system and our extension system for the schools, and after a full explanation they, with the superintendent, voted unanimously to place the same in our schools. Immediately after the opening of the schools I visited each one separately and presented the matter to the pupils and opened a penny savings bank, which was placed in charge of the teacher. I closed this feature of the work on Friday, September 15, and the results to date have been eminently satisfactory and very gratifying. I have arranged with the teachers to have them submit a weekly report during the two remaining weeks of this month showing, first the total number of depositors, second the total amount deposited, and third the average age of depositors. After the close of this month these reports will be made monthly instead of weekly.

ADDRESS.

F. C. SCHWEDTMAN.

Chairman of the Delegation of the National Association of Manufacturers of U. S. A.

Permit me to extend to you, in the name of the great organization which I have the honor to represent, the good will, coöperation and support of thousands of progressive manufacturers from almost every state and city of the Union in every sane endeavor to preserve the natural resources of our nation.

I have listened with keen interest to yesterday's and today's arguments for the conservation of coal and timber, soil and water. It seemed to me particularly significant to have a lumberman in the person of the honorable chairman of your executive committee urge the preservation of our forests, and it was equally fitting to hear our great farmer Governor of Missouri make a plea for the soil. Of course, both of these gentlemen spoke upon subjects nearest to their hearts. Unfortunately I am not a farmer, but their action gives me courage to devote a few minutes to a few phases of the conservation problem nearest my heart.

Allow me, an employer of industrial labor, to plead for higher efficiency in the industries and especially for better opportunities for the millions of toilers, in the shops as well as upon the farm. The greatest nation of the future will be the nation that best understands how to economize and preserve human energy and happiness at home, and how to build up trade abroad.

President Taft told us last night how, by mixing science and proper education, our crops per acre can be doubled and trebled. In the same way can the output of our mines and factories be increased tenfold in value by industrial education. Instead of selling steel billets to the nations of the world, we want to sell them sewing machines, dynamos and watch springs; and instead of exporting raw cotton we want to export high-grade cotton goods. This requires government support for industrial education, and I urge you, in return for our aid to secure agricultural schools and experimental stations, you give us yours to secure scientific industrial training. The National Association of Manufacturers is persistently and systematically working to that end. And there is another phase of preservation even more important. Among the measures pointed out in your handbook to which the association will give its vigorous support, both legislative and administrative, I find this: "Means wisely designed to diminish sickness, prevent accidents, and increase the welfare and comfort of American life, believing that human efficiency, health and happiness are natural resources quite as important as forests, water, land and minerals." Now, I do know something of this feature of the preservation movement, and after the vigorous campaigning which the National Association of Manufacturers has carried on in the last two years for "human preservation" under my supervision, I feel that it is not only of equal importance to soil preservation, but more so.

Authorities tell us that in comparison of the vital and physical assets of a nation, as measured by earning power, the former are from three to five times as valuable as the latter. These authorities assert that there is as great room for improvement of our vital resources as in our lands, waters, minerals and forests, and that this improvement is possible in respect to both the length of life and to freedom from disease and accidental injury during life.

Prof. Irving Fisher estimates (in Bulletin Number 30 of the committee of one hundred on national health) that \$250,000,000,000 is a minimum estimate of the vital assets of the United States in 1907 and that of the estimated annual loss of three billions of dollars due to sickness, accident and death, one-half, or one and one-half billion dollars, is preventable.

According to Dr. Tolman, the total number of work casualties suffered by our army of wage-workers is sufficient to carry on perpetually two such wars at the same time as the Russo-Japanese and our Civil war. According to the same authority, our railroads, during the year of 1906, killed and wounded more persons than were killed and wounded in the six bloodiest battles of the Civil War.

In all these directions our losses are from five to ten times greater proportionately than those of the most progressive European nations, and what are we doing about it?

The National Association of Manufacturers has carefully compiled facts and figures and has everlastingly spread the gospel of preventing these losses and compensating equitably the sufferers from unpreventable losses.

Do not think for one moment that this is a subject that does not concern the farmer. I can prove by facts and figures that the percentage of injuries among farmers is greater than in the industries, and easier prevented. If you want to convince yourself go to the nearest insurance office. You will find the accident insurance rates for the farmer higher than for the carpenter or machinist.

Some European countries have evolved compensation schemes by which \$78 of every \$100 paid for accident insurance is paid to the injured wage worker. Under our liability laws, only about \$30 out of every \$100 reaches the injured worker. What would you think of your neighbor if he were trying to run a machine with 30 per cent efficiency in competition with yours of 78 per cent efficiency? He would not last very long.

We ask your help in establishing sound, safe and efficient schemes in all the states of the Union. The first part of the problem will have to be solved by legislation, the second by coöperation, and it can be done only by a combination of all the progressive elements of society. It must be done as quickly as possible, bearing in mind all the time that he who starts out well prepared for a race is in better shape to win than he who hurries on without due preparation. We must have facts and figures before us and we must select the best men in the various states to act as investigation commissioners.

So-called reformers do not always appreciate this. A short time ago I addressed the governor and the legislature of one of our Middle Western states. The governor, a man of many fine qualities, asked me during the progress of my arguments why I had gathered such a mass of facts and figures from European sources. I asked him in return how he would settle it without statistics, and he replied, "We need no facts and figures, all we need is the right kind of a gizzard." Of course there is no sense in arguing with such a man. He misunderstands the issue. Americans do not need, and do not want charity; they want justice.

We in the United States will eventually have the best system for preserving the best resources of our country, the health and well-being of our people, the self-respect and earning capacity of our wage workers, the lives and limbs of our toilers, but it will take the combined energy and wisdom of all of us to bring this about.

REPORT OF THE AMERICAN HUMANE ASSOCIATION.

BY WM. O. STILLMAN, *President.*

The American Humane Association, during the past year, has been actively engaged in promoting the development of humanitarian work in the United States, and has also been useful in promoting a similar work in many foreign lands. During October, 1910, there was held under the auspices of this association, in the city of Washington, D. C., and under the Honorary Presidency of William H. Taft, the President of our country, the first American International Humane Conference. There were present representatives from thirty foreign countries. The addresses, papers and topics which were heard were of great value. There was also held, in connection with the International Conference, the first international exhibit of ob-

jects of humane interest. This was shown in the New United States National Museum building, where the conference was also held. The exhibition, which lasted a week, proved phenomenal in extent and interest.

As a direct and acknowledged result of the Washington conference, there is to be held, during June, 1912, in London, England, a similar international congress, which it is believed will greatly assist the spread of work which we represent.

The result of international meetings of this description is to promote the spread of humanitarian doctrines everywhere. Representatives were present at Washington from Japan, China, India, Persia, Turkey, Russia, Australia, and almost every section of the globe. We believe that the choicest asset which any nation possesses is its childhood. Our anti-cruelty societies are seeking all over the world to protect childhood from influences which are prejudicial to health or morals. This means a better standard and average in childhood, and the elimination of great masses of the youth which, under present conditions, inevitably become recruits of the armies of vagrancy and crime.

The other great field of humane endeavor is to promote the conservation and protection of animal life. The livestock of a country constitutes one of the most valuable assets, in an intrinsic sense, which a country like ours can possess. As pointed out in our report last year, efforts which may readily be made would result in the saving of hundreds of thousands of horses and cattle for longer and more useful service.

The American Humane Association intends to ask Congress for relief of transportation conditions which are responsible for great injury and loss of livestock, by requesting that a minimum speed bill be enacted. This proposition has been heartily endorsed by the Department of Agriculture in Washington and by humanitarians generally. Various other reforms are contemplated and will be pushed to a conclusion in the near future.

We feel that our work is a thoroughly practical one, and that in its largest sense it stands for better citizenship and the promotion of the moral interests of the commonwealth as well as its commercial ones. We trust that the Third National Conservation Congress will approve of the work in which we are engaged, which represents a membership of much over one hundred thousand persons and an expenditure of more than a million and a half dollars annually.

CONSERVATION OF BIRD LIFE.

BY DR. GEORGE W. FIELD.

Representing the National Audubon Society.

I want to call your attention to one phase which has hardly been touched upon—importance of the conservation of our bird life. When you realize that the insect places a tax upon every one of us twice as great as we are called upon to pay to our towns, cities and states, a tax of at least five per cent on every agriculturist and consumer of food in this nation, we realize the work of the National Audubon Society, which is organized for the purpose of protecting the wild insectivorous birds. The resources of this association last year were about \$35,000. Over against that was this damage to our agricultural interests of over one million dollars. So you can see therefore that we have been able to do but very little relatively. When we compare the condition in this country with that of Germany, where they have one hundred times as many birds to the square mile as we have in this country, we realize the importance of the work which this association is carrying on. We ask your support, every one, in every way, to assist the activities of this National Audubon Society. (Applause)

I also represent the National Shell Fish Association. Now, the purpose of this association is to issue, so to speak, a sanitary insurance to every person who consumes oysters, clams, lobsters and that type of sea food. In other words, we want to make it possible that when you in Kansas, Missouri, and in the interior of the country, eat from your table, or in your hotels, oysters brought from the seacoast of both sides of this nation, to be certain that there is no chance of infection, of typhoid fever, or other disease. To do that we are asking every state in the Nation to realize the enormous waste of material in the form of sewage and manufacturing

waste which is pouring into our streams and into our coastal waters. To take one concrete illustration, the city of Boston, in Massachusetts, spent five or six millions of dollars for the purpose of putting the sewage into the ocean. It did that, but when it did it destroyed annually the potential capacity of that water to develop shell fish food. In other words, it was precisely the same as if so many thousands of acres in your farming country were utterly destroyed forever for all farming purposes. It was reduced merely to a desert, whereas, if that material had been placed on the land, where it belonged, there would have been enormous benefits arising to the farm, and it would have been possible to cultivate that land under water for raising food. Now, we are demonstrating, acre for acre, that the land under water can raise more food—nitrogenous food, the most expensive type of food for man—at a less expense in time, in capital, and in labor, than the very best acres in your boasted river bottoms, a type of food material which can be raised nowhere else than on the coasts of our country, on both the Atlantic and Pacific and the Gulf.

ADDRESS.

By W. J. RUSHTON,

President American Association of Refrigeration.

I desire to thank the Congress in the name of the members of the American Association of Refrigeration for the invitation to be represented here by official delegates.

We consider it especially fitting that our association should participate in the deliberations of this Congress, because it stands for the conservation of the perishable foods of the people in the broadest sense.

In order that those who are not already familiar with the objects of our Association and with the methods it employs in carrying these into effect, and to illustrate how well our work meshes with the purposes of this National Congress, I will call your attention to several statements taken from the statutes by which our organization is governed. Among our objects are:

"To institute investigations, experiments and tests for the purpose of demonstrating correct solutions of scientific, technical and industrial problems pertaining to the art of refrigeration.

"To inspire confidence in the public mind, and appreciation of the beneficial effects of refrigeration upon perishable food products, both in transit and when stored for the purpose of conservation, by collecting and disseminating authentic information on the subject.

"To encourage the expansion of American trade, commerce and transportation of perishable agricultural products, and to assist the commercial and industrial interests affected by mechanical refrigeration, both at home and abroad.

"To further its purposes and extend its influence by publications, meetings, conferences and courses of lectures, and by encouraging the introduction in educational institutions of regular courses in refrigeration.

"To cooperate with the International Association of Refrigeration in the organization of international commissions for the discussion of questions of international import, and in the determination of correct basic data pertaining to the art of refrigeration."

The conservation of the natural resources of the country is now recognized by all thinking persons as a vital factor in our national life, both as an obligation to posterity and because of its immediate influence on the material welfare and the health of the people.

The influence of this Congress, as it is felt more generally over the country, must result in strongly stimulating thrift and economy as well as respect for law among the people. The exercise of these qualities is essential to the conservation of the waters, the forests, the lands and the minerals, as well as all of the vital resources of the country.

Our people—in fact, the people of all the civilized countries of the world—are now confronted with serious problems due to the high prices of the necessities of life, principally their food supplies.

It is believed that these conditions largely grow out of neglect to properly conserve and market perishable foods and to lack of adequate means for promptly collecting and transporting them in sound condition from regions capable of ample production to the thickly populated centers; also to insufficient means for preserving such supplies from seasons of over-production to periods of scarcity.

It is certainly a very necessary and laudable mission, to concentrate the intelligence and energy of a body of men such as compose this Congress for the conservation of the forests, lands, waters, minerals and vital resources of the country. Our association is very much interested in all of this, because lumber, minerals and water are very necessary to the refrigerating industry, while the conservation of the soil is of paramount importance as the source of the fuel of the great human engine through the operation of which all of the other resources are harnessed to the world's work.

We are, therefore, here particularly to emphasize the necessity of conserving the perishable foods of the people by refrigeration, that much misunderstood and often misrepresented natural mode of preservation.

However productive the soil may be made, and however ample the supply of highly nutritious food may be, unless such food is made available for use when and where it is needed, and where it must be supplied at prices the people can afford to pay, the conservation of the soil will have failed of extending the fullest measure of its possible benefits to the people.

Our organization has made an especial study of the subject of the production, the transportation and the conservation of perishable foods, and of the laws and proposed laws applying to the subject. The hearings before the Senate committees on manufactures of the Sixty-first and Sixty-second Congresses, the reports of which are published by the National Government, abound in evidences of the activity of our committees and individual members.

Therefore, if it is in order and otherwise agreeable, I would like to propose that, in furtherance of the purposes of this Congress, and in order that its opportunities for doing good may be realized in the fullest measure, a standing committee on food be added to the present standing committees. Such committee to be composed of persons best qualified to render the most efficient service in the study of the questions involved in the production, collection, transportation, preservation and marketing of perishable foods, and to report to the Fourth Congress. Such report to be made the basis of measures to conserve the perishable foods of the people, to improve their quality, increase their production, and to promote such relations between the producer and consumer as will bring about lower and more nearly uniform prices throughout each year.

WILD LIFE PROTECTION.

WILLIAM EDWARD COFFIN.

Vice-President Camp Fire Club of America, Chairman Committee on Game Protective Legislation and Preserves.

The Camp Fire Club of America was founded as an organization of big game hunters, with the protection of wild life and forests as its great objects. Dan Beard once characterized the club as a "Society of Criminals for the Suppression of Crime." Big game hunters have always been active in game protection, indeed in all conservation measures, and that because their touch with the woods keeps the problem alive.

To the sportsmen of America are due nearly all the existing game protective laws.

Among the Camp Fire Club's members are Dr. W. T. Hornaday, whom all honor as the Washington of wild life protection; Ernest Thompson Seton and Dan Beard, who by their work with the boys are doing more for the future of conservation than any men living with but two exceptions; Irving Bacheller, A. W. Dimock, Dillon Wallace, Gifford Pinchot—God bless him—and many others, who with pen, time and money are laboring ceaselessly for the great cause of conservation which is so near your hearts and mine.

The club may fairly claim for less than two years' work: Yeoman service

in the defeat of the bill permitting the sale of wild bird plumage in New York; the defeat of a bill authorizing spring shooting of ducks on Long Island; in securing the \$20,000 appropriation for the starving elk in Wyoming; in enlarging the Water-ton lake, park and game preserve now being formed in Southwestern Alberta.

To the Camp Fire Club belongs the sole credit, outside of Congress, for defeating the proposed twenty-year renewal of the Fur Seal Killing lease on the Pribilof Islands. Much of the credit for that public opinion which forced the treaty stopping pelagic sealing. When the fur herd is, through complete protection, restored to something like its old numbers, the country will have the Camp Fire Club to thank for fairly snatching that herd from the jaws of complete annihilation.

To Dr. Hornaday, our great leader, is due the famous Bayne-Blauvelt bill—the greatest single piece of game protective legislation ever enacted by any state or country. Think of it; that bill absolutely prohibits the sale of all wild game in the State of New York. The lion's share of the campaign work incident to its passage was done by members of the Camp Fire Club. How well it was done you will realize when I state that the bill passed with only one dissenting vote in the whole legislature; and how it was done when I say that upwards of 30,000 letters were written asking senators and assemblymen to support the bill. The passage of that bill was the turning point of the war between the army of destruction and the army of preservation in New York state.

I must not leave this subject without a tribute to Governor Dix of New York, without whose hearty coöperation and steadfast support we would have been helpless.

In spite of great pressure by selfish interests he stood like a rock and has fully redeemed the ante-election pledges of himself and of his party. Let his name be written in the Conservation Temple of Fame.

So much for the past. For the future: 1st. We propose to keep everything we have gained. 2d. We have arranged for Gifford Pinchot and Overton Price to visit the Adirondack Mountains, study the situation and make a report which will make possible sound, reasonable legislation for "Scientific Fire Protection," "Scientific Reforestation," "Scientific Care of Existing Forests." Legislation which combines sane utilization with sound conservation.

I wish you all could have seen the cheerfulness with which Pinchot and Price responded to the request of the club that they undertake this work.

The club is, at the request of the New York State Conservation Commissioners, to coöperate in a complete codification of the state game laws.

This we hope will result in a series of stringent but reasonable laws; simple, plain, readily enforced. Laws which the National Conservation Congress will be proud of and can safely recommend as a model for other states.

This is largely work in one state only, but it is wise to clear your own door yard before preaching sanitation to your neighbors, and with the beam removed from our own eye, we can the better see how to remove the mote from our brother's.

Outside of New York we propose: 1st. To push Bayne-Blauvelt bills in the North Atlantic states for stopping the sale of game. Thus striking at the root of game slaughter is far more effective than attempting to police the army of market hunters or any other method of trimming the branches. 2d. We shall agitate ceaselessly for the complete protection of the fur seal. 3d. We shall do what we can to put life into the Migratory Bird Bill, which has been in congressional cold storage for so many years, and to promote a migratory fish bill. 4th. We propose to urge upon states—even upon counties—the formation of bird, game and fish refuges, one of the most effective methods of game protection. 5th. We shall hold ourselves in readiness to further any and every sound proposition for the conservation of this country's natural resources, whether animal, vegetable or mineral.

And now having finished my report, permit me a few words of indictment and a few words of appeal.

The National Conservation Congress and Association heretofore have practically ignored wild life. Infinite and detailed attention has been given to lands, minerals, water and forests, and the Camp Fire Club is with you in all these, but are your halls so narrow, your boundaries so confined, that you have no room for the great cause of wild life protection?

Do you realize that in New York state alone there are nearly 150,000 active gunners; in Pennsylvania over 100,000, and that even a two shot gun does not satisfy them?

The laws in all states are so liberal to the killers and so hard on the game that wild life is swiftly vanishing.

The commercial interests of gun-making, game selling and feather working

are terribly destructive influences. No wild species can stand exploitation for commercial purposes. In every case it spells extermination. Look backward at the millions of bison, fur seal, passenger pigeon, pinnated grouse and Florida egrets. Where are they all? Exterminated to fill the cash boxes of greedy men.

How much longer is Christian civilization, how much longer are you going to stand for such things? In birds alone six species are absolutely extinct, thirteen more nearly so. Our states are spending millions to fight insect pests whose increase is due chiefly to the decrease of bird life. How can it be stopped? By your efforts, those of the Camp Fire Club and other organizations. There must be a pull, a long pull and a pull all together. The majority of the American people are conscientious, humane, just and merciful toward all creatures; once arouse that majority and it will right any wrong.

The protection of wild life requires a campaign of education and publicity; given these, legislation will follow as light follows the sun. Congressmen and legislators will do the right thing if they are asked to do it often enough and hard enough by the people they represent. We do not appeal to this Congress as sportsmen or in the interest of sportsmen; but for the millions of men, women and children who love the outdoor life and who do not shoot at all.

We therefore ask for two things: 1st. A broad definite recognition in your platform organization and proceedings of this great branch of the conservation movement. We ask a standing committee on wild life protection. 2d. Your coöperation, collectively and individually. Bone of our bone, flesh of our flesh, blood brothers, the Camp Fire Club, true of heart, clear of hand, eager in support of all you stand for, calls to you.

Come over into Macedonia and help us.

PREVENTABLE FIRE WASTE: CONSERVATION EFFORTS FOR ITS REDUCTION.

By a Committee of the National Board of Fire Underwriters.

In each of the previous national assemblages of this character the National Board of Fire Underwriters has been represented and has earnestly endeavored to portray the enormity of the preventable fire waste of our country and its retarding effect on our national growth and prosperity.

With each annual meeting of our organization, statistical information has been prepared and furnished to the public and press, setting forth the tremendous money value in property which was being annually destroyed by fire throughout our country. As an aid toward convincing our people that a vast amount of real wealth was being wiped out of existence annually by preventable fires, our committee on statistics and origin of fires, by the aid of the Federal Government, secured figures of the fire loss in European cities and countries, which were compared with the fire loss of the cities of the United States and the United States as a whole and reduced to a comparison of the loss per capita. These figures were published by the National Board of Fire Underwriters in 1906. The comparison was so startling as to attract very wide attention and gave activity to the fire conservation movement.

The Geological Survey, through its technologic branch, investigated the fire loss and the cost of fire protection in the United States in 1907, and published Bulletin 418, known as "The Fire Tax and Waste of Structural Materials in the United States"—a pamphlet most impressive in the facts presented and irrefutable in its arguments. We quote a section:

"The investigation disclosed the fact that the total cost of fires in the United States in 1907 amounted to almost one-half the cost of new buildings constructed in the country for the year. The total cost of the fires, excluding that of forest fires and marine losses, but including excess cost of fire protection due to bad construction, and excess premiums over insurance paid, amounted to over \$456,485,000, a tax on the people exceeding the total value of the gold, silver, copper, and petroleum produced in the United States in that year. The cost of building construction in forty-nine leading cities of the United States reporting a total population of less than 18,000,000 amounted, in 1907, to \$661,076,286, and the cost

of building construction for the entire country in the same year is conservatively estimated at \$1,000,000,000. Thus it will be seen that nearly one-half the value of all the new buildings constructed within one year is destroyed by fire. The total fire cost in this country is five times as much per capita as in any country of Europe. This fire cost was greater than the value of the real property and improvements in any one of the following states: Maine, West Virginia, North Carolina, North Dakota, South Dakota, Alabama, Louisiana, Montana.

"The actual fire losses due to the destruction of buildings and their contents amounted to \$215,084,709, a per capita loss for the United States of \$2.51. The per capita losses in the cities of the six leading European countries amounted to but 33 cents, or about one-eighth of the per capita loss sustained in the United States. In addition to this waste of wealth and natural resources, 1,449 persons were killed and 5,654 were injured in fires.

"The total loss on buildings in the United States was \$109,156,894 and on contents \$105,927,815. There were fires in 36,140 brick, iron, and stone buildings, with a loss of \$31,092,687 on the buildings and \$37,332,580 on the contents, and in 129,117 frame buildings, with a loss of \$78,064,207 on the buildings and \$68,595,235 on the contents. In cities and villages with a population of 1,000 or more there were 6,324 fires that extended beyond the building of origin, with a total exposure loss of \$13,913,694. The loss on fires that were confined to the building of origin in the cities and villages amounted to \$93,179,589."

The records of this board herewith subjoined show to what extent our fire loss has increased almost yearly since 1875.

| Year. | Aggregate Property Loss. | Year. | Aggregate Property Loss. | Year. | Aggregate Property Loss. |
|-------|--------------------------|-------|--------------------------|-------|--------------------------|
| 1875 | \$78,102,285 | 1887 | \$120,283,055 | 1899 | \$158,597,880 |
| 1876 | 64,630,600 | 1888 | 110,885,666 | 1900 | 160,929,805 |
| 1877 | 68,265,800 | 1889 | 123,046,833 | 1901 | 165,817,810 |
| 1878 | 64,315,900 | 1890 | 108,993,792 | 1902 | 161,078,040 |
| 1879 | 77,703,700 | 1891 | 143,764,967 | 1903 | 145,302,155 |
| 1880 | 74,643,400 | 1892 | 151,516,098 | 1904 | 229,198,050 |
| 1881 | 81,280,000 | 1893 | 167,544,370 | 1905 | 165,221,650 |
| 1882 | 84,505,024 | 1894 | 140,006,484 | 1906 | 518,611,800 |
| 1883 | 100,149,228 | 1895 | 142,110,233 | 1907 | 215,064,709 |
| 1884 | 110,008,611 | 1896 | 118,787,420 | 1908 | 217,885,850 |
| 1885 | 102,818,798 | 1897 | 116,854,575 | 1909 | 188,705,150 |
| 1886 | 104,924,750 | 1898 | 130,593,905 | 1910 | 214,008,300 |

The fire insurance interests have carried on an aggressive campaign for the reduction of our discreditable fire losses and have been foremost in suggesting practical and reasonable remedial measures.

At the First Conservation Congress a paper on "The Fire Waste in the United States" was presented by this board and upwards of 12,000 copies were distributed to state and municipal authorities and to the press. We quote the causes then set forth as operating to make the large fire waste in the United States.

"First: The difference in the point of view and the responsibility of the inhabitants of Europe and those of the United States.

"Second: The difference in the construction of buildings.

"Third: The difference in the regulations governing hazards and hazardous materials and conditions, and in the enforcement of such regulations."

And suggested as essential means toward its reduction:

"First: That the public should be brought to understand that property destroyed by fire is gone forever and is not replaced by the distribution of insurance which is a tax collected for the purpose.

"Second: That the states severally adopt and enforce a building code which shall require a high type of safe construction, essentially following the code of the National Board of Fire Underwriters.

"Third: That municipalities adopt ordinances governing the use and keeping of explosives, especially inflammable commodities and other special hazards, such as electric wiring, the storing of refuse, waste, packing material, etc., in buildings, yards or areaways, and see to the enforcement of such ordinances.

"Fourth: That the states severally establish and support the office of fire marshal and confer on the fire marshal by law the right to examine under oath and enter premises and to make arrests, making it the duty of such officer to examine into the cause and origin of all fires and when crime has been committed requiring the facts to be submitted to the grand jury or proper indicting body.

"Fifth: That in all cities there be a paid, well disciplined, non-political fire department adequately equipped with modern apparatus.

"Sixth: That an adequate water system with proper distribution and pressure be installed and maintained. In the larger cities a separate high pressure water system for fire extinguishment is an absolute necessity, to diminish the extreme imminence of general conflagrations."

At the Second Conservation Congress a paper on the "Conservation of Utilized Resources from Destruction by Fire" was presented by us and about 13,000 copies were widely distributed. We quote a section:

"If the office of State Fire Marshal were created by every commonwealth, and that official and his deputies given power to enforce good fire prevention laws, investigate, and, if necessary, prosecute cases of arson or criminal carelessness in the starting or spreading of fires, ascertain the cause of every fire, and by the distribution of literature educate the citizen to the need of care and forethought in the protection of his property, a distinct conserving of the utilized resources in that state would follow.

"If our municipalities will enact and enforce improved and safe methods of building construction and cause the removal or reconstruction of existing structures which constitute, because of their construction, a menace to adjoining properties, our cities will be freer from the imminent conflagration which now threatens them. Eliminate defective chimney flues, unprotected external and internal openings, excessive areas, weak walls, and combustible roofs; prohibit the storage of rubbish and demand the safe use and handling of dangerous inflammable liquids and oils; regulate the use of explosives; and the destruction of our values, created from the natural resources but enriched many fold by human toil, industry and skill, will be materially diminished.

"If the citizens of a community, as members of their local civic bodies and boards of trade, will create in such organizations a Committee on Fire Prevention, whose duty it shall be to study the subject and awaken among their associates a realization of individual and communal responsibility, and if our boards of education will emulate the action of the State of Ohio in prescribing primal education of the school children as to the chemistry of fire, the causes of fires in our homes and how to guard against them, and how to extinguish incipient fires or hold them in check while awaiting the response of the fire department, a preparation will be made in that community which will check the constantly increasing fire waste."

This organization has not been alone in its efforts in this direction, neither has there been an entire absence of activity on the part of state and municipal authorities.

The National Fire Protection Association, of which the National Board of Fire Underwriters is an active member, has through some of its members, but principally through its secretary, delivered forty-two addresses on the fire waste in thirty-one different cities. At the annual meeting of the association held in New York in May last, it adopted the following resolutions, urging upon the public the vital importance of better construction and protection, and of a greater care in the maintenance of property:

"The National Fire Protection Association, with all the force at its command and with the absolutely united and unanimous support of its entire membership, wishes to place before the public in the strongest possible terms that the situation in connection with the fire waste is becoming so acute that there is necessity for action.

"Action by all cities and towns in adopting proper building codes, which will call for improved conditions and the use of fire resisting construction in congested districts.

"Action by the state and municipal authorities covering the regulation of the transportation and storage of inflammable oils and explosives.

"Action by those in authority to the end that all buildings where people congregate, such as schools, theaters, factories, and hotels, shall be so constructed and equipped that the lives of the people within them may be safeguarded.

"Action by the proper authorities requiring the introduction of automatic fire extinguishing apparatus in all commercial establishments and city blocks.

"Action by the proper authorities prohibiting the manufacture and sale and use of the snap match and requiring the universal adoption and use of the safety match.

"Action by the public in bringing about a safe and intelligent celebration of Independence Day, and, above all,

"Action by every citizen of the land in using his individual effort in the cause of educating the public in regard to the dangers from fire, not only in so far as it applies to the personal and immediate consideration, but also from the broader standpoint, namely: that of the welfare of our land."

At the same meeting the Association was honored in being addressed on "The Fire Waste" by the Hon. Walter L. Fisher, Secretary of the Interior, from whose remarks we quote:

"Indeed, I do not doubt that the average intelligent citizen of the United States is aware of the fact that fires in America are comparatively frequent. He undoubtedly appreciates in a general way that a large percentage of our fires are from preventable causes, and that the sacrifice of life and property through loss by fire is, much of it, needless. What he does not fully realize is his own duty, and the duty of city, state and nation in the premises. He understands as yet but vaguely the significance of that change of public sentiment which has made of the movement for the conservation of our natural resources. He glimpses but dimly how great an obstacle to human progress and to human happiness is needless waste, whether it be in the use we make of the products and the forces of nature, or the productions and the energies of men. If the justification of private property is that it tends to promote the common good through increased energy and increased efficiency, which is the antithesis of waste, then the broadest application of the principles of conservation should extend to our created as well as our natural resources, for in the last analysis the loss by fire of a city building owned by an individual will be just as important to the people of the United States as the loss by fire of timber in the public domain. Both the building and the timber are assets of the Nation. If they are destroyed these assets are wiped out. No system of taxation will serve to bring them back, whether this tax be collected by the constituted authorities under the law, or collected by private interests as premiums on policies of insurance. In either event, the taxation is paid by the owners of property and it is ultimately borne by the community as a whole. Reforestation costs money which must be levied through taxation in some form. Rebuilding a dwelling house, or a business block, or the business district of a city, costs money, a large proportion of which under insurance methods is assessed against property which has not burned. It is the people who pay, whether they own land or buildings or other things of value. It follows thus that the question of fire waste is of direct pecuniary interest to every citizen. Beyond the individual pecuniary interests, there is also the obligation of each citizen to his fellows to so protect his property and conduct his affairs as not to endanger the lives and property of his neighbors.

"It is the duty of organized society to protect its members in life and property. But organized society, it is clearly shown, has been remiss in its duty. The obligations of municipal, state and national government have not been met.

"It takes the force of public opinion to accomplish any reform, and your association should receive hearty aid and encouragement, for through it much of the educational work which is a prerequisite to any successful agitation may be accomplished. There is a real and vital necessity for teaching each citizen of the United States the significance of the national fire waste. The truth in regard to our national ash heap should be brought home to each person having a family to protect and property to preserve.

"It seems ridiculous that a people so apt and so eager to seek out and destroy the mysterious and hidden enemies of mankind should be so slow and sluggish in fighting a foe so plainly in sight and so readily vanquished. We have led the world in seeking out the causes of pestilence and removing them. We are in the very vanguard of the battle against tuberculosis, typhoid and yellow fever, and still we stand apart and let the older nations lead the fight against an enemy much more easily conquered.

"To arouse the people against the fire foe is our task. If there were any dispute as to the facts, if anyone opposed a movement to check the fire loss, the American people might more readily become partisans of this movement which you are leading. But there is no difference of opinion regarding the essentials. The average American citizen would admit that our fire waste is in the nature of a national disgrace. The task is to make him do something to remedy conditions. You must popularize your movement and create a general demand for adequate laws and thorough enforcement. To relieve the people of the unnecessary burden which they are now carrying, you must teach them the importance and the significance of that burden. You must show them the necessity for a defence against this common enemy. Organized methods must be adopted for bringing the significance of the fire waste before every person who will read the written word or listen to the spoken one. Let the people once realize the exact facts of their own negligence, and they will be swift to provide the remedy."

The Western Union, an organization of insurance companies operating in the Middle and Central West, has carried on, by public speeches of some of its mem-

bers and through its committee on publicity, a most commendable campaign to impress the public with the significance of our fire waste. Numerous circulars have been distributed and printed in whole or in part in the newspapers.

Many commercial bodies and boards of trade of our cities have taken up the subject of the fire waste, appointed local committees on fire prevention and advocated and secured improvements tending to afford better fire protection, and lessen the great financial drain which the fire loss was causing in their communities.

The National Association of Credit Men, which has perhaps devoted more time to the study of insurance and the fire waste of the country than any other commercial body, has been very active in acquainting business men with the importance of the subject and in encouraging the adoption by municipality and state of such remedial measures as will tend to diminish the steadily and rapidly increasing fire losses.

The states of Ohio, Montana, Nebraska and Iowa are instructing their school children as to the importance of observing greater care in the handling and use of the ordinary fire hazards. The Fire Insurance Commissioners in annual convention in August last adopted the following resolutions:

"The appalling annual loss of life and property in the United States by fires, due to criminal carelessness, ignorance or dishonesty, commands the serious attention of the American people. From present indications over \$300,000,000 in property values will be utterly wiped out during the current year—a sum so vast that it must have a serious economic effect on the prosperity of the country. The causes for this enormous drain on the savings of the Nation are well known and to a large extent preventable.

"The destruction of property by fire is ten times as great per capita in the United States as it is in Germany, France, England, and other countries abroad; and in addition to this needless waste of property there are also thousands of men, women and children burned to death or crippled in the various local fires and conflagrations that constantly occur. The chief factor responsible for this situation is general carelessness and the utter lack of personal responsibility for the removal of causes productive of fires.

"We recommend a campaign of education through the governors, insurance commissioners and fire marshals of the various states, for the purpose of bringing directly to the attention of the people the causes responsible for the national ash heap, and the adoption of legislation which will safeguard the lives and property of the people by holding every individual responsible for carelessness resulting in fires.

"We commend the suggestion unanimately adopted by the Association of Fire Marshals of North America, urging that the governors of the various states set aside one day each year to be known as 'fire prevention day.' By proclamation the governor can call the attention of the citizens to the enormous preventable fire waste of the country, and urge the taking of such precautions, individual, municipal and state, as will tend to reduce it. Appropriate exercises can be held in the public schools, instruction on the common fire hazards can be given the children, and the day can be made the occasion of the 'clean-up' day, which is doing so much to remove hazardous conditions.

"*Resolved*, That the individual members of the convention will use their influence to secure such action by the governors of their respective states, as an important, practical and educational assistance in the work of fire prevention."

The governors of a number of our commonwealths have already acted favorably on part of the foregoing suggestions and by proclamation have set aside a day to be known as "fire prevention day," when the citizens will be called upon to clean up their several premises and provide better fire protection, as a part of a nation-wide study of fire waste, and the individual responsibility of property owners and householders.

The State Fire Marshals in annual session adopted somewhat similar resolutions. The awakening of our people on this subject affords encouragement, but as yet it is only partial, incomplete, and not in keeping with the national importance of the subject.

A number of our states enacted fire marshal laws during their last legislative sessions, some of which were commendable in their provisions, but many of them embodied the false theory that such laws are more beneficial to the fire insurance companies than to the public, and impose on the former an additional tax for its support and enforcement. In contrast to this policy, the Legislature of New York State, recognizing that the state was collecting through its insurance department vastly more than the expenses of the department, enacted what may be taken as a model fire marshal law, the provisions of which are to be carried out and enforced by the state at its own expense.

Probably two-thirds of our fire loss is from preventable causes. Based on

this estimate, nearly two hundred million dollars of property values are unnecessarily destroyed annually, reducing the wealth of the Nation in like measure, since insurance does not restore but merely indemnifies out of remaining wealth. It has truly been said that this preventable fire waste is a national disgrace, and we have the humiliation of knowing that the United States is by far the leader in this discreditable condition.

Publicity has been mentioned recently as a cure, or partial cure, for other evils. Likewise publicity will have an advantageous effect in preventing fires. A special lesson to be preached and reiterated is that those who cause, or have, avoidable fires, injure their neighbors, their municipalities, their states and their country. They have created a part of the two hundred million yearly "national scandal." They have destroyed wealth and increased taxes. They have been bad citizens.

If the distinguished persons who are in attendance here will interest themselves in their respective communities and states and advocate the cause of conservation of the fire waste and the elimination of preventable fires, they will help, and give an impetus to, the movement for lessened fire losses and the saving of lives from fire. While the members of the National Board of Fire Underwriters have an advantage of contact and outlook as to the fire situation, they have no more and no different interest in the subject than have other citizens. Good citizenship demands that all, individually and collectively, should do their full part in inculcating principles and bringing about practices which will stop the ravages of the tremendous fire waste that is scandalous because obviously preventable.

GEO. W. BABB, New York.
 W. N. KREMER, New York.
 E. W. WEST, Glens Falls, N. Y.
 E. G. RICHARDS, New York.
 R. M. BISSELL, Hartford, Conn.
 R. DALE BENSON, Philadelphia.
 C. G. SMITH, New York.

REPORT OF THE NATIONAL ASSOCIATION OF AUDUBON SOCIETIES.

BY WILLIAM P. WHARTON.

To cultivate in the public mind a more lively appreciation of the value of preserving the wild bird and animal life of America, is the object of the National Association of Audubon Societies for the protection of wild birds and animals. Backed by thirty-eight state Audubon societies, the National Association is directing its endeavors along certain definite lines of activity.

Coöperating with state forest, fish and game commissions and with local clubs, organized for game protection, the association is an important factor in aiding to secure legislation looking to the protection at all times of the valuable non-game birds, and the preservation from undue killing of the various game birds and game animals with which the country is blessed. In forty states the Audubon law for the protection of non-game birds has been enacted, and in many other states Audubon bills for the establishment of state game warden forces, the shortening of seasons for killing game, the creation of game protective funds by requiring hunter's licenses, limits on the number of game birds which may be killed in a day and other restrictive measures have been enacted.

The association has always been active in advocating the passage of various federal laws looking to the conservation of our native wild life. Through its officers, agents and members large numbers of violators of the game laws are annually reported to the state authorities and in many instances prosecutions are begun and pushed by its representatives.

Its continuous fight against the millinery traffic in the feathers of native birds is a well-known subject in contemporaneous history. To safeguard American water birds, the association has purchased, leased and in other ways secured control of numbers of islands, lakes and swamps where birds of this class are accustomed to congregate in great numbers for the purposes of laying their eggs

and rearing their young. Today virtually all of the important breeding colonies of birds on the Atlantic and Gulf coasts of the United States, as well as many of those along the Pacific coast, are guarded in the summer by wardens employed by the association. Through its efforts, the United States Government has been interested in establishing fifty-three bird sanctuaries by making islands and lakes frequented by breeding birds in summer federal reservations. The association coöperates with the Government in paying for the services of wardens who guard these birds from the inroads of hunters who may desire to kill them for food or to secure their plumage for the feather markets.

The association conducts a wide educational campaign by means of lecturers and the annual distribution of hundreds of thousands of pages of literature and pictures of native birds. It is pushing the organization of bird study classes in the schools, and as an example during the past year, over ten thousand Southern school children received systematic instructions in bird study.

The association in its various fields of endeavor coöperates with the officials of the United States Department of Education, with the United States Commissioner of Education and numerous scientific societies. Its growth during the past few years has been almost phenomenal and the results achieved in rehabilitating the bird life of many sections of the country is a source of great encouragement.

A LETTER.

From J. L. Van Ornum, Representing the Society for the Promotion of Engineering Education and the Society for Testing Materials.

Had there been time for me to extend the greetings of the Society for the Promotion of Engineering Education to the Third Conservation Congress, I should have stated that:

At our annual convention of fifteen years ago a paper was presented on the subject of "The Conservation of Government Energy Through Education and Research," in which the statement is made with reference to our natural resources, "the Government must be possessed of large resources and a settled policy. Resources are not so easily commanded now as formerly. All sources must be guarded and everything realized must be successfully husbanded."

In the work of the engineering colleges, which distinctively consists in educating young men in those fundamental principles which particularly concern the direction of the great resources of materials and power in nature to the use and convenience of mankind, the student is trained to regard wastefulness as serious a fault as he does otherwise defective design.

With this idea of the essential economy of their plans and works thus impressed, engineers have been filling their place in the development of the material resources of the Republic for more than half a century, until there exists a body of trained men to whom conservation is an ingrained trait.

Having this common ground of interest, it would seem that each organization may be of service to the other; that which I represent gaining an enlarged interest in those social, economic and moral questions which so vitally affect human welfare, and you, perhaps, utilizing the trained experience available to most fully disclose the true conditions upon which conclusions must depend, so that the principles advocated may always be based upon ascertained facts.

As I listened to the reading of the resolutions on the last afternoon, it seemed to me that if the situation referred to in my last paragraph had been utilized, the statement with regard to the purity of rivers would have been materially modified. I think that civil (sanitary) engineers are rapidly realizing that there is a practicable limit set by conditions of civilization to the absolute purity of rivers, in some cases, which has been theoretically deemed desirable. However, I wish to say in general, that it seems to me the resolutions passed by the Congress are excellent.

ADDRESS.

By J. C. BAUMGARTNER of California.

I regret exceedingly that a gentleman from our state with whom many of you are well acquainted, a former governor, George C. Pardee, who is the chairman of our State Conservation commission, is not here. I feel wholly incompetent to represent California upon this occasion, but have been asked to say just a few words.

When the governor of California asked me a few days ago to take a place upon the state Conservation commission I was very proud and glad to do so. I happened to be a newspaper man by profession, and quite a number of papers throughout the state had little items about my appointment, and the heading in many instances read something like this: "Baumgartner gets a fat plum," "An editor recognized," and so on down the line. I made a little reply to that in this way: I said that I was very glad indeed to be recognized as a man who was willing and perhaps in some little measure competent to have a part in the great work of conservation, without money and without price, as you all know, and as was expressed from this platform this morning, this work is a work in which no individual has any selfish interest. It is a public-spirited work. And it is certainly one of the biggest and best things that is going on in this country today. Nothing has been done in California by the state government by way of recognition of this work until within the past few months. So that we who are here from that state are here to learn, and not to attempt to instruct. If we can learn our A B Cs here, we shall feel that our time and money have been well spent in coming here.

About five or six months ago—I haven't a recollection of the exact date—the Conservation commission of California was appointed and began its work. I have had the pleasure and the privilege of attending only one meeting which was held a week ago last Friday, and at that meeting I was prevailed upon to come to this Congress, because other members, more competent to represent the state, could not leave home. Accompanying me are other gentlemen from that state. The secretary of our state commission, and representatives of other phases of conservation are here. We have a great deal of rich agricultural land in California, and we are a little shy of water in some places. We have ideal conditions in many respects for manufacturing, but we are also a little shy on coal. So that we turn our attention naturally to water and power first. We have entered into cooperative agreements with federal employes, representatives of the various federal bureau-departments, who are working in our state, especially the geological survey people, and the representatives of the department of agriculture, and we have men of our own in the field gathering data on those important phases of conservation in California—water resources and power resources. The work has only just begun, but we feel that we were fortunate in securing this cooperation of the National Government. It is barely possible that this may be a suggestion to some other state. We entered into agreements with these people to gather the data that we need in order to give us the information necessary for intelligent recommendation to the legislature as to the necessary legislation in our state. This work has just begun, and we feel that we have saved a great deal of time in not having to organize a complete force of our own, and also a great deal of money has been saved in eliminating overhead charges. These gentlemen are gathering for us complete data as to the amount and character of lands that can be irrigated, and complete data as to the water that is available for irrigating those lands. We also in our last legislature, in addition to providing for this commission, provided for a board of control of water power, and under that law the state has absolute control and regulation of water power. In California there is sufficient water power to turn every wheel that is now turned in the United States. It is estimated by federal government experts that we have in California in use and operation 250,000 horsepower, and that we might easily develop five million. It is also estimated that this five million horsepower on the basis of the price of coal in California is a billion dollars a year. So you can see how important that phase of the work is to us. We are accompanied here by the secretary of our commission, Mr. Louis R. Glavis, and during the course of the convention if there is anything that any one wishes to ask about our work or plans, Mr. Glavis can no doubt answer the questions intelligently. Very likely I could not if the questions were put to me.

We wish to say in this same connection that we would indeed be glad to have the representatives and the conservation commissions in other states and all conservation bodies and organizations, send us any information they have that

may be of benefit to us, and we shall be glad, indeed, to reciprocate that courtesy. I do not think there is anything else that I can say, ladies and gentlemen. We merely wanted you to know that we were awake, or just beginning to get awake in California on this important subject, and that we shall give it our best efforts, and invite your hearty coöperation. I thank you. (Applause)

REPORT FROM IDAHO.

BY MRS. HOLLAND C. DAY.

While I am not a native of Idaho, I must say that I claim allegiance to the state of Missouri, and Governor Hadley is my governor. (Applause) But, as I spent many months in Idaho, I was appointed by the newspapers to speak a word for Idaho in case there was no one else here to represent her. Therefore that is my excuse for appearing before you.

Through the Carey act Idaho has had more opportunity to be settled than through the general homestead act, as there is not so much time required to stay on the land before beginning to cultivate. Of course, you all know that is a sage brush country, and there is lots of grubbing to be done there. A few years ago I helped to plant an orchard of 167 acres. Eight thousand fruit trees were planted there. It is called Pasadena valley. From my little hut we counted sixteen settlements of school teachers and their wives, and young people settling in that valley, making a new start in life. That valley blossoms, I was going to say, like a rose, but I mean like an apple tree. For two years now these apple trees have been growing and putting out fine new shoots and they have been obliged to cut these twigs away in order to have the best kind of apples two years from now. Dr. Morrison's orchard is situated in Pasadena valley; he has 167 acres there. He is a man well known in the State of Washington, and he took up this land for the sake of inducing others to come. Now, as far as the irrigation problem is concerned, you all know about it. I am confined to five minutes, but I want to say that the sooner the people of the United States, especially of the East, will not think so much about the productiveness of the soil as they will of the locality, and they think more of the locality I would say, than the productiveness, then the whole western country will be a Mecca for some of the hide-bound people of the East. (Applause)

Now, I am a New Yorker myself originally. I was a New York girl up to thirty years ago, and now I am a Missourian, and once a Missourian always a Missourian. And when I went out West they did not have to show me, either. (Applause) But I see the people of the East do not understand the conservation theory as well as they might. I have talked with many, and you take up the New York papers, and you will find that they are very provincial. There is nothing outside of New York. You have to come West and get the western papers to find out what is going on all over the world, and conservation is the touch-word nowadays. I want to say that Idaho is heart and soul in this movement. I represent a paper that goes all over Idaho and is looking forward to some report from this Congress with a great deal of interest, and I shall be pleased to report it as well and effectively as only a woman can. I thank you very much, and if you want to plant any orchards and have them grow and make money, and send your apples to Europe and all over the world, come to Idaho, to King's Hill or Glenn's Ferry. I thank you. (Applause)

REPORT FROM ILLINOIS.

BY COLONEL ISHAM RANDOLPH.

COL. RANDOLPH—I bring you God speed and the good will of our Governor who cannot be here himself. He is lying upon a bed of pain with a broken leg,

but that is the only thing that is lame about him. He is as determined in spirit, and as earnest in his efforts for the good of his own people and for the good of the whole Nation as though he was sound in every bone in his body.

Illinois, the sister state to Missouri, is not a novice in the conservation movement. She began it a long time ago. She has had her conservation work going on for many years, and she has learned that in union there is strength. In Illinois we have had for a number of years, the Internal Improvement commission, which joined hands with the State Geological Survey, with the United States Government Survey, with the water survey, with the fish commission, and hand in hand they have worked for the development of the state and the conservation of our resources. Something has been said about the failure of the land in the East. It was my good fortune to be a delegate to the first Conservation Congress in the White House. The president of our Illinois University, in the course of his remarks said, that so much was said about the misfortunes, of the impoverishment of the land of New England, of the lands of New York, of the lands of Virginia and other eastern states, but, he said, "My friends, I do not so regard it. The impoverishment of these lands has sent the sons of those states to build up the West. They have carried with them their energy, their brains, their character, and they are making the great West what it is today." I repeated that to a distinguished educator in agricultural lines who is now in this audience, and what do you think his remark was? He said, "Did he also go on to say that wherever the English-speaking people had set foot they had robbed the soil, and given it nothing back?" Now, our universities are teaching our English-speaking people, and our people of all languages, how to give back to the soil that which has been taken from it. Our University of Illinois, with its experiment stations, its work on behalf of agriculture, has so educated its people that each year the results of that education is to give back to the state more than all the money that Illinois has ever put into this great institution. It has been said of a great eastern college that it is a kindergarten for hell. Not so of our great institutions. That is a kindergarten from which we are educating men to rebuild our state, to make it agriculturally and in every other way, what that great state should be. We have in Illinois a number of things to be conserved. We have our coal resources. These problems have been taken up by the Geological Survey, and are being handled in a way which will result in great good for the state. We have no arid lands in Illinois, but we have flooded lands, overflowed lands. We have hundreds of thousands of acres which we are now starting in to reclaim. It is the business of a commission which was appointed by the State of Illinois to study its streams, to look out for the interests of the state, to recover from all unlawful owners, unlawful seizure of lands which rightfully belonged to the state. It is the business of that commission to conserve the water power of the state. There is a great asset for which our Governor is making an excellent fight. The question is, shall Illinois own the water power of the Illinois river, and conserve it for all use, or shall private capital own that, and all the people use it by paying for it? It has been said that we have been defeated in this thing. Why, gentlemen, as a great leader—I believe he was a commander of a vessel—when called upon to surrender said, "We have just begun to fight." We are going to conserve that water power for the people of the state and we are going to give the state and the Nation a water way. This is a congress to consider the conservation of the land, the soil development of the land, but, gentlemen, you must bear in mind that this country is growing by leaps and bounds, and that the railroads of our country cannot keep pace with the transportation demands. We must look to the future. It is said that our water ways are of no use today. Ah, but they will be of use. The time is coming when these water ways, when every water way that can float a boat will be required to take the produce of our farms to market. The time is not long past when our railroads were so glutted with produce that the farmers were losing their hard earnings because they could not put their grain into market. This occurred at a time when the population of the states which may be considered tributary to the Mississippi river were only 31.4 per square mile. The same census gave Great Britain a population of 312.5 to the square mile, and these states are so rich in soil that they will support a population equal to that of any other area on the face of the earth, and that population is coming—you cannot begin to get ready for it too soon. In 1913 at the present rate of progress the Panama Canal will be opened to the nations of the earth for business. Will the Mississippi valley be able and ready to float its produce down to avail that great opening, or must it go on forever shipping its produce by rail to some Pacific or Atlantic port, to be there loaded into the vessels, and go through this canal in vessels that ought to be loaded at your own doors, in your own city? I make this appeal for the water ways, and I make it brief, because my time is up, and I thank you for your attention. (Applause.)

REPORT FOR INDIANA.

BY HARRY EVEREST BARNARD.

I represent the Indiana branch of the National conservation association. The state which is the center of population, the center of industrial activity, the center of literary activity. We believe that Indiana is the state most progressive in the way of constructive, conservative legislation of any of the states of our great country. During the last few years our legislature has been doing active constructive work. We have this last year placed upon our statute books the first cold storage bill passed in the United States which is really constructive legislation. We believe, in Indiana, that conservation means utilization, economic utilization, and that the manufacturers who know how to make a better brick out of Indiana clay; the health officer who shows us how to conserve and improve the health of our school children, or teaches us how to build a better school house; the man who can produce a new product out of Indiana oil, is a true conservationist. The state boards of health of Indiana have been devoting most of their time in the last few years to a study of stream pollution. We have been studying the pollution of the southern end of Lake Michigan, by the industrial activities at the northern end of our state. We have shown the citizens in that northern part of Indiana how they are pouring their sewage into Lake Michigan through one pipe and drawing water from Lake Michigan through another. At the present time we are studying the pollution of the Ohio river by the sewage of the cities of Indiana, and we have now demonstrated by a survey which is still in operation, but which has covered over 300 miles of the Ohio river, that wonderful stream of water is nothing but a stream of sewage its entire length, wholly unfit for drinking purposes.

Indiana is regulating the propagation of the unfit, by effective legislation. Indiana is taking a stand in the front of all health organization work. It has this last year introduced compulsory medical inspection of school children. Within the last two years Indiana, although not at the present time a forest state, has become aroused to the necessity of work along the lines of intelligent forest conservation, not only because we need the lumber, and the timber and wood, but because we need to preserve the life of our streams. Indiana has found that within the last twenty years the ground water level throughout the state has been lowered some twenty feet, and is now realizing that without proper forest conservation it cannot expect to find sufficient water for its needs in the not distant future. (Applause.)

REPORT FOR IOWA.

BY THOMAS H. MACBRIDE.

I shall say nothing about the resources of Iowa. This is an intelligent audience (applause) and I take it there is not a man or woman in any state in the United States who does not know all about the fact that Iowa is the most magnificent garden on the face of the earth. I shall, therefore, say nothing about Iowa. I do say, however, that my notion of this whole conservation movement is simply the devotion to an idea. And that idea is the right use of this world. Our problem, therefore, is the right use of the state of Iowa. Now, then, we have magnificent soil; we have streams that run riot in spring and winter and are so dry in summer that all the large catfish have to move away. We have lakes, the most beautiful perhaps of all the lakes, the small lakes, on the northern plains. We have some forests, and Nature put the forests in the right place; she put it to protect the streams. Four years ago the legislature of Iowa made provision for a commission which should report upon the proper conservation of our soils, our lakes, our streams and our woods. That commission did make a report. That report is available for the members of this Congress; it can be had. That report was presented to our last legislature, our latest legislature was called to the momentous task of choosing a senator for the senate of the United States, and in devotion to that tremendous problem the report of the commission was entirely overlooked.

That report was a good one; I say so because I was a member of that commission, and I therefore make this apology for the legislature of my state, in view of the fact that I think the legislature overlooked the most magnificent piece of work. But in all seriousness, Iowa is at work. The people of Iowa are alive to these problems. We have there many agencies that are at work. Our whole subject is before our state colleges of agriculture, than which it is admitted there are none better. There are many men in all parts of the state who are devoted to this idea, and one of them has been so prominent that he stands above us all today as the president of this Congress (applause). It is therefore less necessary that I should say anything about Iowa. Mr. President, do you believe that hundreds of men and women would leave their homes at their own cost, and at the cost and sacrifice of their own business, for anything less than an idea? And, Mr. President, the time has come when that idea shall win. It must win, if we are going to use this world rightly, because no problem is solved until it is solved rightly. Then, when that time comes, you will see in Iowa, and in all these border states, not only the freest people on the face of the earth, but the happiest. (Applause.)

REPORT FROM KANSAS.

By DEAN H. J. WATERS

Of the State Agricultural College.

I understand that this is a report of progress in the great movement of conservation. I regret that Kansas, unlike Iowa, has no beautiful lakes. They have all long since gone dry, as has Kansas in other particulars, and where these lakes once were are now growing crops, great and bountiful crops of alfalfa, and in the places where Kansas went dry in other particulars there is now growing a great crop of temperate and stalwart men and women. (Applause.) It was said by your distinguished chairman this morning that Kansas was the experiment station of this Nation, and she pleads guilty to the charge, and is proud of it. They have the courage to try any experiment in government, in business, in farming that promises to be successful, and that promises real progress.

You ask what Kansas is doing to conserve its resources? She is conserving her resources of men and women by having less intemperance than any other state in the union; by having less illiteracy than any other state in the union; by having empty jails and almshouses, and having full school houses with seven months of school in every district in Kansas each year; with a teacher, the minimum salary of which is \$50 a month. (Applause.) And, with a larger proportion of our sons and daughters in colleges, in proportion to our population, than any other state in the Union. (Applause.) But, speaking more specifically concerning the questions immediately before this Congress, what is Kansas doing towards the conservation of her so-called material resources? Our last legislature made provision for a state commission of conservation, and I regret exceedingly that the chairman of that committee happened to be absent at this particular moment, so that I might have been spared the embarrassment of speaking for the state on this occasion. That commission is actively at work, and is considering the matter of soil fertility, of the education of the people in the country and in the city, and considering all matters that would naturally be considered in connection with this subject.

And then, what has the agricultural college been doing along this line, and these agricultural colleges have been the pioneers in this field of conservation? Last year the Kansas state agricultural college spoke to 150,000 people in Kansas concerning the question of conservation, and at every farmers' institute held in that state for the last six years the question of soil fertility has been discussed, and has been the topic of discussion at meetings, and the details of soil fertility has come to be a household word.

There are today in the state of Kansas 340 farmers' institutes or farmers' clubs, that meet once every month, with a membership of 14,000 heads of families, the membership representing sixty or seventy thousand persons. They discuss once a month the details of prosperous, progressive and successful farming, including soil fertility. In the great corn belt, on an average fully 25 per cent

of our great corn crop—and the greatest crop we produce—is wasted for the want of a silo in which to preserve it. In Kansas four years ago there were 62 silos. The agricultural college has made a special campaign through its extension department along this line, and today there are 2,000 silos in Kansas, and all of them full. That is the only thing I know of in Kansas that is full. Within the last six years the area of alfalfa has been doubled; and this is in the line of conservation, for here is a crop that enriches the father but does not impoverish the son, and that is but a part of what Kansas is doing. I say these things not boastfully, for Kansas is not doing a quarter of what she ought to do in these lines, and not a quarter of what she will do in the very near future through the stimulus of great Congresses like this. (Applause.)

REPORT FOR LOUISIANA.

By FRED L. GRACE.

Just a few words about conservation from our state, Louisiana. Our very emblems are symbolic of conservation. Our state emblem is a pelican, the only bird of flight that will pull the flesh from its own breast to feed it to its young. Our state flower is the magnolia, whose stately trees by the same name grow all over our state, and whose wood is very valuable for furniture.

At the last session of the general assembly of Louisiana, under the progressive administration of Governor J. Y. Sanders, there were enacted and made into laws twenty-nine measures relating to conservation of our natural resources and the preservation of the gifts so bountifully provided us by an all-wise Providence.

Louisiana leads in the production of lumber, as well as sulphur, and salt, much mineral oil and gas. In fact, Louisiana leads in having the greatest store of natural resources.

She has in pine lands, as near as I have been able to figure, about 4,269,923 acres.

In hardwoods, such as oak, gum, willow, persimmon, hickory, magnolia, beech, elm, sycamore and poplar, 3,338,486 acres.

In cypress approximately 900,000 acres.

We have, in Louisiana, two mills which alone cut daily nearly one and three-quarter million feet of lumber. Of these the mill of the great Southern lumber company of Bogalusa, La., and Fullerton, La., is the largest in the world.

This company is putting in an alcohol plant so that utilization can be made of waste products and they be manufactured into alcohol. The number of employees at this plant and their logging operations are about 1,600 to 1,800. Their motto is, "Utilization as well as Conservation." They now make charcoal of the limbs, and paper and alcohol of the refuse wood and sawdust. In a short time they will begin to work the stumps, and in connection with this I will add that there is more turpentine in a stump than in any part of the tree. Utilization of the stumps will clear the lands for farming purposes and these soon will bloom with growing crops.

Louisiana has many bayous and creeks and all of these are lined with mills and lumber companies which are steadily cutting on the vast supply at hand. Our forests are teeming with woods of all kinds and Louisiana has more kinds of woods than any state in the Union.

The long leaf pine of Louisiana obtains preëminence over those of other states for its superior qualities of strength and elasticity, combined with comparatively light weight and ease of working, making it adaptable to many classes of work.

Our cypress, which grows principally in the southern part of the state and also to some extent in the lower and swampy portions of the middle and northern portions, is of extremely slow growth, but is the most lasting of all our woods, and under water is practically indestructible. We ship more cross-ties of oak and cypress than any other state, a great many of these being creosoted and exported to foreign countries where they are in great demand.

Another tree that is springing into prominence is the pecan. East Baton Rouge has a pecan orchard of 700 acres and the Parish of Iberville has a number of varieties of several hundred acres each. In some of the parishes bordering on Bayou Teche, inhabitants are going into the culture of this tree on a large scale.

The profits in this business are large, each tree producing, when having attained a growth, one or more barrels of the pecans of which the average price is from 15 to 25 cents per pound.

We are now drafting laws for the protection of timber from devastation by fire and from indiscriminate logging.

Over in the southwestern part of Louisiana is located the plant of the Union Sulphur Company, engaged in the mining of sulphur by a novel process.

The product is mined by being melted by superheated steam pumped down through the deposits and it is then pumped up in a molten state and allowed to cool and solidify in vats where it is broken up and shipped to market.

This mine is one of the largest in the world, if not the largest, and its output is close to one thousand tons per day. This, I think, shoves Sicily hard for first place in the production of this mineral.

Borings made by the company to ascertain the amount of sulphur in that vicinity show fully 40,000,000 tons underlying their holdings.

The discovery of the famous Beaumont oil field in 1901 was the signal for oil exploration, both in Texas and Louisiana.

Since that time Louisiana has proven to have within her borders oil deposits second only to the famous Pennsylvania fields. And the deposits of the Caddo field are generally conceded to be the greatest single field in the world.

The depths at which oil is found varies from 500 to 2,200 feet in the different fields.

The Welsh and Jennings fields have produced oil at from 1,000 to 2,000 feet. And while these fields in their beginning produced gushers, they are now all pumpers and are producing in the neighborhood of 10,000 barrels per day.

Along with oil in the Caddo field have also been found large supplies of natural gas and this is now being utilized in many ways and will continue to be, as the supply is seemingly inexhaustible.

A great waste of these valuable mineral deposits was made before pipe lines were built and receptacles constructed. Now the matter is being taken in hand and soon, under the conservation measures adopted at the last general assembly, control of the situation will be complete. There is still some work along this line to accomplish, and at the next session of the General Assembly these will be written in our statutes.

The conservation of game and fish, as well as the other natural resources, is most momentous to the people of our state. Louisiana has adopted good and sound measures for the protection of her game and fish and has created a commission with a system of wardens and provides that hunters shall contribute to the support of the commission for protection by the payment of a nominal license for the privilege of hunting.

Of course, changes will have to be made, but the ground work has been done.

Louisiana has in her many streams and water courses, as well as in her bays and lakes, a vast supply of fish and shrimp. The shrimp and salt water fisheries furnish employment to a great number of persons. These are dependent on the supply of this valuable resource and are directly interested in the protection of it.

The oyster industry during the past year has enjoyed a healthy and expansive growth, and while the general business depression has affected the canner, still a great many acres of water bottoms were leased for oyster culture and other improvements were made.

There are now under lease and cultivation over 14,391.24 acres of water bottoms at \$1.00 per acre per annum, and yielding on an average of two hundred barrels of oysters per acre.

There are more than 2,700 boats engaged in the oyster industry and 2,400,000 bags were caught last season with a market value of something over \$2,000,000.

The shores of Louisiana are largely indented with lakes, bayous and bays, where the tides ebb and flow daily, mixing the salt water of the Gulf of Mexico with the fresh waters of the Mississippi river and the bayous and small rivers leading therefrom. The area of this water surface, susceptible to oyster culture, is calculated to be 4,720,502 acres.

There are now under cultivation slightly over 15,000 acres, producing about 200 barrels of oysters per acre each year, and something like 62,740 acres, esimated, of natural reefs where oysters grow wild and unaided.

Deducting the leased bottoms and the natural oyster reefs from the total area mentioned would leave about 4,660,000 acres of barren bottoms at present unproductive, but which, with the expenditure of labor and a small amount of money, could be made to yield enormous revenues and be a great source of food supply.

The oyster industry of Louisiana offers to the people of this country one of the greatest fields of exploitation and development.

Salt has been known to exist in Louisiana for many years, and has been mined

commercially in one deposit, that of the Avery salt works, since 1862. This deposit is one of pure salt rock and at the present time nearly a thousand tons a day are being produced. This is only one of the several similar mines in Louisiana and I have no doubt that there are many very valuable deposits of salt yet undiscovered and undeveloped.

REPORT FROM MASSACHUSETTS.

BY PROF. FRANK WILLIAM RANE,

State Forester.

Complying with the request of the officials of this association in reporting herewith for the state of Massachusetts, I wish to say at the outset that I feel certainly incompetent to undertake the task and to point out the numerous activities that the good old Bay State is fostering. Being a Massachusetts citizen by adoption only, I feel privileged to express myself more frankly as otherwise my report might seem prejudiced.

We have in Massachusetts, in the first place, a conservation of the old time ancestry which is not only renowned for its brilliant deeds in the Nation's early history, but is still firm and abiding even after these many years. What state has a fairer reputation in its dissemination of its natural resources and still lives to enter more heartily into the conservation and restoration of those remaining.

The historic setting and general environment of Massachusetts in the early days of the Nation are natural resources that constitute an ever-bubbling fountain. Yearly the pilgrimage to the old Bay State of thousands upon thousands from throughout the Nation to visit Boston, Concord, Lexington, Arlington, Cambridge, Salem, Plymouth and a score of other cities and towns goes to show what the conservation of high ideals and true patriotism mean.

The state has always been liberal, progressive and a natural leader in all that stands for education, advancement and enlightenment.

Many wonder at the splendid showing that Massachusetts always makes and seem confounded at her successful progress. The explanation is that as a state we do not confine our interests to state bounds, but our people are equally interested in promoting and developing copper and other mines or sheep ranches and other industries in the South or West, as much as they are at home. Succeeding elsewhere means also better opportunities for home development. In this way mutual associations and enterprises of a stalwart and permanent nature are established.

The old biblical saying that it is more blessed to give than receive is literally true of the old Bay State. While she has been generous in the Nation's life, yet there are few states that for their size have greater natural advantages and hold out better prospects for success in the future.

Contrary to the minds of many, Massachusetts has advantages that are hard to surpass. I wonder how many have read the article entitled "Golden New England," by Sylvester Baxter, which appeared in the Outlook in 1910. If not, you may be interested in doing so. The author therein portrays various rural industries and very entertainingly points out their success. One of our enterprising business houses, N. W. Harris & Co., bankers, Boston, very kindly has sent out excerpts to those desiring the same.

Massachusetts is a state with many manufacturing centers and, therefore, a great consumer of all kinds of resources, particularly in the raw material. This material is put through our factories and goes out as the manufactured article.

Our high standard of education in literature, science and art has evolved men of usefulness. In the modern or applied sciences we point with pride to our technical, agricultural and trade schools which are already accomplishing results toward conservation, restoration and economic utilization of natural resources.

Massachusetts people began to see the handwriting on the wall many years ago and even before this Congress was born they were agitating and accomplishing actual results. Our cities and towns are already well forearmed with generous water supplies. The great metropolitan water system of Boston and its suburbs, already a reality, is one of the greatest engineering feats yet accomplished in its line. Our metropolitan and municipal park systems are a credit to our people. The state highway system of Massachusetts needs no introduction to an intelligent audience like this, as its reputation has attracted road engineers from all over the world and

many states have come to the Massachusetts highway commission and induced our men away. Dr. Field of the fish and game commission is here at the convention; hence, he will inform you of this field of our activity. Simply let me say that our marine natural resources are far greater than most people realize. Massachusetts has a large and important coastal boundary and were I able to tell you of the great possible future we have in mind even for the old historic Cape Cod country, I know it would interest you. While the great fishing industries of Old Gloucester, Nantucket and New Bedford are not as thriving as in earlier times, nevertheless with the guidance of modern science to water farming, we have great promise of the restoration of these industries that will go far toward feeding the Nation in the future.

Speaking of fishing and game, forestry, natural history and Appalachian clubs, I am frank to say that I believe there are no people on earth who are more in love with Nature herself, heart and soul, than our Massachusetts people. We have organizations galore and they are not only organized but bubbling full of real activity and accomplishing things. Were you the state forester of Massachusetts, I can guarantee that you could spend your whole time simply lecturing on conservation or forestry, as the demands are so great and the work so popular.

In the development of a new nation it invariably follows that conditions are constantly changing, and as intercourse with other nations through trade and business relations progresses, the evils and blessings are shared. While we are greatly indebted to the various countries of the world for many an introduction, nevertheless now and then we unfortunately get an insect or fungus development that proves extremely disastrous.

It would not be fair to Massachusetts in reporting on her conservation policies did I not mention the great fight that the state has waged for years against the gypsy and brown-tail moths. These two insects are indigenous to Europe and while they have their natural enemies and are under subjection there, upon reaching this country they find an open field and with no enemies become a veritable pest.

Both species are destroyers of trees. The brown-tail moth devours the leaves of the deciduous, or hardwood trees only, while the gypsy is no respecter of vegetation and will defoliate evergreens as well, if food is scarce, although it, too, prefers the deciduous. The brown-tail moths besides being tree destroyers, give off hairs from the larvae and moth, which, when brought in contact with the skin of human beings produce a rash that is extremely irritating. Of the two insects the gypsy moth is generally considered the worse. The fact that when the white pine, or our evergreens, are once stripped they die outright; and that the pine in particular is one of our most valuable species, both from the economic and aesthetic standpoint, make their protection from the gypsy moth important.

I will not take time to give you the life histories of these insects, for should anyone be interested this information can be had by applying to the State Forester, Boston, Mass. We have illustrated matter in natural colors showing these insects.

Practically all of our trees in the residential sections of the cities and towns, in the eastern part of the state, are sprayed annually. Our main travelled roadsides are sprayed each year. Individuals, municipalities and the state all co-operate in this work. The annual appropriation of the state is \$315,000 a year. The total expenditure from all sources, within the state, up to the present time in this work is estimated at \$6,000,000. Besides this the United States Government has spent in Massachusetts probably \$700,000. We have had as high as 2,700 men at work at one time in the busiest season of the year. The renewed North Shore, our fashionable summer resort, spends practically \$100,000 a year to protect the trees in this section alone.

The state forester's spraying apparatus is composed of an aggregation of 300 spraying outfits. We use in a single season over 400 tons of arsenate of lead, the state's contract alone being for 250 tons a year.

During the past two years the state forester's department has made great improvements in power spraying equipment, the cost of spraying woodlands having been reduced from \$30.00, or more, per acre, down to as low as \$6.00 in some instances. Instead of its being necessary to climb trees as heretofore, the modern power sprayer enables us to spray directly over the tops of tall trees from the ground. The whole spraying problem has been revolutionized. It is certainly to be hoped that these insects may not secure a foothold elsewhere. Surely Massachusetts is doing her part, and I cannot urge too strongly the necessity of other states and the Nation realizing the importance of this work. We have introduced parasites from all over the world, and they are showing great promise. The work with disease also seems very effective, and I feel optimistic. It is clear that the practice of modern forestry methods, and the employment of highly developed mechanical devices, are doing much, and we trust ere long the parasites and diseases will bring about the desired balance.

Massachusetts is enthusiastically interested in forestry and the state forester this past season was given an appropriation of \$10,000 for forest fire work. We have appointed a state forest fire warden, who is organizing and perfecting a workable system. He is also establishing lookout stations, and patrol systems in different sections of the state.

Our forest management, reforestation and general forestry, educational and demonstration work are all well established and progressing. We have 3,000,000 trees in the state nursery for use another season. The state is planting 1,000 acres each year, and our lumbermen and people generally are showing interest, and doing more each season. Our appropriation, including that for forest fires this past year, was \$40,000.

In Massachusetts the work of restoration is even of more importance than conservation when applied to forestry. The annual cut of our forest products at present amounts to only five per cent of that used each year throughout the commonwealth for manufacturing, building and other purposes. Surely we can and ought to supply a larger amount of our own home grown woods. Although the state has been well cut over, even now our wood harvests play an important factor in the industries of many of our rural sections. While we believe thoroughly in conservation where it will apply, still the more potent force begins farther back. We need to teach the A B C of restoration in forestry. When our work of reforestation shall have begun to demonstrate its value, it will be an object lesson, which will mean much toward perfecting a better state forest policy.

Practical forest restoration, therefore, is what Massachusetts needs most. If we will reconvert our hilly, rocky, mountainous, moist sandy and waste non-agricultural lands generally into productive forests the future financial success from rural sections of the commonwealth is assured. This is no idle dream; it can be accomplished. Massachusetts is a natural forest country and all that is needed is simply to assist nature, stop forest fires and formulate constructive policies. Then we can grow as fine forests as can be found anywhere. Germany and many of the countries of the old world have already demonstrated what can be done. Are we to be less thrifty and far-sighted? Americans do things, when they are once aroused, and it is believed that reforestation and the adopting of modern forestry management must be given its due consideration in this state from now on.

I have been delighted to follow the interest that has been aroused and the great tendency for all our people to not only welcome and appreciate the new idea of "conservation," but to even credit the term or phrase, as covering every phase of new endeavor.

It is not my purpose to lessen the glory one whit or bedim a single gem in the crown of the national phrase, "Conservation of Natural Resources," nor could I were it to be tried, for the heralded motto has already stamped itself firmly upon the Nation.

As time goes on, however, it will be found that our popular phrase will not carry with it the whole panacea for overcoming our wasteful and depleting conditions, and that new and equally applicable terms, though perhaps never so popular, will come to express more aptly our real needs.

To my mind the phrase, "Restoration of Natural Resources," vies with that of "Conservation of Natural Resources," and expresses a force to be aroused in the Nation for good that in many ways surpasses the present popular one.

We have our forest reserves and minerals, what are left, and now to conserve them economically is a worthy undertaking, but in the older sections of the Nation to conserve what we have in depleted and worn out lands and forests is to pick the bones of the withered and shrunken carcass.

Let conservation apply where it may, but the force that is needed in Massachusetts and all of New England, yea the South, extending even well into the middle of the Nation, following the great depleting agricultural cereal and cotton crops on the one hand, and the lumberman's axe and forest fires on the other, is greater than this term can begin to express.

The term, "Restoration of Natural Resources," I claim, meets our present needs far better and breathes greater hope and definite accomplishments for our children's children in the future.

REPORT FROM MINNESOTA.

By D. M. NEILL.

To undertake to tell you of the resources of the state of Minnesota would be to recapitulate nearly the resources of all the states of the union. But I don't understand that is what we are here for. When the governor of Minnesota asked me to come down here, I asked him what I was to say to the people who might be here at this time. He said, "You have been on the state conservation commission for two years, and you ought to know what to say," and in addition to that he said, "Go down and tell them what we are trying to do in Minnesota." That is what I will try to tell you about. In the first place, the men who settled Minnesota looked far into the future. The state had an immense amount of what was called swamp lands donated by the government for educational purposes. These men of the early days, looking to the future, passed a law whereby these lands could not be disposed of except at a minimum price of what then seemed to be a ridiculous sum entirely beyond what these lands would probably then be worth. But these lands are found to be among the most valuable assets of the state of Minnesota, and have sold at double, triple, ten times, and some of them for more than a thousand times the minimum price. So that today the state of Minnesota is next to the state of Texas, has the largest school fund in the United States—something over \$25,000,000—and with the resources on hand belonging to the fund, it probably, in the course of time, will amount to over \$250,000,000. That looks like conservation of our school resources.

In our farm work, our agricultural college has been doing of late years a splendid work throughout the state. In connection with the commercial clubs it has established a considerable number of experimental farms in different localities, to give somewhat of a practical education to the farmers already tilling the soil. The leaders in this movement have felt that the ordinary processes of sending the children to school, giving them an agricultural education, trying to get them back to the farm again—to spread that education was too slow. It seemed necessary to do something with the parents that they may see the necessity for the children having an agricultural education, and for that reason the state agricultural college has been conducting this set of experiments through the experimental farm. The results are already beginning to show.

The state of Minnesota has succeeded in the last few years in raising the number of bushels of wheat alone $3\frac{1}{2}$ bushels to the acre. That is some of the practical conservation of the soil. Minnesota used to have the reputation of having the worst roads in the United States, and I think she fully lived up to her reputation. That condition is very rapidly being changed. The state wide campaign for good roads is being constantly conducted by the good roads commission. The last legislature, in fact the legislature of four years ago, took the matter in hand and levied a small tax for the betterment of the state roads. These roads were required to be built under the supervision of state engineers. If the roads were so built the state contributed one-third of their cost up to a certain maximum amount which to any one county did not exceed \$2,000. That was the starting of the state movement. The last legislature provided for a tax that will raise something like \$2,000,000 to be divided among the eighty counties of the state to aid in the work of good roads. A project is now on foot to build a state highway from the southern boundary to the northern boundary, and one across the state from the city of Duluth to the city of East Grand Forks. These to be great state highways, and all other highways radiating out from them. These experimental roads are built on scientific lines furnished by the state, and are conditioned according to the quality of the soil through which the road runs. The effort is first to get a system of good dirt roads. The state is not yet developed sufficiently to warrant us going in to macadamized roads at this time, except in the large cities.

In the matter of our mineral wealth the state long ago provided that the people at large shall receive the benefit of it. No state land is now sold except where the mineral rights are retained and the mines already opened and in operation pay very large taxes toward the maintenance of the state government, thus contributing to the welfare of the whole people. These are some of the things that the state of Minnesota is trying to do and is doing. I do not feel that I can take the time to go into detail of many other things that we are just starting, the prevention of disease—already one or two tuberculosis institutions have been started in the pine woods of Minnesota—and a general campaign against the great white plague is constantly in progress. My time is up. I thank you. (Applause)

REPORT FOR NEBRASKA.

BY GEORGE COUPLAND.

I have been very strongly reminded today in these remarks that I have heard made that the state that I represent is purely an agricultural state. That is about all the industries that we have. I thought perhaps of one manufacturing interest that we were trying to develop, that of furnishing presidential timber, but we had to give that up, and the factory is in the hands of the repairers today. (Applause.) I think that perhaps there is no more important factor in the development of a sentiment that means what it says, than such a gathering as this. I notice in the paper that I just picked up it is, "Back to the Land"—yes, I am glad that that is the story—for it is out of the land that this country has to maintain its position as a nation.

The state that I represent, I am glad to say, recognizes the importance of perhaps its only industry, and how much its future was tied up in its development. It has had in motion for quite a number of years agencies that are looking forward to the betterment of life upon the land and the development of the natural resources, the only natural resources perhaps that we have. And I am glad to say that this movement had its inception in the hearts and minds of the men who lived upon the land in Nebraska. I am also glad to say that the men who lived in the cities, the business men, have responded in splendid manner to this idea. My mind runs back to that fine pioneer of my state, J. Sterling Morton, and the idea that he had in mind, and I want, Mr. President, to impress the thought that you so beautifully expressed today, that it is not the giving of more expert ability to exploit the soil, but it is the building up within the heart of the man and the boy and the woman and the girl who live upon the land a love for the place where they live; to love the tree that father planted; to love the home that father built, to love the farm that father homesteaded. That is what we want to cultivate. If along with these other agencies that we have in motion, we will see to it that this is emphasized in our educational system, then we will have a better conception of what real country life means. I like to think of my ancestral home, the generations that were born and died on the land. I was born on the land and I hope to die on the land. My children were born there, and I hope that they will have the same sentiment, and be willing and glad to die upon the land. Our state has in motion today—I will hurriedly tell you—I do not want to take any more of your time than necessary—I will tell you the agencies that we have at work. We have a farmers' congress; we have a conservation congress; we have a rural life commission that was authorized by our last legislature, which I consider one of the most potent agencies for the betterment of rural conditions in the state of Nebraska; an affiliated agricultural society which takes in all the agricultural organizations. Every year our state university is their host, and nearly every year we have two thousand representative farmers of Nebraska gathered in our capital city to discuss questions pertaining to agriculture. Then we also have a conservation soil survey which is doing splendid work.

There is one feature to which I want to draw your attention, that I think is very important, and that is the question of sanitation upon the farm, sanitation in the small town. And this has been taken up by our conservation congress. We have different divisions of this congress, and we have splendid men at the head of these divisions, who during the year take pains with the particular work that has been assigned them, and then each year we meet and hear their reports. We have a lot of splendid things that are going forward in our state, and I am sure what we have heard today is inspirational, and that we will go home vowed to do better things. I do not want to boast, but I just thought as I listened to what every man who has spoken for his state had to say, I must tell you this story.

I live on a little farm in eastern Nebraska, which is typical of a large area of our state. If I had to go to the commercial fertilizer man and buy the fertilizing matter, the lime, the phosphorus, the potash, and nitrogen that are wrapped up in the first four feet of the soil that I till it would cost me \$7,000 per acre. If I had to buy the same kind of fertilizing matter that is wrapped up in the first ten feet of the soil that I till, and which my alfalfa fields, when they are planted, supplied, it would cost me \$28,000 per acre. I feel that we own pretty good land in Nebraska, and for that reason we are anxious to take good care of it. (Applause.)

REPORT FOR NEW YORK.

BY JOHN D. MOORE,

Member State Conservation Commission.

On my arrival in Kansas City this morning a man at the hotel asked me where I came from, and I said I came from New York. And he said, "What have you fellows got in New York you want to get conserved?" And I said, "We have the greatest conservation problem in New York of all the states in the Union." In the first place, we have nine million people, over one-tenth of the population of the United States. It is one of our jobs to provide these nine million people with pure water to drink. I told him about the great reservoir on which the city of New York alone has spent upwards of two millions of dollars in order to bring into New York drinking water at the rate of five hundred millions of gallons per day. I told him furthermore that in the state of New York there were 32,000,000 acres of land, and of that more than one-third wild forest land. I told him, too, that in the public parks of New York we had a conservation problem of our own which did not begin three years ago, or five or ten years ago, but began forty years ago when Governor Seymour appointed a commission in 1872 to investigate the matter of public parks and public forests.

Since that time the state of New York has accumulated more than 1,600,000 acres of the greatest parks in this Union, and of that 1,300,000 acres are in the Adirondacks, and in these parks any citizen of New York, or any other state can come and hunt and camp as freely as he will. Furthermore, of the timber land of that park, which is of priceless value, and a value which has been protected by a constitutional amendment adopted in 1894, and not yesterday, or the day before, but sixteen or seventeen years ago. This law says that these lands shall neither be leased or sold or exchanged nor taken by any person, or by any corporation, and the timber thereon shall not be removed, or cut or destroyed. That has placed a perpetual safeguard, the like of which exists in no other state in the union. (Applause.)

In the reforestation we have six state nurseries. In these nurseries there are at the present time 15,000,000 trees. A man this morning said he did not believe it. I told him they were there and he could go and count them. (Laughter.)

Last year we sold to the railroad companies, and to the lumber companies of the state of New York approximately two million seedlings, and obtained for the state of New York something upward of ten thousand dollars. The state law says we must sell those seedlings at cost. We are able to furnish to the lumbermen and the railroad interests of New York seedling trees at the rate of less than one-half cent apiece. Furthermore, the state has reforested, as an example to her citizens, more than 6,000 acres of its own land. Those trees are there, and constitute an object lesson to every visitor to the Adirondacks. This afternoon I heard some of our friends say what their state was doing for good roads. The state of New York has expended within the last five years upwards of \$100,000,000 for its state roads. (Applause) Of that we have built 10,000 miles of road—not dirt road, or earth road, but the finest kind of macadam roads, running from sixteen to twenty-four feet in width. We are gridironing New York with a system of highways the like of which is not found under the Stars and Stripes. More than that, we are not devoting our attention entirely to the development of our land locomotion. We are equally strong with water ways.

The Birch canal of the State of New York will be completed within three or four years. The state has appropriated money, sold bonds, and got the money in the treasury for \$101,000,000 of Birch canal improvements in order that you Western gentlemen can bring your wheat on boats to the seaboard at the lowest possible cost of transportation. (Applause) Furthermore, we have a system of fish and game laws which is extremely rigorous and has had a marvelous tendency to improve the condition of the wild life of the state. I hold in the State of New York, ladies and gentlemen, that we must not look after only our water power and our forests; we must look after the wild things that live in the water and forest—the fish and the game. (Applause) The deer have been so thoroughly protected by our laws that they have increased so that last year in the Adirondacks there were killed 16,000 deer. Trappers tell our woodsmen today that never in the history of the Adirondacks have so many deer been seen.

This may appear to you strange. It is strange, except when we consider that in primitive times before the settlers came with firearms wolves were abundant in the Adirondacks and preyed upon the deer. Now there is not, within the confines of the State of New York, a single wolf—not one. The present legislature has passed a game law which has been in effect since the first of September, and

we take a fair view of the protection of wild life. We are not confined to the protection of game in New York State. We have extended it to every state in the Union. The game law says in effect this: That you cannot bring into the State of New York and sell in the State of New York a bird or animal which has been killed under the American flag. In other words, we have closed to the pot hunter and the market hunter, to the slaughterer of game, the richest and the most plentiful market which they have enjoyed in the past. We have turned it to good account. The law states that they may bring in from foreign countries outside of the United States the unplucked carcasses of birds and venison. Incidentally we expect to import this year 100 tons of venison, and we have already imported 200,000 birds, and upon the leg of each the state has fastened a tag, and exacted for the tag one nickel. So out of the 2,000,000 birds which the dealers tell us they will import this year the State of New York is going to exact the magnificent sum of \$100,000 and maybe more. This game law should be a lesson to every state in the Union. It is not fair for a state to protect its own game and fish and let the state be a market for the game of its neighbors.

The State of New York, gentlemen, is more prolific and a more bountiful spender in water power and more bountifully supplied with this power than almost any other state of the Union. I won't dispute the figures of our friend from California who says there are 5,000,000 horsepower running loose there, but I do know that whereas his state has developed 250,000 horsepower, the State of New York, outside of the St. Lawrence river and Niagara Falls, which are really international waters, and do not come under consideration, my commission has upwards of 650,000 horsepower and we know from actual survey which costs hundreds of thousands of dollars and has been in progress some eight years, that a million horsepower is still going to waste, but that million is to be harnessed and put to use, so that the State of New York can get some of the profits which have heretofore gone into private coffers.

REPORT FOR OKLAHOMA.

BY MILTON BROWN.

As yet Oklahoma is not conserved in presidents like Ohio. We have conserved a lot of fads and vagaries and isms down there, but nevertheless notwithstanding all that, Oklahoma for the past two years has got down to a practical standpoint in this matter of the conservation of our material resources and a few of the items I want to mention in my five minutes are these. First, good roads. We are now constructing a road, beginning at the north line of Oklahoma and running almost through to the south, across the whole state, to be entirely of macadam. Of course, the Automobile Association started the matter in one sense, but yet all the farmers' institutes joined in, and the two are now working together. Not only have we state aid in that matter, but we have aid in the counties. That is one item of the good roads that will make some of these older states ashamed of themselves when they come down to Oklahoma and see it. (Applause)

Another proposition is that we have gone into the development of our water supply down there for our own consumption, not only for the farmers but for the cities, and that, too, without any Federal aid. Some of the older states have been aided by donations from the Federal Government, and although millions of dollars have been taken from Oklahoma by the sales of lands to the settlers of that state, not one penny has been returned to Oklahoma in the way of any particular aid in the matter of the conservation of these resources. Yet at the last session of our legislature we appropriated \$45,000 for the purpose of sinking deep wells in the extreme northwestern part of Oklahoma to get down to the underflow water, so that we can irrigate the lands out there in the extreme Northwest. They are going ahead and now have several of those wells in operation.

Another proposition is that these underground waters in the northwestern part of the state are just like the underground water in Nebraska, in Kansas and Colorado; they flow along with the country, with the fall of the country from the mountain ranges. We enacted a law at the last legislature to encourage any person, any firm, any corporation that will come in and put down wells, drains, dams or

anything of that kind, and encourage them by exempting them from taxation for a period of five years. That is having its effect already. Some parties are there now engaged in the North Canadian and in the lower Canadian making surveys and putting in plants to raise this underground water by a process of gravity underflow and bring it out on the surface to spread it over our broad acres.

Also we have a pure water supply for the city, keeping the sewage separate and apart. We have laws upon that subject and they are being enforced.

We finally had to go into the Federal Court to have one proposition settled down there, so that our swamp lands could be drained under the law passed by our state legislature. We had a state drainage law by which they undertook to drain some of the lands southeast of Guthrie and Oklahoma City. That entrenched upon the railroads, and they set up the howl that the act was unconstitutional, that we could not change the bed of the river, that we could not change the flow of the water so as to bring our ditches in and drain the swamp lands. But Judge Cotterill of the United States Court held that law constitutional, and that big drainage ditch has been constructed and the swamp lands there have been reclaimed within the last year.

You remember the Arkansas river; if you have ridden along on the Santa Fe railroad out in Kansas you have seen it at times when you could walk across it dry shod and would not get your feet wet, for the bed was as dry as a bone. And yet from Arkansas City south there is more water. Congress passed an act, and today they are working on a survey, making the preliminaries up as far as Muskogee, and they propose to go on up to Arkansas City, so as to make the bed of that river broader and run boats. They have run boats up as far as Arkansas City in times past, and they have run to Muskogee in more recent years. Now, they are going ahead on that proposition to make the Arkansas navigable as far as Arkansas City.

REPORT FOR OREGON.

BY JOSEPH N. TEAL,

Chairman Oregon State Conservation Committee.

On behalf of the Oregon State Conservation Commission and in response to your request, I herewith submit brief report of its work and activities.

The first conservation commission in Oregon was appointed by Honorable George E. Chamberlain, Governor of the state, on May 23, 1908. It was a semi-official organization and consisted of fifteen members. All funds were secured through voluntary subscription.

As the most pressing subject demanding legislation then was the use and conservation of water resources, a water code was prepared and submitted to the legislature for its consideration and action. The bill was adopted substantially as prepared. The act is elastic and practicable. It provides: (1) A simple, inexpensive method of determining and fixing rights initiated under earlier statutes; (2) a precise and definite procedure for initiating and perfecting new rights, beneficial use always being the basis thereof; (3) an elastic administrative board, to insure the enforcement of water right decrees and its own decisions.

The cost of administration is borne by those benefited. Water power franchises are limited to forty years with a preference right of renewal.

While it was not expected the fees provided for would produce excess revenue, the operation of the law has been very satisfactory and more than self-sustaining under the intelligent and careful administration of the State Engineer, John H. Lewis. The beneficial results following its enactment are conceded and are set forth in the official reports of the State Engineer. Since its enactment some minor changes have been made respecting practice and procedure, but none as to principle.

We are now engaged in a careful study of its workings in order to recommend such further changes as experience may show wise or necessary. That changes will be necessary is not to be doubted, but I feel I am safe in saying we have the foundation and framework of a water code based on right principles.

The legislature of 1909 also passed an act creating a state conservation commission of seven members, to be appointed by the Governor, carrying an appropria-

tion of \$1,000. Upon the enactment of this measure the original commission discontinued its work and Hon. F. W. Benson, then Governor, appointed another commission, the membership of which was selected from the original commission.

During the year 1909 the commission offered money prizes to students in the various educational institutions of the state covering the following topics: The Forests in Oregon; Irrigation Institutions in Oregon; Soils; Dry Land Farming in Oregon; Roads in Oregon; Fish in Oregon.

The prizes were awarded and paid according to announcement. The money for this purpose, as well as for other uses by the commission, was secured through voluntary contributions, no public money being used for this purpose.

In 1909 Mr. C. B. Watson, one of the members of the commission, called the attention of the commission to the beauty and grandeur of the Josephine County caves and asked that steps be taken to preserve and keep them in their original beauty as a national monument. The commission took up the matter with Mr. Gifford Pinchot, then Forester of the United States, and on July 12, 1909, the caves were, by proclamation of President Taft, duly set apart as a national monument by an act approved June 8, 1906, under the name "Oregon Caves." These caves are under the immediate care of the Forest Service, being in a national forest. They are of great beauty and will be preserved as a public monument forever.

During the year 1910 the work of educating the public to the necessity of action in the protection of our forests from fire and other destructive agencies was carried on. In coöperation with other organizations a law was framed to submit to the legislature for action. The legislature of 1911 adopted this measure, and it was passed with but few amendments, and in connection with the bill an appropriation of \$60,000 was made.

We submitted to the same legislature a bill for coöperation between the state and federal agencies engaged in gathering physical data of the state's resources and in disseminating the information so gathered. This bill carried with it an appropriation of \$20,000 in addition to the \$5,000 provided by the Act of 1905, conditioned upon the Federal Government appropriating an equal amount. The legislature passed this measure with substantial unanimity.

The commission has prepared and circulated annual reports for the years 1908, 1909 and 1910; also a special report during the years 1908 and 1910 on the rivers and harbors in Oregon, setting forth their needs and requirements for improvement and justification therefor. In conjunction with the Forest Service and other associations, the commission also aided in the preparation of a pamphlet for general distribution on the use of Oregon woods.

The only appropriation the commission has received from the state was the one made in 1909 of \$1,000.

To insure prosperity to the agriculturist, the tiller of the soil, the producer, should be our constant aim. His well-being is the measure of the well-being of the country. The commission has therefore undertaken to aid and further better agricultural methods throughout the farming sections of the state, particularly in the semi-arid regions of eastern Oregon. It is its desire to encourage improved methods, wise selection of products, diversity of crops and increased animal productions. It is operating in close and sympathetic affiliation with the State Agricultural College, the railroads and others taking an active interest in this work. It is proposed to offer prizes, employ an expert farmer to live in the particular section in question during the coming harvest year, to encourage the holding of district fairs, and in every way possible awaken an active interest in better farming methods. It seems to us that a more fruitful field for the principles of conservation cannot be found. It is practical and shows that conservation is a real vital force with a definite object and aim.

It is hoped something can be accomplished toward encouraging the development of this industry in the state. One of the members of the commission is especially qualified for this task, and he has it in hand.

While Oregon is a great agricultural state, it also has large mineral resources. The state, however, has not given the encouragement to this industry that it deserves.

The laws for the protection of game birds and other fowl and food fish are constantly being improved. A very excellent game commission has been appointed with a game warden of national reputation who has the keenest sympathy with animal and bird life, who does not believe in extermination, and who will, we believe, enforce the law.

It has been suggested that the national resources in the various states, and heretofore undisposed of, be turned over to the respective states by the National Government. Personally, I do not think this would be the wise course to pursue. Those of us—and there are many—who were born and raised in the West understand how little regard has been paid in the past to the public interest in the dis-

position of public resources by both state and Nation. We know that it is not necessary for the rapid development of the West that every valuable right and resource now belonging to the public should irrevocably pass from the public to be monopolized by the few. It is my conviction that in every state on the Pacific Coast the great mass of the people is in favor of the conservation of the public resources in the interest of the people as a whole. I do not believe the methods of the past appeal to them. Their face is toward the rising sun. The conservation in which they believe is that which secures the greatest, widest and wisest use. They believe in equal opportunities now, and, what is of more importance, opportunity for their children hereafter. They are not alarmed at national conservation where necessary or proper. They realize that many of the public resources are the property of the Nation and not that of the state. That there must be a wise and sympathetic coordination of purpose and effort. The Nation has its duties and functions; the state has its duties and functions; and the individual has his. They must all unite in a common cause, under a common banner, for the common good. No matter by what name conservation may be called, conservation has come to stay. No more will the great resources of this country, either public or private, be treated or allowed to be treated as they have been in the past. An enlightened public opinion and a growing one will in itself prevent it. A much higher standard in viewing this matter now prevails than formerly. Money and material prosperity are not everything. Patriotism and good citizenship are much more important. We look at things now from a different point of view than we did formerly. Those who are primarily responsible for this great movement builded more wisely than they knew and their work will endure forever. No one need feel in the least discouraged—the old ways are gone forever. All that is needed from now on is a wise, prudent, conservative policy, meeting the problems as they arise and allowing for the greatest possible use, without unnecessary waste, of every resource. The principles are understood. It is in their wise application that wholesome results will be secured.

REPORT FOR PENNSYLVANIA AND PHILADELPHIA.

BY EMIL GUNTHER.

As a concrete example of what conservation has done, I desire to cite the County of Lancaster, which, according to its area, occupies the distinction of being the leading county in agricultural wealth in this country. I am also informed that the children in the public schools are taught the importance of each planting at least two trees each year.

The campaigns inaugurated throughout the states for the conservation of the national resources of our country have secured the attention of the whole Nation. To some it may seem that the East has looked supinely upon the movement which has received the most practical endorsement of the western half of our continent. The City of Philadelphia, however, which I have the honor to represent, may justly claim to have been a pioneer in questions of conservation, nor is there any state more alive to the importance of this matter than the Commonwealth of Pennsylvania.

Philadelphia's place in the history of this movement may not be known to all, but it is interesting to note that as early as 1868 there was organized in our city a national board of trade largely under the initiative of our local board of trade of the Executive Council, of which I have the honor to be a member. That this board has taken an early interest in such matters permit me to quote from an address lately delivered by Mr. George H. Maxwell at the annual meeting of the National Board of Trade.

"I should like to say for Philadelphia that its local board of trade was among the first to recognize by official utterance its deep interest in the question of national irrigation. It expressed in its petitions and memorials the view that the national control of this important subject was of the deepest interest to the whole Nation, independent of locality. It has likewise strongly urged upon the National Government the improvement of all navigable rivers and harbors, believing that such improvements must inure greatly to the prosperity of our whole country and to place our manufacturers and producers in a position successfully to compete with foreign trade."

It is hardly necessary for me to call to your attention the place which Philadelphia holds in the manufacturing world due to its position upon the banks of the Delaware and Schuylkill rivers. Nor have these waterways alone been put to commercial use; they have also afforded to the inhabitants of Philadelphia opportunities of real recreative value.

Philadelphia has recognized that true conservation is to put to proper and immediate use those resources which are peculiarly its own. From the days of the proprietors large areas have been set aside and improved for the enjoyment of the people; under the Fairmount Park Commission has been developed the largest—and it would seem to many of us the most beautiful—park of its kind in the world. Thirty-five hundred acres abounding in streams and woodlands, with formal gardens and wild ravines, are always open to the use of our citizens. There have been organized, not only under municipal control but also through the instrumentality of private citizens, many associations to conserve those resources which are our heritage.

Therefore, it is with pleasure that on behalf of the city of Philadelphia I bring to this Congress a word of greeting and assure you that our interest in all that pertains to conservation is both practical and sincere.

ORGANIZATION OF THE CONSERVATION MOVEMENT IN PENNSYLVANIA.

BY A. B. FARQUHAR,

President of the State Branch of the N. C. A. of Pennsylvania.

Our movement is nowhere a thing of yesterday and least of all in Pennsylvania, where work of the highest value for conservation in certain particular directions has for a number of years been conducted. Only within three months, however, has the cause of conservation in general progressed so far as to have an organization especially devoted to it, and it was on the 23d of last June that the Pennsylvania state branch of the National Conservation Association was formed in Harrisburg. It is of and for that branch that I speak.

The aims and purposes of the branch which I shall first set before you are in ten sections, designated by Bishop Darlington, one of the conferees, as "*The Ten Commandments of Conservation.*"

"1. *A Purified Water Supply.* Since the physical, mental and moral health of our people is the most important of all national resources, and since stream pollution by sewage and by factory wastes is a menace to the health as well as to the comfort of all citizens, the state should continue and extend its systematic investigation of the extent, sources and effects of stream pollution to the extreme headwaters of every stream in the commonwealth, where danger is often the greatest because least suspected, in order to discover the facts and to propose adequate remedial measures. Any further legislation required should be promptly enacted into law, under conditions which would continue, strengthen and fully enforce the present admirable work of the Department of Health, under Dr. Dixon and his assistants.

"2. *Forest Fire Protection.* The state authorities should have power in dry and dangerous seasons to establish, in such localities as need protection, efficient patrols for the prevention of forest fires. The expense of such fire-patrol service should be assessed upon the forest lands protected thereby. Lumbermen should be required, under adequate inspection, to burn or otherwise dispose of all inflammable debris, at times and under conditions to be prescribed by the State Forestry Reservation Commission. The use of fire in or near woodlands in dry and dangerous seasons should be prohibited, except under stringent regulation and upon written permit from a responsible officer of the forest service or fire patrol; and the governor should have power to designate, upon suggestion to that effect from the Commissioner of Forestry, periods of peculiar danger within which the carrying of firearms, the carrying and use of matches, and the setting of fires for any purpose in public or private woodlands, should be forbidden by law.

"3. *Just Taxation of Forest Lands.* To encourage reforestation and the growth of timber on land chiefly valuable for that purpose, timber land which the owners are willing to treat upon modern reproductive forest methods should be classified separately from other real property, with the levy of a nominal annual tax until the trees are cut at the proper stage, under regulation or with knowledge of the State Forestry Commissioner, when a higher rate of tax should be imposed either per acre or per thousand feet.

"4. *Watercourses as a Public Resource.* The waters of the state are one of its most important assets. They should be systematically mapped and considered, and eventually developed and utilized for the equal benefit of all citizens. In such development every stream should be considered as a unit, from its source to its mouth. Domestic and municipal water-supply should be recognized as the highest use, and consideration of the value of the stream as a potential source of attracting revenue by reason of its scenic beauty and for its educational worth should rank as equal in importance with its potential value in respect to navigation and the production of power; and preference rights should be recognized and granted in order of the above uses in all cases where projects for two or more of these uses conflict. There should be every endeavor to combine these various uses in so far as such combination may be found practicable. For these ends the cooperation of the Federal Government may require to be sought. Existing private rights in waters and riparian lands should not be enlarged, except upon conditions adequate to insure full public control.

"5. *Supervision of Use of Water by Corporations.* Private projects for water-power development seeking state aid in the form of a corporate franchise carrying the right to condemn property, to use land or water rights belonging to the public, to obstruct navigable rivers, or otherwise, should be subjected to careful consideration and to strict regulation, in order to secure prompt, complete and orderly development; efficient service at fair prices and on equal terms to all consumers in like conditions; full public information as to costs and profits; honest capitalization on the basis of cost; and fair rentals for public property used within the franchises granted. No water-power franchises or privileges should be granted for a longer period than from thirty to fifty years, with a provision for a readjustment of the compensation or terms at least each ten years, and any assignment of the right or privilege should require the approval of the proper state authorities to be legal.

"6. *Wild Life in the Forest and Stream.* A prompt recognition of the remaining wild life in the forest and in the stream as a valuable natural resource is desirable, through uniform game laws for its effective protection, and the present game laws of Pennsylvania should be revised and extended as required to properly protect such wild life for its beneficent value to the state.

"7. *Economy of Mineral Resources.* Mining is the most important industry of Pennsylvania. It is now accompanied by a culpable waste of human life and of minerals, especially coal. There should be promptly applied preventive measures reducing materially the loss of life through mine accidents, and requiring careful economy in the exploitation of our remaining mineral wealth. The state should take the position that, in respect to these unreplaceable natural resources, the temporary owner of the land has no right so to treat his property as to work injury to all.

"8. *Agricultural Resources.* Since cultivated land is the foundation of the Nation's prosperity, the proper use and continued improvement of the soil should everywhere receive especial care; and in order that agricultural and horticultural products may reach the best markets with the least loss of time and at the least expense, we most heartily favor the present policy of Pennsylvania in the development of improved highways, and urge their rapid and efficient extension, with due economy and under capable and expert engineering supervision.

"9. *The Value of Natural Scenery.* We hold that the beauty of the land is one of the main sources of that love of country which is at the very basis of patriotism, and that natural scenery is an economic asset of great value yet unconsidered and undeveloped. With the rapid disappearance of the great primeval forest which once covered two-thirds of the area of the state; with the mutilation of wide areas in the careless abstraction of mineral wealth; with the pollution and restriction of streams for private benefit, and the laying waste of areas of arable lands through preventable floods, this great and potentially valuable resource is being constantly and ruthlessly destroyed. We insist that it should be considered as of great economic importance, and we point, in support of this attitude, to the scenic travel income of many millions

of dollars contributed each year to Europe by Americans, who leave at home, unnoted and in process of destruction, many natural scenic advantages of at least equal merit.

"We further assert that it is not only in the interest of the state to foster and encourage the provision of adequate breathing places and playgrounds for the relief of our congested population, but that it is equally important that the state shall open and adequately maintain in suitable forest reserves public camping-grounds, available especially to those of our population who cannot otherwise obtain access to the restorative and uplifting influences of an intimate association with Nature. We insist that it is the part of wisdom for the state to intelligently promote public parks in all their forms—municipal, county and state—in order that every citizen may have easy opportunity to receive the material and definite benefits attendant upon their proper use.

"10. *Education in Conservation.* In order that the rising generation may know of the actual basis of the prosperity of the state which makes life here possible, and of its rapid and serious depletion through senseless and unconsidered waste, we urge that an accurate statement of the remaining natural resources of the state be prepared in such form as to make it available for public school instruction. We favor all proper methods of inculcating in the youth of the state that care for its prosperity which alone can prevent the state from becoming a barren waste, resembling like areas in foreign lands in which selfishness, neglect and ignorance have accomplished their destructive work."

It is not claimed that our "ten commandments" cover the whole of the moral law, on our subject, although the endeavor was to include in them the points that most urgently needed attention in the campaign for conservation in Pennsylvania. The principles as stated in the development of a "commandment" are often of a wider generality than as set forth in the heading; in the opening sentence, for example, to which attention will be called further on, and in the third paragraph also, where the principle of encouraging the care of forests appears in the text, while the heading alludes only to forest taxation. Care for the forests is itself but a special application of the still broader principle of saving where we are now wasting, of which this national association is the great exponent.

The civilized man, as President Roosevelt reminded us, looks beyond present needs and provides for those to come. He seeks to leave his children, who will be in a few years all that is left to represent him, as good a patrimony as he received from his forefathers. He would provide for the greatest good to the greatest number for the longest time. He therefore necessarily interests himself in the conservation of natural resources. For conservation does not mean, as has been too hastily inferred, locking up something valuable so that it will be of no service to anybody; it means using and safeguarding the resources of ourselves and posterity in the way that will best serve both. It means use without waste.

That there has been waste, and shameful waste, of natural resources no rational man will deny. It is an abuse of many centuries standing, as witness Persia, The Euphrates valley, Syria, and much of Asia Minor, and the once fertile valleys of China, where the sites of a teeming population are now deserts. When the forests disappear, the water no longer remains in the soil; there is alternation of dry stream-bed, and flood-torrent carrying away the soil itself. Vegetation, requiring a steady water supply, can no longer exist; and man cannot outlive vegetation. This may be the history of the destroyed woodlands of Pennsylvania. The disappearance of trout streams has been but a symptom; the real evil is the sacrifice of our woodland, of which all belonging to our state were until a generation ago sold without discrimination at twenty-seven cents an acre. The same land, denuded of timber, the state is now buying back, though at a much higher price, and endeavoring to reforest it. A million acres have already been so purchased, and it is hoped that the replanting will proceed rapidly and uninterruptedly so that our children's heritage may yet be saved for them.

The preservation of our woodlands, it has already been admitted, is only one way of stopping waste. There is the waste of war, of recovery from war as counted in our annual pension roll, and of preparation for war for which we are now paying, in these years of profound peace, more than three hundred millions annually. The most terrible of all wastes, doubtless, is that of disease, especially when we include with it the Nation's drink bill, of which the first cost of the liquor, huge though that is the country over, is the smaller part; the greater, all a dead waste, being the impairment of physical, mental and moral vigor and of productive capacity to which that baleful appetite leads, and the cost of the crimes of which it is the constant cause. We should no less include the costs in money and in deterioration of body, mind and soul, that are incurred by disregard or defiance of sex-hygiene. To these two points, particularly the last, the

tenth of our Pennsylvania Conservation Commandments, on "Education in Conservation," particularly applies. On nothing, not even "the remaining natural resources" of our commonwealth, is it more vitally necessary that education should lay stress than the conditions of bodily and moral health. Conservation of human life is the most important element in the conservation problem, for without man everything else would be valueless.

The public health is most evidently a public concern, and its furtherance has now become, by general consent, a recognized part of the duties of government. For a generation and more, a board of health has been one of the most important branches of our city government; county health boards are now found to be requisite for similar reasons; the services of state boards, bureaus or departments of health, are coming more and more in demand; and there is by this time an imperative call for a national bureau or department with similar functions and wider authority. That is a call that cannot long be resisted. The several agencies now under federal control, among which its care for health has heretofore been scattered—those pertaining to the army, the navy, the revenue marine service, and the "pure food" office of the Agricultural Department—have severally done some very good work, despite their limited separate responsibility; and their work could not but be more effective for good if brought all under one direction, and granted appropriations correspondingly ample. There would be the same increase in efficiency through combination, that has so often been noted in consolidations of railways, combinations of industries, forming a federal army out of promiscuous state militias, and welding a bunch of geological "surveys" into a well-disciplined, compact bureau. It is a reform demanded by the interests of sound government, and by the people's needs: and it must come.

Testimony to the good work that can be done in a few years by the Health Department of our state, I am enabled to give by the favor of a highly capable member of that department, in Harrisburg, Chief Medical Inspector Royer, as follows:

In the creation of the Department of Health of this commonwealth and in the very liberal provision of funds for its organization and maintenance, Pennsylvania took her first great step forward in the conservation of human life.

The bill which when enacted created the Department of Health of Pennsylvania was drawn by Dr. Charles B. Penrose of the University of Pennsylvania, and carried with it an appropriation of \$400,000 for its organization and maintenance and \$50,000 for emergency work. The governor was slow to make his selection of the commissioner, Dr. Dixon, who was appointed in June, 1904, during an epidemic of smallpox. The emergency work was carried on with the organization which was completed January 1, 1906, when the work assumed its great systematic battle against disease. This police department had to be handled with exceeding care, as the people in our representative form of government had not been used to the observation of health laws.

So rapidly did the work grow that the 1907 legislature appropriated \$1,000,000 for general health work and \$1,000,000 for the purpose of organizing a campaign against tuberculosis, \$600,000 of which was specifically set aside for state sanatoria and \$400,000 for dispensaries and additional work.

The commissioner was permitted to take over the small tuberculosis camp already organized by the Forestry Department, and he almost immediately enlarged it by the addition of tents to accommodate more than one hundred additional patients and at once planned a great sanatorium to be built on the site near Mont Alto.

The legislature of 1909 repeated the appropriation of \$1,000,000 for general health work, including sanitary engineering, and gave the unprecedented sum of \$2,000,000 for extending the tuberculosis campaign, both by increased facilities offered through the dispensaries already organized and by further extension of state sanatoria.

The legislature of 1911 still further increased the appropriations for the department so that a total of \$3,701,360 was provided for furthering public health work, including \$2,653,248 for fighting tuberculosis.

In the first organization of the Department of Health a broad and liberal educational campaign was started, on a comprehensive plan through seven important executive divisions and two auxiliary divisions, whose chiefs reported directly to the central authority, the Commissioner of Health. In a very short time the vital statistics of this commonwealth were so thoroughly gathered that the census office included the state in the "registration area."

The division of medical inspection, in a comprehensive way, covered all the quarantinable diseases in the second-class townships of the commonwealth, the reports being gathered from the health officers in the 720 sanitary districts under the general supervision of sixty-six county medical inspectors. By these officers quarantining and disinfecting is performed.

The division of sanitary engineering, through seven sub-divisions, undertook the important work of protecting the stream from pollution and the supervision of the plans for water works and sewerage works.

The sanatorium division took charge of operating the hospitals.

A dispensary division with 115 dispensaries, one in each large center of population, rendered great assistance to the indigent poor afflicted with tuberculosis, and supervised the work done by a corps of 110 nurses.

The division of distribution of biological products had the disposition of diphtheria antitoxin from 650 distributing stations and of tetanus antitoxin from sixty-seven.

The auxiliary division of accounting, auditing and purchasing looked out for important business and office details.

A division of supplies arranged for prompt distribution of everything needed for record work and field work and through each of these important divisions forwarded daily, weekly and monthly reports to the commissioner's office, a record of its work and accomplishment. All of which was transmitted to the public by means of monthly bulletins, weekly newspaper talks, and oral addresses. Educational leaflets showing the methods of prevention of all of the different diseases were distributed in large numbers throughout the commonwealth, and a scheme of education was organized, giving to the public through some 900 newspapers all of the facts gleaned by careful study.

A traveling tuberculosis and sanitary exhibit is sent to all the large centers of population throughout the state, papers are prepared and read before scientific societies, charitable organizations, boards of trade, civic clubs, teachers' institutes and the various bodies interested in saving human life. Lantern slides are furnished ministers and educators to promote the public health interest, and not only does the state do this important educational work, but through its dispensaries a very important sociological work is carried on, which not only protects those in their homes against tuberculosis and secures much needed charitable aid, but assists in protecting against every disease due to unsanitary conditions.

The department is preparing to comply with the new school code and make medical inspection of all school children in districts of the fourth class. This one agency must have a far reaching influence in conserving health.

Quoting from a recent published report of the department, a few of the things that have been accomplished may thus be referred to:

From June 1, 1907, to August 1, 1911, 5,819 patients have been admitted to the State Sanatorium for Tuberculosis at Mont Alto. Many of these patients have been discharged with the disease arrested; hundreds have been benefited and have gone back to their homes disciples of fresh air and right methods of living; many more whose cases were too far advanced to hope for much aid have been made comfortable and happy and provided with a good home where they would not be a source of danger to others.

From July 22, 1907, when the first dispensary was opened, to June 30, 1911, 41,792 poor tuberculosis sufferers received skilled medical aid and the attention of trained nurses which the department's 115 dispensaries provide.

The death rate from tuberculosis in Pennsylvania had fallen from 134 to 119.6 per one hundred thousand of population in five years, this meaning a saving of one thousand lives annually.

From October, 1905, when the state began its free distribution of diphtheria antitoxin among the poor, to the end of December, 1910, 27,318 cases of diphtheria, mostly little children, were treated for cure, with diphtheria antitoxin. We know by statistics that without antitoxin forty-two out of every 100 of these children, or 11,476 in all, would probably have died; but with the aid of antitoxin furnished by the department, only 2,324 died, and the death rate among these little sufferers was reduced to eight and five-tenths per cent. Diphtheria antitoxin was given for immunizing purposes to 20,294 cases. The computed saving of child life resulting from the free distribution of antitoxin since 1905 is 9,152.

Throughout Pennsylvania the streams are slowly becoming freed of pollution; not so slowly either, when records show that up to August 1, 1911, 34,481 private sources of stream pollution have been abated upon notice from the department, not to speak of the thousands more that have been stopped through the moral influence of this work. Fifty-nine modern sewage disposal plants either have been built or are in process of construction as approved by the department. Two hundred and eighty-four municipalities and private sewerage corporations are building comprehensive sewerage systems in accordance with plans for such work, details of which must be approved by the department. Already eighty-six modern filtration plants have been approved and begun accordingly.

And what of typhoid fever in view of all this work for pure water? In 1906, 56.5 out of every 100,000 people died from this disease; in 1907, 50.3; in 1908, 34.4; in 1909, 23.4, and in 1910, 25.7. That is, there are now living 2,448 inhabitants of Pennsylvania who, had the death rate of 1906 prevailed in 1910, would have died from typhoid fever.

In 1906 the death rate from all causes, per 1000 population, was 16.5; in 1908, it had dropped to 15.7; and in 1910 to 15.6. At first glance this saving of life may not seem a remarkable diminution, but with Pennsylvania's 7-, 655,000 population, is a great gain. This appears when one figures precisely what this slight numerical drop means in the actual saving of lives. Had the rate of 1906 prevailed in 1908, some 6,000 more people would have died than actually succumbed. Had this same rate applied in 1910 instead of the decreased rate recorded by the Department of Health, just 6,889 men, women and children now living and presumably in average health and spirits would have died. In other words, these matter-or-fact statistics, when interpreted in their real relation to the welfare and happiness of the state, mean the saving to the state of 20,000 lives in three years.

And the fight is only fairly well begun.

In the semi-official summary I have just read, the subject of "a purified water supply" was treated in a single paragraph, as a subordinate part of the general work of the State Health Department for the conservation of human life. If an apology is due for what appears a straying from my main topic, the declaration of purposes of the Pennsylvania state branch, I am ready to make the apology; but I cannot believe any excuse is needed for giving to conservation of life and health an importance far ahead of all other conservation.

The curse of forest fires still hangs over us, and prohibits the planting of vast areas which should be growing timber. It is comforting that these fires are less destructive than formerly, but it is nevertheless a disgrace to our civilization, or lack of civilization, that they must occur at all. Education of our people and condign punishment of those whose carelessness or malice causes them will eventually make these annual holocausts a thing of the past. To this end liberal appropriations should be made by the state, rewards or prizes being offered to those who prove most efficient in checking fires.

Nothing is more vital to forestry than the total suppression of these fires. No attempt need be made to replant vast treeless areas, or no expense incurred in protecting the young growth upon them until the fires are prevented. In the year 1908 the cash value of timber destroyed by forest fires in New York was estimated at \$780,164. For the same period in Pennsylvania the estimate was \$688,980. The loss of humus and general forest litter was even more serious than the loss of timber because of wasted fertility and increase of surface wash during heavy rains. Each successive fire leaves the ground more exposed and less productive, the end of which is a desert condition. It is safe to say that at this hour our state has thousands of square miles which are unproductive because of forest fires. A radical change of policy in this matter is needed. Attention should be given to prevention rather than to suppression of the forest fires, and sufficient force and funds provided to accomplish this end, which is essential to the continued prosperity of the state.

Taxation of forest lands under our present system leads the state to impoverish itself, by premature destruction of its timber resources, and the industries depending upon them, and by increasing the areas of stripped lands, which, because of their unprotected condition, become year by year less and less fit for agriculture when an increasing population requires their occupation for home and farm sites. The law wisely requires that our engineers, physicians and lawyers shall have received proper training before entering upon duties intimately associated with the welfare and safety of others. It is to be regretted that prospective legislators and commissioners cannot be required to show some fitness for the work expected from them, before coming before the people as candidates.

It is notorious that the taxes imposed lead to the destruction of growing trees which are each year earning their right to stand by the benefit they confer upon the public. The only exclusive privilege which the owner enjoys from them is that of paying taxes for a seldom-accorded protection against fire, and depredation.

Timber should be taxed only when cut and then at a rate per thousand feet proportionate to the income received from it, but sufficient to make good, in a measure, the loss of tax during the growing period. This conclusion seems to have been reached by every disinterested person who has fairly considered the problem in all of its aspects. Bills leading to such a system of taxation have been defeated in the last three sessions of our legislature, but that is not the last of

them, for the ultimate adoption of a proper system of forest taxation is beyond question. Pennsylvania has done and is doing too much in behalf of forest-growing, to hesitate at an expedient so necessary and so simple.

The state has practically a million of acres, distributed over twenty-six counties, in its forest reserve system. There are two admirable schools of forestry, one of which is intended solely to prepare men for the forest service of the state.

Three extensive nurseries produce seedling forest trees for planting on the state's land and for distribution to our citizens at nominal cost, on assurance that they will be properly planted and cared for. In 1909 there were set out in permanent position 750,318 young trees, mostly on abandoned farms which had come, by purchase, into the possession of the commonwealth. We are rapidly increasing the output of these nurseries and expect at an early date to plant at least ten to twenty million trees annually. We are fortunate in having no laws which prevent scientific forestry. A tree, or a forest, may be cut when it is in the interest of the state to do so.

Water courses as a source of power are considered apart from water supply for domestic purposes, the latter being, in Pennsylvania, mainly controlled by the Department of Health.

Many water powers were purchased or seized, by those who anticipated their value, under our earlier lax laws, before their importance was generally recognized. They have thus passed too far out of state control to be available under existing laws as a source of public revenue. But in constituting the Water-Power Commission it was provided that future letters patent "will not be issued to any water, or water-power company, nor will any such company be allowed to merge and consolidate, or to purchase the property and franchise of any other such company until the application for the charter, or the agreement of merger and consolidation, or the purchase and sale has been first submitted to and received the approval of a majority of the commission. Nor will any person, corporation or municipality be allowed to construct, erect or build any dam or other obstruction in any river or stream without the approval of the commission." No franchise whatever in the interest of any individual or corporation, should be granted without adequate compensation to the state, nor should any obstruction be allowed place in any navigable stream unless locks of liberal size are provided for passing it. In the near future every important river in the state will probably be converted into a lake system capable of dead water navigation up to head waters, as an accompaniment of the dams erected for power purposes.

Better protection of wild life in forest and stream can readily be provided by taxing, as is the usage in most of the states, those who enjoy the privilege of hunting and fishing. A license fee of one dollar a year from each sportsman would pay for a much more efficient system of forest and stream protection than we have ever had. This would exempt those who have no interest in the sport and place the slight burden where it belongs, upon those who hunt and fish.

Conservation means use without waste, and is sound doctrine whether our mineral resources are to last for fifty, or for five thousand years. That there has been waste, not all unavoidable, is attested by the constant endeavor of our best mining engineers to discover more economical methods.

It is gratifying to be assured that their investigations have borne fruit, and that the loss of good coal in anthracite mining has within recent years been reduced so that "at present the recovery will average about sixty per cent and loss about forty per cent." Not long ago these proportions were exactly reversed.

The numbers annually killed and crippled by serious injuries among the coal miners of this state are still appalling. The annual report of the department of Mines in Pennsylvania for 1909 says:

"In producing the output for the year 567 persons were killed in the anthracite region and 1034 were injured. In the bituminous region 506 were killed and 1126 were injured."

From the same report we learn that these casualties, though exceeding the dead and wounded in many famous battles, are yet slightly less per million tons mined than were suffered the same year in the deep collieries of England; but the difference is hardly enough to bring us much comfort.

In mining, as in every other industry, we may look to education as a most hopeful factor in reducing the number of accidents. Christian sympathy is another factor; to that we owe it that children under fourteen years of age are by law excluded as laborers from our mines. We must love our brother even when begrimed with coal dust.

The ease with which land could at first be obtained in Pennsylvania led to neglect of conservative principles in agriculture. It was cheaper, for a time, to abandon a worn-out farm than to restore it to a productive condition. The result

is seen in thousands of acres of barren, neglected hillsides. The average production per acre in Pennsylvania was, twenty years ago, so much below the possibilities as to be discreditable to the commonwealth.

This negligence is fast giving way to more modern methods, and the yield of our acres is on a rapid ascent. The struggle for existence has no doubt contributed somewhat to this, though education through the agency of improved schools, of the Grange, farmers' clubs and institutes, and more easy access to markets have been more potent. The former isolation of the farmer was against him. His land hunger kept him from seeing that there was more money in fifty acres of well-tilled land than in one hundred acres of starved soil. Experience is bringing wisdom to him, and to the rest of us. We must have better roads, more improved machinery, more social intercourse and more fertilization of the soil, to keep the lad on the farm and to bring our yield per acre up to that of England and Belgium.

The Water Gap of the Delaware River, the Horse Shoe Curve in the Alleghanies, the Blue Ridge near the Mason and Dixon line, the environs of Mauch Chunk, are admired every year by thousands, a very large proportion of whom live outside the limits of our state. Pennsylvania values these scenic attractions as sources of revenue to railroads and resort keepers. It is a pity, but it is true, that our people have not yet awakened to the educational and uplifting influences of the beauties of our river and mountain scenery. We lack the inborn love for the landscape that characterizes the dweller on the heaths of Scotland, or under the shadow of the Alps, and in so far we fail to attach their just value to some of the noblest and most precious possessions of our state. These possessions should be zealously protected before they are hopelessly ruined, or given over to less important uses.

The gospel of fresh air, for the physical salvation of the people is sweeping the land. "It is cheaper, wiser, and more humane to prevent disease than to cure it." Within recent years, largely by the efforts of the secretary of our state conservation branch, it has become possible for a municipality to own and care for parks, which may become not only beauty-spots, but outing-grounds, and lumber-producers as well. It is hard to limit the possibilities of such a law, for good, and it is in the direction of public desires.

Education in conservation means education in citizenship. Every child not only should know, but is entitled to know, what our national resources are and how they may be preserved. He is a partner in ownership of this stock in trade, out of which his living is to come. He should have full access to the inventory, and should know how long it will last, where it may be distributed to best advantage, and where the next supply is to come from. This is even more important to him and to the country than all involved in allegiance to any particular political party. It would be well for every family to have a copy of "The Land We Live In," a new book by Overton W. Price, vice president of the National Conservation Association, published by Small, Maynard & Co., of Boston. It was written especially for boys, but contains a vast fund of valuable information compiled in an attractive form which would interest everyone. The natural laws upon which our continued productive capacity depends should be taught in every school and to every pupil; for violation of those laws brings punishment which is as certain as it is bitter.

This commentary on the Pennsylvania statement of purposes, or "ten commandments," has called for some condensation, for the amount that might be said, and well said, on each of these points could be indefinitely extended. It is largely the work of Dr. Rothrock, one of my colleagues, a veteran in the conservation cause. I think it may be an encouragement to this Congress to have a clear and full statement of the work in furtherance of its aims, now done or undertaken in our state; and, without making or suggesting a comparison with the achievements of any other state, I may add that Pennsylvania is not ashamed of the beginning it has made.

REPORT FOR SOUTH CAROLINA.

By DR. M. W. TWITCHELL.

I shall carry out the advice given to the speaker of experience who has told us to say our best things first and then stop. I have only a few things to say. I represent a state quite a little distance from the state of Missouri. I came as the representative of the Governor of South Carolina, as a member of the conservation commission, and just want to say one or two of the things which South Carolina is doing to help on the cause of conservation. First, in regard to the conservation of human life, and the prevention of disease. There is one thing just being done down there which is new in this respect; that we have a pure food commission which is doing something, in that it is inspecting the food products which are coming into the State of South Carolina, particularly the corn products. We are confiscating diseased corn, taking possession of it, and insisting upon that the corn products which are brought into South Carolina shall be pure and healthful.

Another thing which we are doing is in regard to the drainage of our swamp lands. Today we heard of the importance of this movement with regard to the swamp lands of the Mississippi valley. We have swamp lands, as you know, along the Atlantic coast, thousands of acres of them, and we want them made available for cultivation. They will then be amongst the richest lands of our country, and we are actually going at it. We find that we cannot afford to wait for national aid of a direct type, so we are organizing drainage districts under a state law, which permits organization of districts, coöperating with the government, and actually draining certain portions of the swamp lands. So far we have had three drainage districts organized, and over two thousand acres of land in one district, and about three thousand acres in another have already been drained by this new method under a swamp land drainage law. We are going ahead along that line, and in the future you will hear of many thousands of acres of this swamp land that will be made garden spots, truck lands, similar to those that we already have in the vicinity of Charleston. Just a word in regard to the conservation of the soil. We have no law, there is no special state move in this respect, but the State of South Carolina produced last year 1,200,000 tons of commercial fertilizer, and the largest part of that immense product was used within the state of South Carolina itself. Now, that is conserving the soil. That is doing the thing that many of the people of the West will have to come to in view of the lost fertility by rotation of crops upon the same land year after year.

Just a final word in regard to the work in the improvement of rural life conditions. The State of South Carolina is a leader in that we have appointed a state inspector of rural schools. He is an educational engineer and travels all over the state. He visits rural school after rural school. He studies the conditions there, and he makes reports to the state board of education, and conditions are improved, and the state has made appropriations for the aid of these rural schools as the educational engineer reports along these lines. We are interested in the conservation movement. We think it is a grand movement for the benefit not only of the present day, but of the generations to come. I thank you. (Applause)

NATIONAL ORGANIZATIONS
REPRESENTED AT THE
THIRD NATIONAL CONSERVATION CONGRESS.

National Conservation Association.
National Business League.
National Dairy Union.
National Implement and Vehicle Association.
National Association of American Chemical Societies.
National Rivers and Harbors Congress.
American Society of Engineering Draftsmen.
American Sunday School Association.
General Federation of Women's Clubs.
American Economic Association.
National Rivers and Lakes Commission.
American Chemical Society.
National Fire Protective Association.
American Association State Geological Department.
National Farmers' Institute.
Concatenated Order of Hoo-Hoo.
National Council of Women.
American Poultry Association.
National Association Audubon Societies.
American Bison Society.
American Society Civil Engineers.
American Society H. and V. Engineers.
League of American Sportsmen.
American Shorthorn Association.
Women's National Rivers and Harbors Congress.
National Nut Growers' Association.
Farmers' National Congress.
Society for Promoting Engineering Education.
American Pomological Society.
Collegiate Alumni Association.
American Railway Engineers' Association.
American Society of Mechanical Engineers.
National Columbian Wyandotte Club.
American Association of Refrigeration.
National Irrigation Congress.
National Educational Association.
National Association Daughters American Revolution.

National Brotherhood Locomotive Firemen and Engineers.
North American Fish and Game Association.
American Mining Congress.
International Dry Farming Congress.
National Mothers' Congress.
American Medical Association.
United States Department of Agriculture.
United States Weather Bureau.
United States Forestry Service.
American Association for the Advancement of Science.
National Fertilizer Association.
National Soil Fertility League.
National Irrigation Congress.
American Civic Association.
National Municipal League.
National Humane Society.
Society of American Florists.
American Carnation Society.
American Institute of Electrical Engineering.
Cattle Raisers' Association.
United Daughters of the Confederacy.
American Academy of Political and Social Science.
National Association of Manufacturers.
American Society for Testing Materials.
National Partridge and Wyandotte Club.
National Board of Fire Underwriters.
American Society of Refining Engineers.
American Electro-Chemical Society.
American Waterworks Association.
American Hereford Cattle Breeders' Association.
German-American Alliance.
Russian Government Agricultural Commission.
National Wholesale Lumber Dealers' Association.
National Lumber Manufacturers' Association.
Lakes-to-the-Gulf Deep Waterways Association.
National Shell Fish Association.
National Garment Manufacturers' Association.
National Dealers' Association.
National Fertilizers' Association.

LIST OF REGISTERED DELEGATES
TO
THIRD NATIONAL CONSERVATION CONGRESS.

Alabama.

LeFevre, E. R.....Gadsden
Miller, J. M.....Cordova
Rushton, W. J.....Birmingham

Arizona.

Foote, Geo. A.....Safford
Fowler, B. A.....Phoenix

Arkansas.

Brusee, Geo.Decatur
Cook, Geo. B.....Little Rock
Dotson, J. Alfred.....Rogers
Higinbotham, Mrs. H. G....Pine Bluff
Lewis, F. W.....Mena
Morris, Mrs. C. D.....Rogers
Plank, E. N.....Decatur
Spaulding, H. G.....Fort Smith
Stroud, J. W.....Rogers
Toland, H. L.....Ashdown

California.

Baumgartner, J. P.....Santa Ana
Beard, W. M.....Sacramento
Glavis, Louis R.....San Francisco
Simons, D. P.....Los Gatos
Turner, J. A.....Santa Ana

Canada.

Armstrong, L. O.....Montreal

Colorado.

Bruce, Geo. W.....Delta
Callbreath, J. F.....Denver
Dunning, W. S.....Colorado Springs
Eddy, H. H.....Denver
Gregg, J. S. F.....Golden
Hickman, R. S.....Delta
Meservey, Albert B....Colorado Springs
Lindsey, Ben B.....Denver
Wildner, Chas. T.....Colorado Springs
Work, Dr. Hubert.....Pueblo

Connecticut.

Towney, Jas. W.....Hartford

District of Columbia.

Chilcott, E. C.....Washington
Cameron, Frank L.....Washington
Cobb, M. A.....Washington
Frankenfield, H. C.....Washington
Graves, H. L.....Washington
McGee, W J.....Washington
Marbut, Curtis F.....Washington
Shipp, Thomas R.....Washington
Spillman, W. J.....Washington
Wiley, H. W.....Washington

Florida.

Campbell, T. J.....West Palm Beach
Cromer, J. M.....West Palm Beach

Georgia.

Worsham, E. Lee.....Atlanta
Worsham, Mrs. E. Lee.....Atlanta

Idaho.

Shepperd, John W.....Caldwell
Witson, Wm.Driggs
Woods, M. H.....Arco
Yancey, Cyrus.Blackfoot

Illinois.

Abbott, A. N.....Morrison
Aull, J. L.....Belleville
Bartow, Edw.Urbana
Bell, Henry Y.....Chicago
Bligh, L. L.....Chicago
Block, Mrs. Fred'k.....West Chicago
Bradish, A. C.....Ottawa
Braidner, Mrs. Clara V.....Rochelle
Brooks, Morgan.Urbana
Burgett, Scott.Newman
Burgett, Thomas P.Newman
Burroughs, E. W.....Edwardsville
Campbell, Murdock.Chicago
Charles, A. W.....Carrni
Christine, W. T.....Chicago
Clapp, F. H.....Mazon
DeWolf, Frank W.....Urbana
Duncan, J. R.....Tuscola

Dunn, Ballard. Chicago
 Eisenbart, Henry. Waterloo
 Elliott, J. T. Armington
 Evans, W. A. Chicago
 Franklin, G. W. Nenault
 Giffhorn, Henry. Columbia
 Gossett, M. B. Newman
 Gross, Howard H. Chicago
 Grout, A. P. Winchester
 Hays, Dudley Grant. Chicago
 Hill, A. H. Ottawa
 Hooker, Arthur. Chicago
 Hopkins, Cyril G. Urbana
 Jewell, H. L. Monmouth
 Johnson, B. A. Chicago
 Jones, Loyd Z. Galva
 Marlin, D. M. Norris City
 Mueller, Sr., Peter. Valmeyer
 Myers, O. V. Newman
 Myers, M. R. Chicago
 Nickerson, J. F. Chicago
 Noyes, La Verne. Chicago
 Noyes, Mrs. La Verne. Chicago
 Osborn, F. W. Quincy
 Pur Khizer, Edw. G. Chicago
 Randolph, Isham. Chicago
 Rutherford, Cyrus. Newman
 Sconce, H. J. Sidell
 Shoffer, John C. Chicago
 Stufflebeam, O. F. Rossville
 Syster, Mrs. J. C. Oregon
 Tatgl, Gustavus. Chicago
 Taylor, Thomas A. Catlin
 Thompson, Mrs. C. H. Chicago
 Vrooman, Mrs. Carl. Bloomington
 Vrooman, Carl S. Bloomington
 Wallbaum, F. C. Ashland
 Walker, J. A. Chicago
 Wolcott, H. K. Batavia
 Woodbury, A. G. Danville
 Young, W. M. Newman

Indiana.

Barnard, H. E. Indianapolis
 Barrett, Edward. Indianapolis
 Blatchley, W. S. Indianapolis
 Breeze, Fred J. Lafayette
 Breeze, Geo. D. Delphi
 Dinwiddie, Oscar. Lowell
 Ford, Charles. New Harmony
 Hamilton, John C. Indianapolis
 Hoynes, Prof. William. Notre Dame
 Knapp, Mrs. Edwin A. Winona Lake
 Neizer, Maurice C. Ft. Wayne
 Reisenberg, Henry. Indianapolis
 Whitehead, J. W. New Harmony

Woods, Sam B. Crown Point

Iowa.

Allred, W. P. Corydon
 Ashby, Mrs. Harriett W. Des Moines
 Ball, F. D. Creston
 Bishop, E. C. Ames
 Bliss, J. A. Diagonal
 Bogie, S. R. Waverly
 Brown, Nelson C. Ames
 Chandler, W. R. Blacktan
 Cleveland, O. S. Webster City
 Corrie, S. M. Ida Grove
 Curtiss, Chas. F. Ames
 Davis, F. M. Corning
 Donald, G. B. Mac. Ames
 Doran, Justin R. Beaver
 Doty, James J. Shenandoah
 Dunn, E. G. Mason City
 Durrell, Geo. O. Pilot Mound
 Elk, M. M. Galva
 Elder, Orville. Washington
 Fry, Joseph. Wever
 Hathaway, B. Kingsley
 Haynes, E. C. Centerville
 Hazard, T. R. Des Moines
 Holden, P. G. Ames
 Holman, R. A. Rockwell
 Hunt, C. W. Logan
 Hunter, Edward H. Des Moines
 Hutchins, C. B. Algona
 Hutchinson, S. T. Lake City
 Ives, A. P. Irvington
 Kamrar, J. S. Webster City
 Kelmartin, A. P. Malvern
 Kaufman, Chas. C. Wilton Junction
 Keating, C. R. Mt. Ayr
 Kirkham, G. A. Diagonal
 Kissack, John. Farmer City
 Knight, O. N. Salem
 Latta, W. W. Logan
 Leas, J. E. Galva
 Leffler, Geo. V. Stockport
 Lockwood, B. A. Des Moines
 Macbride, Thomas H. Iowa City
 McCulloch, Fred. Belle Plains
 McWhorter, Ellis. Burt Kossuth
 Menton, J. A. Boone
 Miller, A. C. Des Moines
 Miller, C. W. Waverly
 Miller, O. W. Waverly
 Milner, E. P. Red Oak
 Nichols, Warren. Minerva
 Nichols, Mrs. Warren. Minerva
 Noble, Mrs. Lucy Seward. Waterloo
 Parrott, H. Waverly

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| Parrott, Mrs. Jane..... | Waverly | Beery, C. F..... | Paola |
| Packels, Theo. | Waverly | Black, Francis M..... | Kincaid |
| Plummer, A. L..... | Altoona | Blackman, F. W..... | Lawrence |
| Rubel, H. F..... | Waverly | Blair, Edw..... | Spring Hill |
| Russell, J. W..... | Adel | Blevins, J. C..... | Oskaloosa |
| Ranels, S. C..... | Des Moines | Boggs, H. C..... | Beattie |
| Schenk, Myron..... | Algona | Bowersock, J. D..... | Lawrence |
| Shimek, B..... | Iowa City | Bollinger, C. A..... | Iola |
| Smith, Ed. H..... | Cedar Rapids | Bone, Roy L..... | Topeka |
| Soper, E. B..... | Emmetsburg | Boone, W. M..... | Highland |
| Soper, E. H..... | Emmetsburg | Bauer, W. F..... | Highland |
| Spencer, A. P..... | Oskaloosa | Bosworth G. G..... | Wellsville |
| Stanton, E. W..... | Ames | Bowman, Wm..... | Sibley |
| Steen, F. D..... | West Liberty | Boyd, C. H..... | Blue Mound |
| Sykes, A..... | Des Moines | Beickel, W. H., Jr..... | Kansas City |
| Sykes, Mrs. A..... | Des Moines | Brown, Frances L, Miss..... | Manhattan |
| Tabur, Frank..... | Waverly | Brown, Loyd..... | Oswego |
| Tomlinson, H. E..... | New Market | Bruce, H. E..... | Marquette |
| Turner, Asa..... | Ferrar | Budd, P. W..... | Basehoe |
| Vail, Dr. A. M..... | Rock Rapids | Bulmer, Joseph..... | Michigan Valley |
| Van Slyke, Mrs. C. B..... | Des Moines | Boyce, D. M..... | Galena |
| Wagner, Henry..... | Ankeny | Cain, Victor A..... | Leavenworth |
| Wallace, H. C..... | Des Moines | Call, G. E..... | Manhattan |
| Welch, E. S..... | Shenandoah | Carey, C. W..... | Wichita |
| Weller, Miss Mame E..... | Nashua | Carlbert, C. F..... | Lindsborg |
| Wells, Joseph..... | Des Moines | Carroll, Edw..... | Leavenworth |
| Whealan, Geo. B..... | Galva | Carter, W. O..... | Garden City |
| Wisdom, Frank..... | Bedford | Carter, E. L..... | Oskaloosa |

Kansas.

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|-----------------------------|---------------|-----------------------------|-------------|
| Adam, Henry..... | Wakefield | Cassin, J. H..... | Girard |
| Allen, R. N..... | Chanute | Chapin, Archibald, Mrs..... | Kansas City |
| Alexander, B. J..... | Hiawatha | Clarke, W. D..... | Paola |
| Andrews, Robert..... | Powhattan | Clark, Edw. C..... | Oswego |
| Anderson, Thos. J..... | Gas City | Cole, J. A..... | Topeka |
| Atkinson, Mrs. W. D..... | Parsons | Coleman, D. S..... | Oneida |
| Austin, W. A..... | Sylvia | Collier, John..... | Overbrooke |
| Avery, H. W..... | Wakefield | Collins, Geo. W..... | Belleville |
| Ayres, E. S..... | Edgerton | Collins, John..... | Scammon |
| Ayres, Hy..... | Howard | Collins, H. D..... | Eminence |
| Babcock, W. M..... | Philipsburg | Connet, Frank B..... | Kansas City |
| Bailey, E. H. S..... | Lawrence | Condon, S. D..... | Paola |
| Baird, E. J..... | Wellsville | Cooper, R. L..... | Salina |
| Baker, John M..... | Gas | Corbet, J. D..... | Topeka |
| Barber, John F..... | Centralia | Cox, E. H..... | Tonganoxie |
| Barker, G. H..... | Girard | Cunningham, A. N..... | Humboldt |
| Barteider, F. W..... | Lawrence | Currier, Harold..... | Garnett |
| Batdorf, D. W..... | Wellsville | Currey, A. A., Mrs..... | Joplin |
| Bean, Frank K..... | McPherson | Carpenter, J. W..... | Bolivar |
| Beardsley, J. W..... | Overland Park | Coughlin, R. E..... | Paola |
| Beauchamp, William..... | Olathe | Crawford, L. M..... | Winfield |
| Beck, W. T..... | Holton | Davis, C. D..... | Winchester |
| Beckley, Maj. Thomas H..... | Wellington | Davis, J. A..... | McPherson |
| Bell, W. M..... | Garden City | Davidson, C. L..... | Wichita |
| Bennetzen, H. C..... | Kansas City | Detrick, E. A..... | Caldwell |
| Benton O. M. S..... | Oberlin | Dickson, W. T..... | Carbondale |
| | | Ditzen, Paul H..... | Kansas City |
| | | Dix, E. E..... | Ft. Scott |

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| Donahoe, J. F..... | Paola | Harmon, G. E..... | Valley Falls |
| Dorst, O. H..... | Gardner | Harrison, Wm. | Whiting |
| Dunham, Ed. | Paola | Hartley, F. M..... | Baldwin |
| Duncan, K. S..... | Salina | Hastings, J. F..... | Edgerton |
| Dyche, L. L..... | Lawrence | Hamilton, M. C..... | Oswego |
| Eby, A. F..... | Howard | Harrell, W. W..... | Osawatomie |
| Edwards, John A..... | Eureka | Haskin, M. H..... | Frankfort |
| Edwards, L. S..... | Oswego | Hatfield, F. P..... | Olathe |
| Edwards, Matt. | McLouth | Hatfield, Thomas. | Valley Falls |
| Ellis, F. S. | Kansas City | Haworth, Erasmus. | Lawrence |
| Eldridge, Chas. E..... | Topeka | Hays, D. W..... | Osawatomie |
| Engle, J. H..... | Abilene | Hazlett, Robert S. | El Dorado |
| Evans, U. J..... | Iola | Helmets, W. I., Sr..... | Leavenworth |
| Faxon, R. H..... | Garden City | Hemphill, Chas. W..... | Reno |
| Fair, D. J..... | Sterling | Higgin, F. B..... | Girard |
| Fairchild, E. T..... | Topeka | Henshaw, W. H..... | Sylvia |
| Fosse, A. | Wakefield | Hoad, W. C. | Lawrence |
| Faulkner, W. K..... | Leavenworth | Hodgson, R. W..... | Kingman |
| Ferguson, R. M..... | Bonner Springs | Hodgson, H. J. | Eureka |
| Finley, G. E..... | Cottonwood Falls | Hoffman, C. A., Mrs..... | Enterprise |
| Ford, W. B..... | Oskaloosa | Holloway, M. L..... | Topeka |
| Francis, A. J..... | Lucas | Holman, E. J..... | Leavenworth |
| Francisco, Hiram. | Oswego | Holman, L. Carl..... | Leavenworth |
| Friend, Wm. | Sedgwick | Holmes, G. L..... | Golden City |
| Frizell, E. E. | Lawrence | Holsinger, Geo. W..... | Rosedale |
| Flory, F. C..... | Howard | Holsinger, G. L..... | Rosedale |
| Frienmuth, Otto. | Tonganoxie | Holton, Edwin L..... | Manhattan |
| Finney, L. H..... | Wellington | Hopkins, J. C..... | Tonganoxie |
| French, Ed. W..... | Hudson | Hopkins, J. C., Mrs..... | Tonganoxie |
| Funk, F. J. | Marion | Hopper, C. A..... | Pratt |
| Furst, T. I..... | Peabody | Hoskinson, J. W..... | Liberal |
| Garlinghouse, O. L., Dr..... | Iola | Honsh, F. T. | Oskaloosa |
| Garrison, Chas. W..... | Garnett | Houston, J. D..... | Wichita |
| Garrison, J. W..... | Garnett | Hougland, D. P. | Olathe |
| Gaylord, Frank M..... | Axtell | Hovey, W. A., Mrs..... | Kansas City |
| Gearhart, W. L..... | Manhattan | Hull, Wm. | Overbrooke |
| Gibbons, J. B..... | Pratt | Humphrey, C. P. | Denison |
| Gibbs, J. M..... | Oskaloosa | Hurst, Frank J. | Garnett |
| Gilliland, W. H..... | Denison | Hunter, Senator Geo. H..... | Wellington |
| Gilman, J. M..... | Leavenworth | Insley, F. B. | Oskaloosa |
| Gilmore, T. S..... | Oneida | Irwin, J. C. | Richmond |
| Gragg, Frank. | Denison | Isely, Charles C. | Cimarron |
| Greenman, Sara Judd, Mrs..... | Kansas City | Ives, Charles. | Baldwin |
| Greer, E. P..... | Winfield | Jackson, Cong. Fred S..... | Eureka |
| Greason, W. D..... | Paola | Jardine, W. M..... | Manhattan |
| Griffin, Samuel. | Medicine Lodge | Jenkins, Emos. | Kansas City |
| Griffiths, F. J..... | Peabody | Jewett, O. P. | Dighton |
| Griesa, T. C..... | Lawrence | Judy, D. D. | Garnett |
| Groves, Chas. A..... | Edwardsville | Karnes, L. F..... | Overbrooke |
| Grund, Fred P..... | Girard | Kaufman, W. S..... | Iola |
| Guernsey, George, Mrs..... | Independence | Kelsey, Scott. | Topeka |
| Gurnea, J. C..... | Belleville | Kennedy, E. | Edgerton |
| Guyer, U. S..... | Kansas City | Keohane, T. J. | Baldwin |
| Haines, L. J..... | Galena | Kennett, Homer. | Concordia |
| Hageman, F. | Salina | Kiebler, Thomas. | Mankato |
| Halloway, H. M..... | Larned | Kincaid, C. C. | Cherryvale |

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| King, E. D. | Burlington | Nichoken, John C. | Newton |
| Klein, Paul. | Iola | Nee, H. L. | Hill City |
| Knapp, Fred W. | Beloit | Northrup, L. L. | Iola |
| Koelzer, J. P. | Seneca | Norton, H. T. | Olathe |
| Koff, Wm. | Carbondale | Odell, T. B. | Berryton |
| Kohler, J. P. | La Harpe | Oliger, A. L. | Emporia |
| Kraus, E. M. | St. Paul | O'Neal, Chas. | Berryton |
| Kufahl, H. F. | Wheaton | Osborn, Dr. W. F. | Baldwin |
| Kyle, J. C. | Manko | Osburn, F. M. | Erie |
| Ladtler, W. A. | Atchison | Ostlind, John, Jr. | McPherson |
| Lanver, D. M. | Paola | Parker, Dr. I. B. | Hill City |
| Lease, R. W. | Redfield | Parker, J. W. | Olathe |
| Le Van, E. P. | Topeka | Paxton, Sam. | Oswego |
| Lidikay, N. W. | Wellsville | Paulen, J. W. | Fredonia |
| Livermore, H. C. | Olathe | Pearson, M. E. | Kansas City |
| Longnecker, D. H. | Paola | Peet, John C. | Tecumseh |
| Loomis, Elmer. | Girard | Peiker, F. O. | Paola |
| Lowry, Dr. A. D. | Valley Falls | Pendleton, E. P. | Ottawa |
| Luman, E. M. | Lansing | Perkins, J. W. | Edgerton |
| McAuliffe, M. | Salina | Pierce, F. D. | Topeka |
| McCain, F. O. | Wellsville | Philip, Alex. | Hays |
| McCarty, C. C. | Iola | Platts, G. O. | Winfield |
| McCarthy, F. M. | Edgerton | Pomeroy, Frank. | Holton |
| McClellan, M. A. | Wichita | Potter, Thos. M. | Peabody |
| McComb, S. W. | Stafford | Powell, John S. | Wichita |
| McDonald, S. P. | Peabody | Powers, John. | Marion |
| McKaig, A. E. | Olathe | Pringle, Robert. | Tribune |
| McKee, Mrs. Milo D. | Newton | Quincy, Fred H. | Salina |
| McLachlin, A. F. | Paola | Reardon, A. P. | McLouth |
| McLean, B. F. | Wichita | Reed, Geo. W. | Axtell |
| McLeod, H. K. | Ellis | Rees, Cong. R. R. | Minneapolis |
| McKurdey, G. W. | Lone Elm | Reiber, B. F. | Lone Elm |
| Macgregor, C. F. | Kansas City | Replogle, O. E. | Meriden |
| Mains, James. | Oskaloosa | Rhoades, W. J. | Olathe |
| Mantey, A. H. | Mound City | Rich, Cecil. | Syracuse |
| Marberg, J. W. | Oswego | Ricksecker, T. L. | Rosedale |
| Marvin, F. O. | Lawrence | Rigney, W. L. | Paola |
| Maxwell, H. | McPherson | Ritter, Chris S. | Iola |
| Meade, J. M. | Topeka | Robinson, George W. | Wichita |
| Miller, A. L. | Belleville | Robinson, J. W. | Olathe |
| Miller, C. W. | Hays | Robertson, J. R. | Finney Co. |
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 Eliason, G. Montevideo
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WOODROW WILSON
PRESIDENT OF THE UNITED STATES

PROCEEDINGS

Fourth
National Conservation Congress

Indianapolis

OCTOBER 1-4, INCLUSIVE, 1912

“ Let us conserve the foundations of our prosperity ”

(Declaration of the Governors, 1908)

INDIANAPOLIS
NATIONAL CONSERVATION CONGRESS
1912

WM. B. BURFORD PRESS
INDIANAPOLIS, - IND.

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*Deceased.

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*At the time the Proceedings went to press the other standing committees had not been appointed.

CONSTITUTION
OF THE
NATIONAL CONSERVATION CONGRESS

As Amended by the Fourth Congress.

ARTICLE 1—NAME.

This organization shall be known as the National Conservation Congress.

ARTICLE 2—OBJECT.

The object of the National Conservation Congress shall be: (1) to provide a forum for discussion of the resources of the United States as the foundation for the prosperity of the people, (2) to furnish definite information concerning the resources and their utilization, and (3) to afford an agency through which the people of the country may frame policies and principles affecting the wise and practical development, conservation and utilization of the resources to be put into effect by their representatives in State and Federal Governments.

ARTICLE 3—MEETINGS.

Section 1. Regular annual meetings shall be held at such time and place as may be determined by the Executive Committee.

Section 2. Special meetings of the Congress, or its officers, committees or boards, may be held subject to the call of the President of the Congress or the Chairman of the Executive Committee.

Section 3. After a call of the Executive Committee by the Chairman, and after all members of the Committee have been notified of the meeting in sufficient time to be present, three members shall constitute a quorum for the transaction of business.

ARTICLE 4—OFFICERS.

Section 1. The officers of the Congress shall consist of a President, to be elected by the Congress; a Vice-President to be elected by the Con-

gress; a Vice-President from each State, to be chosen by the respective State delegations; one from the National Conservation Association and one from the National Association of Conservation Commissioners; an Executive Secretary, a Recording Secretary, and a Treasurer, all to be elected by the Congress.

Section 2. The duties of these officers may at any time be prescribed by formal action of the Congress or Executive Committee. In the absence of such action their duties shall be those implied by their designations and established by custom. In addition, it shall be the duty of the Vice-Presidents to receive from the State Conservations Commissions, and other organizations concerned in Conservation, suggestions and recommendations and report them to the Executive Committee of the Congress.

Section 3. The officers shall serve for one year, or until their successors are elected and qualify.

ARTICLE 5—COMMITTEES AND BOARDS.

Section 1. An Executive Committee of seven, in addition to which the President of the National Conservation Association, the President of the National Association of State Conservation Commissioners, and all ex-Presidents of the Congress shall be members, ex officio, shall be appointed by the President to act for the ensuing year; its membership shall be drawn from different States, and not more than one of the appointed members shall be from any one State. The Executive Committee shall act for the Congress and shall be empowered to initiate action and meet emergencies. It shall report to each regular annual session.

Section 2. A Board of Managers shall be created in each city in which the next ensuing session of the Congress is to be held, preferably by leading organizations of citizens. The Board of Managers shall have power to raise and expend funds, to incur obligations of its own responsibility, to appoint subordinate boards and committees, all with the approval of the Executive Committee of the Congress. It shall report to the Executive Committee at least two days before the opening of the ensuing session, and at such other times as the Congress or the Executive Committee may direct.

Section 3. An Advisory Board, consisting of one person from each national organization having a conservation committee, shall be created to serve during that Congress and during the interval before the next succeeding Congress. The board shall report to and co-operate with the Executive Committee.

Section 4. The President shall appoint a Finance Committee of five, three from the members of the Executive Committee and two from th-

Advisory Board, whose duty it shall be to plan ways and means of increasing the revenue of the Congress, and to prepare a budget of expenditures. The Chairman shall be a member of the Executive Committee.

Section 5. The Executive Committee shall appoint, in consultation with the Vice-President from the State, a State Secretary whose duty shall be to work with the State organizations for the special interests of the Congress. Such Secretary shall report progress to the Executive Committee.

Section 6. A Committee on Credentials shall be appointed, consisting of five (5) members, by the President of the Congress not later than on the second day of each session of the Congress. It shall determine all questions raised by delegates as to representation, and shall report to the Congress from time to time as required by the President of the Congress.

Section 7. A Committee on Resolutions shall be created for each annual meeting of the Congress. A Chairman shall be appointed by the President. One member of the committee shall be selected by each State represented in the Congress. The committee shall report to the Congress not later than the morning of the last day of each annual meeting.

Section 8. Permanent committees, consisting of five members each, on each of the following five divisions of Conservation: Forests, waters, lands, minerals and vital resources, shall be appointed by the President of the Congress. The Committee on Vital Resources is to consist of six subordinate committees as follows: Food, homes, child life, education, civics, and general (including wild life, domesticated animals, and cultivated plants). These committees shall, during the intervals between the annual meetings of the Congress, inquire into these respective subjects and prepare reports to be submitted on the request of the Executive Committee, and render such other assistance to the Congress as the Executive Committee may direct.

Section 9. By direction of the Congress, standing and special committees may be appointed by the President.

Section 10. The President shall be a member, *ex officio*, of every committee of the Congress.

ARTICLE 6—ARRANGEMENTS FOR SESSIONS.

Section 1. The program for the session of each annual meeting of the Congress, including a list of speakers, shall be arranged by the Executive Committee. The entire program, including allotments of time to speakers and hours for daily sessions and all other arrangements concerning the program, shall be made by the Executive Committee.

Section 2. Unless otherwise ordered, the rules adopted for the guidance of the preceding Congress shall continue in force.

ARTICLE 7—MEMBERSHIP.

Section 1. The personnel of the National Conservation Congress shall be as follows:

Officers and Delegates.

Officers of the National Conservation Congress.

Fifteen delegates appointed by the Governor of each State and Territory.

Five delegates appointed by the mayor of each city with a population of 25,000 or more.

Two delegates appointed by the mayor of each city with a population of less than 25,000

Two delegates appointed by each board of county commissioners.

Five delegates appointed by each national organization concerned in the work of Conservation.

Five delegates appointed by each State or interstate organization concerned in the work of Conservation.

Three delegates appointed by each chamber of commerce, board of trade, commercial club, or other local organization concerned in the work of Conservation.

Two delegates appointed by each State, or other university, or college, and by each agricultural college, or experiment station.

Honorary Members.

The President of the United States.

The Vice-President of the United States.

The Speaker of the House of Representatives.

The Cabinet.

The United States Senate and House of Representatives.

The Supreme Court of the United States.

The representatives of foreign countries.

The Governors of the States and Territories.

The Lieutenant-Governors of the States and Territories.

The Speakers of State Houses of Representatives.

The State officers.

The mayors of cities.

The county commissioners.

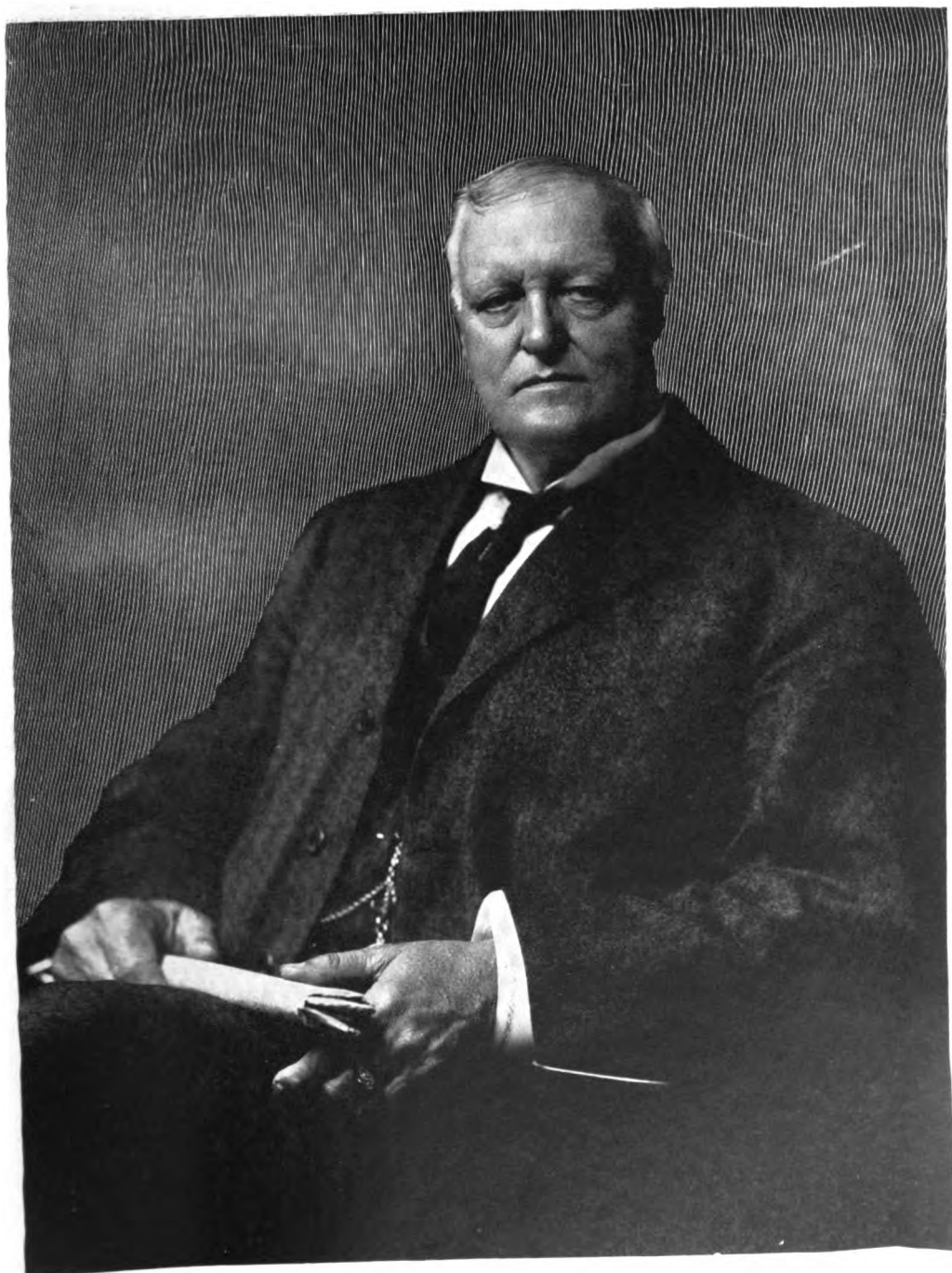
The presidents of State and other universities and colleges.

The officers and members of the National Conservation Association.

The officers and members of the National Conservation Commission.

The officers and members of the State Conservation Commissions and associations.

Section 2. Membership in the National Conservation Congress shall be as follows:



Joseph White

OF KANSAS CITY, MO.,
PRESIDENT, FOURTH NATIONAL CONSERVATION CONGRESS

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Individual membership: One dollar a year, entitling the member to a copy of the Proceedings and an invitation to the next year's Congress, without further appointment from any organization.

Individual permanent, or life membership: Twenty-five dollars, entitling the member to a certificate of membership and a copy of the Proceedings and invitations to all succeeding annual Congresses.

Individual supporting membership: One hundred dollars, or more, entitling the member to a certificate of membership, a copy of the Proceedings, and an invitation to all succeeding Congresses.

Organization membership: Twenty-five dollars, entitling its delegates to the Proceedings, and an invitation to the organization to appoint delegates to the next Congress.

Organization supporting membership: One hundred dollars, or more, entitling the organization to appoint one delegate from each State, each of whom shall receive a copy of the Proceedings.

ARTICLE 8—DELEGATIONS AND STATE OFFICERS.

Section 1. The several delegates from each State in attendance at any Congress shall assemble at the earliest practicable time and organize by choosing a Chairman and a Secretary. These delegates, when approved by the Committee on Credentials, shall constitute the delegation from that State.

ARTICLE 9—VOTING.

Section 1. Each member of the Congress shall be entitled to one vote on all actions taken *viva voce*.

Section 2. A division or call of States may be demanded on any action, by a State delegation. On division, each delegate shall be entitled to one vote; provided (1) that no State shall have more than twenty votes; and provided (2) that when a State is represented by less than ten delegates, said delegates may cast ten votes for each State.

Section 3. The term "State" as used herein is to be construed to mean either State, Territory, or insular possession.

ARTICLE 10—AMENDMENTS.

This Constitution may be amended by a two-thirds vote of the Congress during any regular session, provided notice of the proposed amendment has been given from the Chair not less than one day or more than two days preceding; or by unanimous vote without such notice.

RESOLUTIONS.

FOURTH NATIONAL CONSERVATION CONGRESS.

The Fourth National Conservation Congress, made up of delegates from all sections and from thirty-five States of the Union, met in the City of Indianapolis, do hereby make the following declarations:

Recognizing the natural resources of the country as the prime basis of property and opportunity, we reaffirm the declaration of the preceding Congress, that the rights of the people in these resources are natural, inherent, and inalienable; and we insist that these resources shall be developed, used and conserved in ways consistent both with the current and future welfare of our people.

We put chief emphasis on vital resources and the health of the people; and since health and brains are the first and most important factors of efficient life, we urge the adoption of all rational and scientific methods which will lead to their building-up.

To be well born is the primal requirement, and the first step to make sure that children shall be well born is to stop the multiplication of those bearing hereditary defects of body and mind. We believe that science is capable of solving the problem satisfactorily and that improvement is possible under existing conditions. We earnestly urge its consideration by the public.

We believe that every State should have wisely ordered health laws, with officers empowered to enforce them, and also that a National Department of Health should be created, comporting with the dignity and importance of the cause. This department should work effectively for the promotion of the physical and hence the moral and intellectual health of the people.

The accurate registration of births and deaths, which has been called the 'Bookkeeping of Humanity,' is a fundamental necessity for a study and knowledge of disease, and for all public health work. Therefore, we affirm our belief in the importance of vital statistics registration, and recommend that all States now without proper vital statistics adopt as early as possible the model bill for the registration of vital statistics indorsed by the United States Bureau of the Census, and by many prominent professional and scientific bodies.

We urge the strengthening of laws safeguarding the health and the lives of workers in industrial establishments; and we commend to the

employers of labor all practicable safety devices and proved preventive measures against illness and injury and physical inefficiency; and we urge upon the other States the investigation of accidents by elevators and the enactment of laws similar to those on the statute books of Pennsylvania and Rhode Island.

We commend the activity of all individuals and organizations and governmental agencies to put an end to such work by children and women as impairs the health of the race. Childhood is our greatest resource, and its right to protection in growing to a normal maturity is inalienable. We deplore the ignorant use of medicines; and we call upon all humane and educational agencies to teach the waste and danger of any drug-habit.

We earnestly advocate the employment by communities and manufacturing concerns of such methods of sewage disposal as will render their waste products harmless to health and utilize them in the restoration of soil fertility; and we urge the enactment by States of laws prohibiting stream pollution and by the Federal Government of such legislation as will prevent the pollution of interstate and coastal waters.

Uniform State legislation regulating the refrigeration of perishable food stuffs is advisable, therefore this Congress recommends that its Food Committee be requested to study the questions involved in the production, collection, sanitary preparation, transportation, preservation and marketing of perishable foods and to report its findings to the succeeding Congress as a basis for uniform legislation.

In view of the enormous losses annually sustained by the agricultural interests of the United States on account of the ravages of injurious insects, which might be kept more under control by an increase of insect-eating birds, we urge the passage of Federal laws for the protection of all migratory birds; and the passage of State laws for the prohibition of spring shooting and of the sale of game.

We reaffirm the great importance of our fishery resources, which are threatened with serious diminution. We urge upon Congress and the States to provide more liberally for the propagation and preservation of food fishes.

LANDS.

We keenly recognize the need of the people of the country for more complete and accurate knowledge of their land and its conditions than is now available, in order to promote their economic, social and intellectual well-being and to conserve scattered individual energy;

We recognize that such data should be collected by a general series of State and National surveys arranged in the order in which they will be most accurate and effective and that many of these are already in progress;

This Congress earnestly points out the following kinds of data of which the people have need and the approximate order in which it should be collected, namely :

1. A thorough geographical survey of public boundaries and cultural features.
2. Of the form or topography of the earth's surface.
3. Of the geology, including the structure and economic deposits of the earth's crust.
4. Of the kinds and distribution of soils in their relation to agricultural operations.
5. Of the climate in its local variations and relation to crops and industry.
6. Of the surface and underground water supply of the country in its local and regional relation, including flood and storage problems.
7. Of various biological, crop and forestry conditions and relations.
8. And of many other surveys of a more specialized character and local application which may be adequately carried forward on the basis outlined above.

We urge the several States and the Federal Government to examine their existing agencies to determine whether they are completely and effectively fulfilling these functions.

Further, we reaffirm the action of the last Conservation Congress in approving the withdrawal of the public lands pending classification, and the separation of surface rights from mineral, forest and water rights, including water-power sites, and we recommend legislation for the classification and leasing for grazing purposes all unreserved lands suitable chiefly for this purpose, subject to the rights of homesteaders and settlers, on the acquisition thereof under the land laws of the United States; and we hold that arid and non-irrigable public grazing lands should be administered by the Government in the interest of small stockmen and homeseekers until they have passed into the possession of actual settlers.

FORESTS.

Believing that the necessity of preserving our forests and forest industries is so generally realized that it calls only for constructive support along specific lines—

We commend the work of the Federal Forest Service, and urge our constituent bodies and all citizens to insist upon more adequate appropriations for this work and to combat any attempt to break down the integrity of the national forest system by reductions in area, or transfer to State authority.

Since Federal co-operation under the Weeks law is stimulating better forest protection by the States, and since the appropriation for such co-operative work is nearly exhausted, we urge appropriation by Congress for its continuance.

We recommend that the Federal troops be made systematically available for controlling forest fires.

Deploring the lack of uniform State activity in forest work, we emphatically urge the crystallization of effort in the lagging States toward securing the creation of forest departments with definite and ample appropriations, in no case of less than ten thousand dollars per annum, to enable the organization of forest fire work, publicity propaganda, surveys of forest resources and general investigations upon which to base the earliest possible development of perfected and liberally financed forest policies.

We recommend in all States more liberal appropriation for forest fire prevention, especially for patrol to obviate expenditure for fighting neglected fires, and the expenditure of such effort in the closest possible co-operation with Federal and private protective agencies; and also urge such special legislation and appropriation as may be necessary to stamp out insect and fungus attacks which threaten to spread to other States. We cite for emulation the expenditure by Pennsylvania of \$275,000 to combat the chestnut blight, and the large appropriation by Massachusetts to control insect depredation, and urge greater Congressional appropriation for similar work by the Bureau of Entomology.

Holding that conservative forest management and reforestation by private owners are very generally discouraged or prevented by our methods of forest taxation, we recommend State legislation to secure the most moderate taxation of forest land consistent with justice and the taxation of the forest crop upon such land only when the crop is harvested and returns revenue wherewith to pay the tax.

We appreciate the increasing support by lumbermen of forestry reforms and suggest particularly to forest owners the study and emulation of the many co-operative patrol associations which are doing extensive and efficient forest fire work and also securing closer relations between private, State and Federal forest agencies. Believing that lumbermen and the public have a common object in perpetuating the use of forests, we indorse every means of bringing them together in mutual aid and confidence to this end.

MINERALS.

We reaffirm the opinion of the last Conservation Congress that mineral deposits underlying public lands should be transferred to private ownership only by long-time leases with revaluation at stated periods,

such leases to be in such amounts and subject to such regulations as to prevent monopoly and needless waste; and that in case of doubt as to availability of such mineral deposits, or while they are waiting exploration, surface rights to the land should be transferred by lease only under such conditions as to promote development and protect the public interest. Natural and manufactured fertilizing materials should be limited and regulated by law.

Since present conditions in the mining industry result in heavy and unnecessary loss of life and great waste of natural gas, coal and other mineral resources, we call to public attention the need of specific and uniform laws for the betterment of these conditions—laws as rigid and comprehensive as we enact for the protection of life and for the right use of property in any other fundamental industry.

WATER POWER.

We reaffirm the previously expressed belief of the Conservation Congress that all parts of every drainage basin are related and inter-dependent, and that each stream should be regarded and treated as a unit from its source to its mouth.

Recognizing the vast economic benefits to the people of water power derived largely from inter-state and navigable rivers, we favor public control of their water power development; and we demand that the use of their water rights be permitted only for limited periods, with just compensation in the interests of the people.

COUNTRY LIFE.

We applaud the betterment of conditions affecting country life, such as good roads, and organizations for co-operative buying and selling; and we urge the study of rural credit systems whereby the farmer may more easily borrow capital at a reasonable rate of interest.

We applaud the work of making rural schools fit rural needs.

DR. W J MCGEE.

We here place on record our sense of the deep loss by the country through the untimely death of Dr. W J McGee, a member of a Committee of this Congress, a scientific man of broad attainment, and of the widest human sympathy, whose helpfulness in these Congresses and many similar meetings will be sadly missed.

THE EXHIBIT.

We mention with appreciation the work of the Committee on Exhibits, Mrs. Philip N. Moore, Chairman, which made the instructive health exhibit under the management of Dr. Winthrop Talbot.

We record our grateful appreciation of the hospitality and helpfulness of the State Government of Indiana, and of the City Government of Indianapolis; and of the Local Board of Managers, Mr. Richard Lieber, Chairman; of the Reception Committee, Mr. Albert E. Metzger, Chairman; of the Commercial and Industrial organizations which, through the Commercial Club, made the Congress here possible; of the State Board of Agriculture, and of the Claypool Hotel, for their helpful courtesies and generous co-operation; and we thank the newspapers of Indianapolis for their unusually generous and accurate reports.

We wish to assure the retiring President, Captain White, of the heartiest appreciation of the Congress and of the country for his generous and efficient administration of the complicated business of the Congress; and Mr. Thomas R. Shipp, the Executive Secretary, for his zealous labor and good judgment and skilful management; and Mr. James C. Gipe, the Recording Secretary, for his energy and efficiency; and Colonel John I. Martin, the Sergeant-at-arms, must add one more vote of thanks to his ever-lengthening collection.

FOURTH NATIONAL CONSERVATION CONGRESS.

OPENING SESSION.

The Congress convened in the Murat Theater, Indianapolis, Indiana, on the morning of October 1, 1912, President J. B. White in the chair.

President WHITE—The Fourth National Conservation Congress will now come to order, and the audience will please rise while the Rev. Dr. F. S. C. Wicks invokes Divine blessing.

INVOCATION.

Infinite and Eternal One, we would open our Congress with an acknowledgment of Thee as the Giver of every good and perfect gift. Thou hast placed us in a rich and fertile land, teeming with the things needful for Thy children, and Thou hast laid upon us the great responsibility of conserving these resources so that these blessings will extend to our children's children and to all generations forevermore. To Thee be all the praise and the glory. Amen.

ADDRESSES OF WELCOME.

President WHITE—On behalf of the State of Indiana, your fellow citizen, the Honorable Charles Warren Fairbanks, will address the Congress in words of welcome. (Applause.)

Mr. FAIRBANKS—Mr. President, Ladies and Gentlemen: Indiana has frequently been honored by the presence of conventions of national importance. Our countrymen, engaged in various and vast pursuits and in the consideration of a large variety of questions, religious, social, fraternal, economic and political in their character, have assembled here from time to time to take counsel together with respect to the subjects engaging their particular attention, and to the advancement of our common welfare.

Our State has a hospitality for all who are engaged in promoting the moral, material and political well-being of our rapidly multiplying millions. I will not be misunderstood, I know, when I say that we have never more heartily welcomed to our midst any body of men than we now welcome the Fourth National Conservation Congress. (Applause.)

We recognize in this great assembly one of the most beneficent agencies for good which has taken on the form of systematic organization, national in its scope. It is not sectional, but is as comprehensive in its purpose as the ample limits of the Republic. It takes thought, not of the few, but embraces within its generous purpose one hundred millions of people of all conditions and without suggestion or partiality for white or black, native or alien born. How vast and how vital the field of its activities!

How full of promise such an assembly as this is! It is, Mr. Chairman, a complete answer to the pessimist. No thought of commercial gain has brought you here; a spirit of altruism, love of country and of mankind has been the impelling motive which has caused you, at your own expense, to leave the comforts of your homes and firesides and your daily vocations to come here and deliberate upon great themes of larger interest to the great community of which you are a part than to yourselves.

You hold no commission from the government, yet your service is of profound importance to it. You are not public servants in a narrow sense, but in a broad sense you freely serve the public in the best possible way.

The lesson of men voluntarily devoting themselves to the betterment of their fellows without the thought of sordid gain is a fine one and must impress itself in a very vivid and beneficial way upon the minds of others and tend to elevate the entire mass. What tends to impress us with our interdependence and to stimulate a feeling of homogeneity among us as this movement does is of incalculable benefit. It is a splendid thing for people to fellowship together in this manner, to take counsel of each other with reference to questions concerning the common good. It shows that we are interested more in what concerns the great body of the community than in what concerns ourselves.

General Harrison, gifted statesman and our fellow citizen, once very happily expressed the fact of the strength of confederated numbers in a good cause. He told of an engagement during the great Civil War when he was colonel of an Indiana regiment that was fighting in the midst of a woods and thicket. The enemy was pressing hard in front and fighting every inch of ground with a desperation that was unsurpassed. The Indiana regiment was feeling the shock of war in an extreme degree, and was almost on the point of discouragement. They felt they were fighting the battle alone. But in the course of time, as they emerged into a savannah, they saw a New York regiment, with its battle flags flying to the breeze; and over there another regiment from Kansas, and a shout of victory went up all along the line, for they found they were not a mere detachment, but part of a great army fighting for a common cause.

So it is a fine thing to feel that we are part of a great army fighting for a common cause—for home and country, rather than detached units fighting for ourselves. (Applause.)

Conservation is comparatively new in the vocabulary of our modern domestic economy, but it is a great word. It has come to be one of the greatest words of the human language from a practical standpoint. It is a continent-wide word in America. Conservation in some aspect of the subject touches every community, every city, every State and every individual. In other words, in a vital degree, it touches the welfare of one hundred millions of American citizens. Its importance is just beginning to be appreciated. Great today, but greater tomorrow in the progress of affairs. (Applause.)

A good Providence endowed us so abundantly with the prime necessities of our being that we have not fully realized the fact that there was either a possibility or danger of dissipating them. We were wont to boast of our inexhaustible resources. Nature has been prodigal, and we have been prodigal in the use and abuse of what she had so generously placed at our hands.

The forests—how vast and how majestic! We were obliged to fell them for the plow and the harvest, and for homes and cities. We came to look upon them as in our way—obstructions to our progress, as in a certain sense they were, but in a large way they were not. And we carried the work of demolition to the danger point before we realized our mistake. What nature had been centuries creating for us we frequently recklessly destroyed in a day.

The soil, the primary source of human life and strength, was rich beyond compare. In the laboratory of nature the chemical elements had been so nicely compounded that, to use a familiar simile, the farmer had only to tickle the land with a hoe and it laughed with the harvest. In time, Mother Earth began to resent neglect and abuse, and the crop yield diminished; but that mattered little to the unthinking, for there were still vast areas of virgin soil and the food supply was adequate to our needs. In the course of time, however, there were no unoccupied lands to be pre-empted, no fresh soil for the asking.

MILLIONS COME TO OUR SHORES.

Millions of men and women flocked to our shores every ten years from every land beyond the seas, seeking home and opportunity; millions every decade were added to our population at home by natural increase. Students of statistics came to realize that in the face of an increasing demand for food supply at home, regardless of the millions in the Old World dependent upon our granaries, soil exhaustion was a subject of very vital importance, a crime, if you please, not by the

statute, but by moral law; and this may be said with respect to the reckless or ignorant dissipation of all our natural resources.

We are in a very real sense trustees of the fields and forests, mines and other sources of wealth, not to use and abuse at our will, but rather to use for our own reasonable necessities and then to transmit them unimpaired, so far as possible, and if possible increased in life-sustaining power, to our children. (Applause.)

By no other method can our civilization be perpetually maintained upon the highest level and the Republic kept in the forefront of the nations of the world. The man who owns and tills the soil, who owns and fells the forest, who owns and mines the coal, has no moral right to abuse his ownership; no one has a moral right to waste patrimony which must support not only the owner but the man who is not the owner, and whose continued comfort and existence must depend upon the wisdom with which the owner of the soil and forest and mine uses them.

The importance of Conservation derives emphasis from the rapidity with which our population grows. Our cities will not only multiply in number, but their inhabitants will increase, population will become congested everywhere, and the demand upon our natural resources will be greatly increased. We have added nearly ninety millions to our population in one hundred years. One hundred years ago we were small in numbers compared with the older countries. We have outstripped all but the older empires and republics of Continental Europe. Take Russia, with her 172,000,000; take India, with 325,000,000, and China, where they are building a republic upon the ruins of an empire, with her 400,000,000, and the United States stands fourth in magnitude of population among the nations of the world, having outstripped all but these, and with the present ratio of increase, in one hundred and fifty or two hundred years we will stand not the last of these great populous countries. And what does this signify? It signifies that the great subject of Conservation that you are taking hold of with such intelligent, patriotic interest, will be the overmastering question then as it is today. (Applause.)

Who can put a practical limitation upon a definition of Conservation? Conservation of our natural resources does not go far enough. The public health falls within the subject of Conservation in the fullest and best sense, and that is susceptible of many subdivisions. Conservation of the minds and morals, Conservation of our political institutions—all of these and many more subjects of but little less importance engage the attention of such men as are assembled here.

I understand, Mr. Chairman, that the human side of Conservation is to receive particular emphasis in this Congress. I am glad it is so. We have been so long concerned with the physical resources that we have

failed to give proper credit to really a larger aspect of Conservation. As important as is the conservation of our natural resources, far more important is the question of conserving the health, conserving the intellect, conserving the morality of the one hundred millions of people we have. (Applause.) I have known men who were more solicitous regarding the health of a fine horse or dog than the health of the family. I have sometimes seen (but not in any of the States from which any of you come) ladies that had a more affectionate solicitude for a fine cat or a fine poodle than for the members of her household. (Laughter.) We are getting beyond that. We are coming to appreciate that that greatest assets in the United States today are men and women, and we must know how to conserve them.

There is manifest and gratifying awakening upon this subject throughout the country. We have not begun to appreciate the possibilities in this field. Men of science, the microscope, the laboratory and carefully gathered and well-digested statistics have opened up a new world to our vision. Physicians and surgeons have been exploring the mysteries of the physical man and familiarizing themselves with the perils of his environment and learning how to arrest the work of his destroyer.

They have learned how to locate his worst enemies by the use of the searching eye of the microscope, enemies who destroy more thousands than those enemies who come with fleets and armies and flaunting banners. It was not the Chagres river and Culebra cut which defeated the French Company in the construction of the Panama Canal, but the mosquito.

An American physician opened up the way to the completion of this work of world-wide moment by destroying the insect which had successfully defeated the French. The white plague, which takes such tremendous toll annually, is now under siege from every quarter, and science will in due time win a new victory in removing this scourge. Better sanitation in cities, villages, schoolhouses, workshops, homes, on farms and in cities, guarding our water supply against pollution, insuring pure food and pure drugs and their better preparation, are a few of the imperative requirements of the day. And when I speak of pure food and drugs, Dr. Wiley comes to my mind. (Applause.) He has to do with an aspect of practical Conservation that will entitle him and his associates to perpetual remembrance in the United States. (Applause.)

These are all practical questions, the importance of which cannot be over-emphasized. They concern the health and happiness of many millions of people and the destiny of the Republic itself.

INDIANA NOT INDIFFERENT.

Indiana has not been indifferent to this great movement. It has taken up the work of Conservation with full appreciation of its magnitude and its direct bearing upon the present and future of the State. Our interests are so diversified that our conservationists in all branches of the movement find full opportunity for the exercise of their activities.

We have an agricultural college which is doing much to advance agriculture, horticulture, stock raising and the like along advanced lines. Farmers are being interested in the necessity of cultivation of the soil and the importance of seed selection, drainage and the like. We have farmers' short courses instituted by the college which are proving of immense value. We are conserving the health of the livestock upon the farms. Sanitation has played an important part in this branch of work, as it has upon the human side.

We have a board of forestry supported by the State, and a Forestry Association organized by the people; also a commission to protect the food supply of our lakes and streams. These are only a few of the evidences of our progress in Conservation.

We are conserving with particular care the health of our school children with admirable results. We have learned, somewhat slowly perhaps, that sound bodies and sound minds should and can go together, and that to educate the mind and allow the body to become diseased is false economy on the part of the State and is nothing short of a crime, committed through either our ignorance or indifference.

We have sought to guard against and cure occupational diseases which impair and disqualify so many wage earners. We have more and more sought to throw around them such safeguards as well protect them against injury and death, and then to provide an adequate measure of compensation in case of accident as one of the legitimate burdens upon industry of the community which ultimately rests upon the public.

HAVE REDUCED ACCIDENTS.

During the last fifteen years we have made much advance in the conservation of the health of our people. By rigid factory inspection we have reduced accidents to our workmen from machinery and by improved sanitation we have protected their health. We have also rigidly inspected our mines with like results.

In fifteen years diphtheria has decreased sixty per cent., consumption has decreased in this same period six to eight per cent.; deaths from typhoid fever have fallen in the last two years from almost two thousand to 936 in 1911. Education, better living, improved sanitation, and an efficient State Board of Health, with its excellent organization of health officers in every locality, the co-operation of the press in the education of the people and support of our health officers, have accom-

plished a great work in increasing in a very considerable degree the health, vigor and happiness of our people.

The net result of it all is told in the vital statistics of the State. In the last fifteen years the duration of life has been increased from 38.7 years to 44.6 years.

We are advocating the creation of a State Conservation Board with supervisory power over all subjects of Conservation now committed to separate and independent boards or commissions, so as to more effectively co-ordinate their efforts in a scientific manner, avoiding duplication and intensifying the work. It is suggested that a building be erected by the State for the proper accommodation of the entire Conservation service.

We regard this as a matter of great importance, and there is no doubt whatever that the State will liberally respond to the prevailing sentiment in favor of broadening the work of Conservation. It never pursues any parsimonious policy in supporting whatever concerns the education, health, moral safety and welfare of our people, so far as this may be appropriately accomplished under the law.

It is not inappropriate in this presence to observe that the Conservation of our political fabric must not be left out of consideration. This is a matter we must always hold uppermost in our minds, lest we allow harm to come to our priceless heritage.

Partisan utterance would, of course, contravene good taste, and I shall not offend against it; but I may suggest with propriety that we should hold fast to the fundamental principles of republican government, which have been our guaranty of liberty and human rights and of orderly progress for a century and a quarter.

The political wisdom of our forefathers has been abundantly vindicated in our experience. Older countries in continental Europe and in the Orient are turning toward us more and more and fashioning their political institutions after ours.

We need not be quick to surrender the present well-tried guaranties we have of justice and the rights of men for theories which neither upon good reason nor upon experience are commended to our best judgment.

The program which lies before you is full of the promise of entertainment and instruction. Men of wide experience, students of our economic and social needs, will lay before you the rich fruit gathered by them in the fields of their activities. Specialists in many branches of the great work of Conservation will make you their debtors. I shall not, of course, attempt to anticipate the subjects upon which they will enlighten you.

Custom, my friends, alone has led me to make the observations in which I have indulged in extending you welcome on behalf of the State

of Indiana. It is quite unnecessary to occupy your time in discharge of this pleasant duty, which but for his enforced absence would have been performed by the distinguished Governor of the State.

You would understand me, I know, if I merely said "Welcome." You would know that it was no perfunctory utterance, but that it came from the bottom of the Hoosier heart. In a sense we do not look upon you as our guests; we prefer to regard you as members of our household. (Applause.)

President WHITE—The thanks of the delegates, the thanks of the visitors, and the thanks of the people of the United States are due and will be given to the Hon. Charles W. Fairbanks for this most intelligent address, this statement of the principles that lie at the heart of every true conservationist. (Applause.) He has taken a forward step, he has led in the great movement in his own State, and he is now president of the Indiana Forestry Association.

I want to say that it is very fortunate for the people of the country that this address, and others that will follow, will be published and sent broadcast over this great land. We are going to teach the principles of conservation in every home.

It is now fitting that the next speaker should be also a conservationist—a conservationist of a different type, but no less a true conservationist, for at his hands, through his work, has come to the City of Indianapolis a reduction in fire loss from \$600,000 to \$300,000 annually. He is President of the Merchants' and Manufacturers' Insurance Bureau, and has practiced conservation in a most practical manner by reducing the fire loss and saving money to the people. We who have investigated that subject in Germany and other countries know how necessary it is that it should be brought home to us here in our cities and our homes. I now have the pleasure of introducing to you the Chairman of the Local Board of Managers, Mr. Richard Lieber. (Applause.)

Mr. LIEBER—Mr. President, Ladies and Gentlemen: It is a very great pleasure and a distinguished honor to welcome you to our city upon this auspicious occasion. The City of Indianapolis deeply appreciates your coming and knows that through participation in your assemblages and deliberations it will materially profit in those matters which are of such vast and comprehensive benefit to its citizens. From here, through your able and learned speakers, potential knowledge will be disseminated throughout the length and breadth of our beloved country, which, in its application, will increase the happiness, contentment and usefulness of our people.

You have come here to consider most serious problems regarding the conservation of national wealth, more particularly that of vital resources, and above all, the conservation of human life.

For that reason, coupled with our welcome, is our expression of thanks for your coming, for "your worth is warrant of your welcome."

The thought of conservation is comparatively new. It marks a new era in the development of the country, and nowhere are its lessons more intensely needed than in a country like ours, vast in its expanse, relatively sparsely populated and apparently inexhaustible in its natural riches.

But are these riches inexhaustible? Can we go on in the manner of our fathers and forefathers, who frequently had to destroy in self defense?

Not since the days of the migration of nations, not even since the legendary days of the fall of Troy has the world witnessed anything like this stupendous conquest of a virgin continent. It is an intensified Iliad of modern days. No comparison with former ages can suffice. What are even the wondrous tales of Moses' messengers of the great land where "floweth milk and honey" compared with the gigantic proportions and abounding riches of this modern promised land?

That the pioneer, coming to this land was destructive before he could be constructive is a matter of historical truth. It could not have been otherwise. He fought civilization's battle, that civilization may enjoy peace and prosperity. But some of these destructive habits of the settler have taken root in our being and destruction has continued where construction was needed. What have the American people not wasted! Land and water, fish and game, coal, natural gas and too many other riches. Above all, how many useful and dear lives are drawn into the surging maelstrom of our national waste through indifference, carelessness and greed!

We find ourselves confronted here with the anamorphosis of civilization.

Human sacrifice belongs to a dark and unenlightened day, but the human sacrifice in mills and mines, in railroads and sweatshops in our time is a dark blot upon our civilization. (Applause.)

In this mad chase after things material at any cost, we must pause, for a nation will become unbalanced in its natural progress if its spiritual and intellectual advance be retarded.

Conservation wishes to bring about a more harmonious blending of these national needs. It teaches a wholesome regard for created values, it preaches the sanctity of a child's life and the economic value of our boys' and girls' health, and aside from general consideration where is an application of conservation ideals and principles more needed than in our cities. We must learn that a good man's or woman's example in the community is more beneficial and of greater force than a mere ordinance. Virtue, righteousness and high principle spring from the



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PRESIDENT, FIFTH NATIONAL CONSERVATION CONGRESS

seen of teaching that has fallen in mind and heart; they are inculcated but cannot be legislated. (Applause.)

Would it not in this connection be braver for us fathers and mothers to speak openly to our boys and girls concerning the dangers that beset them in their course of life and thus turn the energies of their lives into the broad avenues of light, strength and usefulness than to let them be drawn into the abysmal chasm of a veritable hell of human waste. Would it not be better to save, to lessen the inflow, than to clog the mouth of this human sewer by police orders after prudery, hypocrisy and cowardice have filled it? (Applause.) We are everlastingly treating symptoms instead of diseases, attacking effects instead of causes, and we persistently thereby aggravate the malady.

Let us have more light of thought, more air of true freedom and a deeper and more sympathetic understanding of our own needs and those of our fellow man that we may be enabled to show the folly of vice, the contentment of virtue; that we may alleviate pain and want, and that the warmth of human sympathy may send hope to the hopeless, courage to the faltering and faith to the despondent.

With these fervent wishes the City of Indianapolis welcomes the Fourth National Conservation Congress. (Applause.)

President WHITE—These words of welcome, coming from a different point of view, are felt deeply by us all. We feel the spur of duty still greater.

It is very fitting that another side of conservation should be heard from. The business men, the local business organizations of a city have done a good work for conservation. Human efficiency is one of the greatest forces that move the world, and systematic organization is one of the greatest powers towards efficient conservation of life and of all material progress. A business man knows that his success depends upon perfect organization, and that perfect organization is just as necessary to the conservation of every natural resource.

I have the pleasure of introducing to you Mr. Winfield Miller, of Indianapolis, who speaks on behalf of the local business organizations. (Applause.)

Mr. MILLER—Mr. President, Ladies and Gentlemen: When I was honored by the commercial organizations of Indianapolis with the invitation to extend for them a few words of greeting and welcome to this National Conservation Congress. I looked into the biggest book, the Dictionary, for a definition of the word "Conservation." I found the word concisely defined to mean "the art of preserving from decay, loss or injury." While the definition is not extended, it is comprehensive and can be readily amplified to cover every phase of the question.

I then turned to the greatest book, the Bible, and read that early edict which still holds good, "In the sweat of thy face shalt thou eat bread." Over this ancient decree and its cause, there have been volumes of theological commiseration, but in the light of subsequent history, it is now generally agreed that man has been a greater force in the garden of the world that if he had remained in the Garden of Eden.

The thought occurs, however, that resting under the edict of lifelong toil man would, from an early period, have practiced conservation in all things. But he soon discovered that "the earth and the fulness thereof" were his, and, as ever, has been injuriously careless of results.

Again, he was not left without hope. The same great authority, in language and grandeur of thought unsurpassed, gives a promise of perpetual inspiration, in this, that "While the earth remaineth, seed time and harvest, and cold and heat, and summer and winter, and day and night shall not cease." This promise, according to accepted chronology, has the confirmation of forty centuries of time and gives man the assurance of a continued field in which to do his work. The earth, the air, the waters are his environment; they are immutable, unchangeable. The animal, vegetable and mineral kingdoms furnish him food, clothing, shelter, life. Their best use should be his first and highest consideration.

Nature has been prodigal in her gifts to man. Her kingdoms have been his to rightfully exploit. But too long and too often has selfish and neglectful exploitation been his purpose and practice.

There is abundance for all if nature's forces are properly conserved and her products fairly distributed. But some men, in their greed and haste, have grabbed a thousand-fold more than their necessities or happiness required. They eat their bread in the sweat of the other man's face. On the other hand, the many have been ignorantly neglectful of the opportunities of their environments—so that life presses hard, too hard. Avarice, ignorance, waste, have linked arms to the detriment of civilization.

We must strive for the necessities of food, clothing and shelter. These sustain animal life, which is worth while; but animal life, endowed with the highest moral and mental strength, is the goal to be reached, for the summit of man's ambitions should shine with human comfort and happiness. Conservation is the road to that summit and this National Congress has convened to further blaze the path and light the road. (Applause.)

Inventions of the last century, mostly within the half century, have injected into the field of travel and communication means that excite profound admiration; chemical analysis of the air and soil have shown that the food supply of the world, if nature's forces are properly conserved, is without limit; while the mighty strides made in the better

understanding of the physical needs of man himself insure the race at large improved health and longer life.

May I briefly indulge in a few common illustrations? The telegraph, the telephone, the automobile, steam and electric power save time and shorten distance. In that part of commerce relating to traffic we have caught the spirit of conservation. The railroad builder no longer takes the route of the least resistance in construction, but applies the geometric proposition that the straightest line is the shortest distance between two given points, works to that end, meets the difficulties of engineering, reduces gradients, and practically builds his road along the line of least resistance, conserves time, saves energy, increases efficiency and lessens rates.

The school books tell us of the "Seven Wonders" of the ancient world—the Pyramids, the Hanging Gardens of Babylon, and so on; all to gratify the vanity of kings and queens, not one for the advancement of civilization.

In a little more than two years the dream of four centuries will be realized—the Panama Canal will be completed. The distance from the Occident to the Orient will be shortened seven thousand miles—the truly modern wonder in advancing civilization and practical conservation. (Applause.)

While the physical aspects of this mighty work, as they relate to the traffic and commerce of the world, stand out in bold relief, but little less, if any, in achievement, is the practical demonstration that scientific sanitary methods can clean the plague spots of the world and make them healthy and habitable for man.

Who can compute the saving of time and energy this mighty work will bestow on the generations to come. Long after the passions of this generation have ceased, history will record the names of the strong men who have brought to full consummation this great waterway, as true benefactors of mankind.

At this time, our public press is ecstatic over the great harvests of 1912 that promise such abounding prosperity. Some writers are so extravagant as to say that the bountiful yields from our soil make an epoch in history. To speak of one crop only, the corn, or Indian maize crop, spreads over 108,000,000 acres, and is estimated to be 3,000,000,000 bushels. How enormous! At fifty cents a bushel, its money value would be \$1,500,000,000, or \$16.00 to every man, woman and child in the United States. Measured in bread, there would be enough to give to each of our 93,000,000 of people a five-cent loaf for more than 320 days, or nearly one full year. As gratifying as this is, the average yield is only twenty-seven bushels per acre; while it is shown that, by proper selection of seed, cultivation and fertilization of the soil, easily twice the yield could be produced, which would double the benefits enumerated.

How often do we pass a barren field, the soil too impoverished to grow wire grass, nettles, or thistles. The everyday farmer will tell you that a crop or two of clover will restore the necessary plant life to the soil of that field, and again make it blossom like the rose. He knows from practical observation and experience the cure, if he cannot scientifically trace the cause of the transformation.

Truly truth is stranger than fiction. Back of the restoration of a thousand barren fields restored to productiveness in the simply way named, lies one of the world's greatest romances in patient scientific investigation that will continue to bring untold benefits to mankind. You know the story of Professor Nobbe, of Forest Academy, Germany. He also knew that clover and other legumens of the plant family would restore fertility to the soil. But why? After long and exhaustive study, labor and experiment, he found that the clover family were nature's chemist of the soil; that by an invisible, intangible cord of attraction they drew from the inexhaustible reservoir of the air nitrogen so necessary to plant and animal life.

We are told that "nitrogen is what makes the muscles and brain of man; that it is the essential element of all elements in the growth of animals and plants, and, significantly enough, it is also the chief constituent of the gunpowder and other explosives with which the wars of the world are waged. The single discharge of a 13-inch gun liberates enough nitrogen to produce scores of bushels of wheat."

Some day, through this agency, man may turn his attention entirely from war to the production of food, and in that hour true conservation of life will have reached its triumph.

We are further told that four-fifths of the air we breath is nitrogen, and that four-fifths of the atmosphere around us is nitrogen, so that if mankind dies of nitrogen starvation, it will die with food everywhere in and about it.

So that, while the human race may be but from three to six months behind abject starvation, the fact begins to appear that through science "mankind has just begun to sound the world's capacity for food production and that it is practically limitless."

The proper conservation of the soil by the application of the results of scientific discovery means increased yields of all plant crops, with but little greater expenditure of energy. This would enable the producer of food and clothing to sell more pounds, bushels and yards at less cost, and still reap as great reward for his labor as at present. This would forestall the Malthusian doctrine that population increases faster than the means of subsistence and, still better, would help to solve the high cost of living that presses so sorely upon the millions throughout the world today. Man is a productive machine; so the more machines of the highest type the world possesses the better for the world.

This conservation movement that is so strongly taking hold of the minds of thinking men and women, is so big, so broad and so comprehensive that it covers every phase of human thought and activity in what is best and highest for the individual as well as organized society. It is education in the broadest sense.

The Golden Rule is not only a statement but a living principle. To teach that a just distribution of nature's gifts to each individual who is willing to earn and conserve his share is a recognition of that principle.

The City of Indianapolis esteems it a high honor to have this Congress with us. To all of its members, and especially to the distinguished men from other lands who have come to give us their best thought upon the various questions affecting this great movement, we extend our most cordial welcome and greeting, and our deep appreciation of your presence.

Our commercial organizations also cordially join in holding the door of welcome and hospitality open to you, and bespeak for your deliberations their kindest sympathy and deepest interest.

President WHITE—This is a proud day for the officers of this Congress, for its delegates from the different States, and for the friends of Conservation everywhere, to be welcomed so hospitably, not only for ourselves who are strangers within your gates, but generously because of your sympathy in the great cause for which we stand. The citizens of your great city are noted for their public spirit, for their broad culture, and as being always found in the van with the army of those of progressive ideas. It is very fitting that the State of Indiana should have this Congress within its borders because of the immense interest shown and all the valuable help given by its citizens in the conservation of all natural resources, especially of human life and soil fertility.

To become the best, to do the best for all in a community, we must each develop the best within us, and must find our greatest reward in something for beyond the mere accumulation of dollars. Our community of interests recognizes a reciprocity of duty each to and for the other. Our title to the regard of our fellow men must come from our devotion to them and our love of humanity and its highest ideals, and not from selfish zeal in accumulating monetary wealth, which only represents the toil, the waste, and the necessities of human lives. This has been and is the age of commercialism. The measure of success has been gauged by the amount of money accumulated. In the language of Goldsmith, our country was in danger of descending to a condition "where wealth accumulates and men decay." But I believe a turning point has been reached; and that we are entering upon a new era, a more glorious conception of higher duties for mankind; so that it shall not be asked: "What hath he taken from others in the competitive struggle for exist-

ence," but rather: "What hath he given to others of himself for their advancement and development?" He who lives only for himself and does not plant for those that are to come after him, lives in vain. I believe the time is near at hand when a man shall be regarded with pity and as very poor indeed, who has nothing but money selfishly gained for selfish use.

The Conservation Congress of the United States has a great field to occupy. Its labors are for the betterment of its citizens in every way. Its work is to seek for the best methods to do the greatest good to all for this and for future generations. And in this there is no partisan politics; but it is such good national politics, that each party will strive only in seeking for the best methods for the common good.

Human life, with its possible attainments, is far beyond valuation in money. We should reverse the tables; and instead of human life being estimated in dollars, the dollar should be valued only for what it can do for greater humanity. Dr. Holmes, Director of the United States Bureau of Mines, in illustrating waste of material resources, says that in producing one half billion tons of coal, we waste or leave underground one quarter of a billion tons. And then only eleven per cent of the energy in coal is utilized; nearly ninety per cent. is lost through inefficiency of boilers, engines and dynamos. How great a per cent. are we wasting of human life and human efficiency? We will have abundance of all the necessaries of life, and even of life itself, if we wisely save, wisely develop and protect, and wisely use. Human life is our greatest asset, and its waste is a permanent loss. The wealth of the nation is in its men, thrifty, honest, capable and patriotic men—in their moral and physical health, the foundation of their highest efficiency. The milestones of a nation's progress are recorded in the history of every generation. In India, the average duration of life is twenty-five years; in Sweden more than fifty years; in the State of Massachusetts (the State where most careful records have been taken) it is over forty-five years. Wherever sanitary and highest medical science has been applied, it has been found possible to increase the span of life. In Europe it is said to have doubled in three and a half centuries. The report from Massachusetts shows an increase of fourteen years in the past century. So this humanitarian cause is surely a most economic, worthy and profitable one. In figuring from the standpoint of capital, Prof. Mayo Smith estimates that men and women between fifteen and forty-five years of age are worth an average of one thousand dollars. But figuring from a human standpoint, they are worth all that there is, money being only one of the tools to work with in effecting exchange of commodities, and the products of brawn and brain. We want to increase the ratio of the value of man to the soil, of man to all and any of his products, of man to money, and to put man first all the time. (Applause.)

We will increase the fertility and productiveness of the soil and we will enlarge the scope and increase the efficiency of the man. We waste in production as well as in consumption. In agriculture we will say that we will make the soil produce so many bushels per acre per man. The man will be first in his wise application of labor and methods and of means to an end. The "limits of subsistence" under what political economists used to call their "law of diminishing returns" has no fear for the conservationist. The developing of human intelligence is enlarging the production of the soil. Irrigation, where possible, and where impossible the science of what is called dry farming brings increasing results. Old farms in Europe produce more than they did 300 years ago, and this will prove true with us, and there will be no starvation for the human race because of increasing population.

And so will it be with all other industries, occupations and professions. He will be greatest who accomplishes most for man. For the brotherhood of man was the world made and the fullness thereof. Such freedom as may benefit any individual and does not in any way work to the injury of others is natural justice to all. Competition shall be robbed of the "red tooth and the bloody claw," and co-operation and development for the good of all shall be the supreme object of all our efforts.

We will protect our watersheds by growing forests, and learn to control our floods, prevent soil erosion, and store the water, and convert its power into electricity, and from electricity produce light, heat and power in undiminishing quantity forever. In nearly every State there is daily flowing to waste power enough, if arrested and utilized on its way to the sea, to turn every wheel of industry and to move the traffic of commerce, and furnish light and heat for every city. It is said that the wheel does not turn with water that is past, but other wheels farther down the stream do, and the power is used again and again and finally pumped back by the sun to the mountains and plains to forever repeat the process of service to mankind. New discoveries are being made, and the use for by-products is being multiplied so that they are often found to be of greater use than the product from which they are derived. We must protect our forests by preventing forest fires. Government and State appropriations must be made sufficient for this purpose. In the report of the Conservation Commission to the President, it is stated that fifty million acres are burned over annually, and since 1870 there has been lost each year an average of fifty lives and fifty million dollars' worth of timber. The lumbermen's interests are to prevent fires and to stop waste; and they are anxious to co-operate with the State and with associations for this purpose, and are already doing so in many places. The true, saving features of forestry are becoming better understood, and better applied; and we will save our forests, and will grow trees, wherever necessary and profitable, the same as any other

crop; and there will be no timber famine in the near or distant future. Our foresters are studying the experience of France, Austria, Italy, and Switzerland, coupled with our own experience, and we are making successful progress. In Kansas five years ago, according to President Waters of the State Agricultural College, there was only one school that taught agriculture. Now nearly five hundred high schools and more than six thousand rural schools are teaching the principles of agriculture, forestry and domestic science.

The Commissioner of Internal Revenue reports that for the official year 1912 ending June 30, the people of the United States drank more whisky and rum and smoked more cigarettes than ever before in its history. The smoking of over 11,221,000,000 cigarettes exceeded the record of 1911 by nearly two billions. Does this make for or against human efficiency? In this huge traffic is it the man or the dollar that stands first in importance? Popular education will be the source of protection, that all may have a fair chance for a useful life. There are other great factors of vice and crime leading to national decay. Also there is the enormous waste of human life by our railroads, mills, mines and factories amounting to tens of thousands annually, and those permanently injured and made a burden to themselves and to society to tens of thousands more. In no civilized country in the world is this loss anywhere near as great in proportion to work accomplished as in the United States. The greatest part of this immense loss can be prevented. (Applause.)

Here is thought and work for those in the department of vital statistics and those in charge of our health departments, who are laboring for the conservation of human life. Surely there is a great moral and economic need for this national organization. May this Congress, which now begins the work of its program, prove to be another step in advance of its predecessors in the labor of love and of progressive activities. The work in this vineyard is for both men and women; for him with one talent as well as for him with ten talents. Conservation should be taught in our schools and preached in our churches. It is a call of and for all the people.

In the language of the official call of this Congress, the objects of this Congress are "to provide for discussion of the resources of the United States as the foundation for the prosperity of the people; to furnish definite information concerning the resources and their development, use and preservation, and to afford an agency through which the people of the country may frame policies and principles affecting the conservation and utilization of their resources and to be put into effect by their representatives in State and Federal governments." (Applause.)

President WHITE—The preliminary organization has now been completed. It was expected that the President of the United States would

be present to honor this occasion, at the opening of this Congress, or it was at least hoped that it would be possible for him to do so, but before he knew that he would send a personal representative he wrote a letter of greeting to the Congress, which I will now read:

MESSAGE FROM THE PRESIDENT.

Beverly, Mass., September 7, 1912.

Hon. J. B. White, President National Conservation Congress, Bemus Point, N. Y.:

My Dear Mr. White: Inasmuch as I have had to deny myself the pleasure of being present at the opening of the National Conservation Congress on October 1st, I want to take this means of conveying to the officers and delegates my very cordial greetings and good wishes for a most enthusiastic and instructive session.

You who know of my very real interest in the conservation of our national resources need no assurance of my hope that your meeting in every way may be a success, and I only want to say that that interest has not diminished in the slightest.

May your deliberations be productive of great good in promoting the cause of Conservation and in enlisting public interest in the solution of the problems which must be met in giving the people of the present day the benefit of the nation's resources, while at the same time insuring to posterity its full heritage.

Sincerely yours,

WILLIAM H. TAFT.

It was afterwards found possible for the President to be represented personally, and he has sent the Honorable Henry L. Stimson, Secretary of War, to represent him here at this Congress. I now take pleasure in introducing to you Secretary Stimson. (Applause.)

ADDRESS BY THE SECRETARY OF WAR.

(Representing the President of the United States.)

Mr. President, Ladies and Gentlemen of the National Conservation Congress: I unite very sincerely in the congratulations which the former speakers have tendered to you on your assembling here in such an important and such a noble cause.

I am very happy to be here as the representative of President Taft—happy, both because of the interest which I know he feels in the great movement for Conservation, and also because of my own personal association with and enthusiasm for that movement. Four days ago, when I was busily engaged in inspecting one of the army posts of northern Wyoming, in the far away Rocky Mountains, I received an urgent tele-

graphic request from the President, that I should come here today and attend your meeting on his behalf. And the 1,600 miles or more which separate Fort Yellowstone from Indianapolis, may serve at the same time as a measure of the President's interest in your meeting, and a measure of the depth of my own unpreparedness to speak to you today. I know, therefore, that you will understand and pardon me if I talk to you rather informally, merely as one friend to others interested in a great common cause, and confine the brief remarks which I shall make to one of the phases of Conservation with which I have become familiar through the work of the War Department.

Parenthetically, I might say that inasmuch as the Department of War is not usually considered as a particularly appropriate agency for the conservation of life, I will have to hark back to the material side of Conservation in some of its aspects which have been presented at your former meetings.

Of course, the main work which the Federal Government performs in regard to Conservation is done through the Department of the Interior. Incidentally, the truest of all indications of the interest with which the President regards the conservation of the natural resources of this country lies in the character and attainments of the man whom he has placed at the head of that Department in order to conserve them—Walter L. Fisher. (Applause.) You will all of you remember how his thorough investigation and clear-cut decision of the famous Cunningham claims, has settled and disposed of, in the interest of the people, one of the most bitter controversies of our cause. You are also undoubtedly familiar with the careful investigation which he made last year into the very complicated and serious problems of conservation which confront our Nation in Alaska; and with the luminous address with which he reported his conclusions and pointed out a solution of these questions. Though the work of his Department in investigating and conserving in the public interest, the water power sites which remain on our public lands, and our remaining beds of coal and phosphate, has not attracted so much attention as his work in these former more controverted matters; yet there is, I think, a very general and well founded feeling throughout the country that in all these matters the interests of the people of the United States are being thoroughly protected by the Secretary of the Interior in accordance with the most intelligent and thorough views of Conservation. (Applause.)

I allude to his method of thorough investigation because I think it is characteristic of the attitude of the President himself toward this whole subject. In order that progress should be real, it must be based upon carefully ascertained facts. In dealing with the problems of Conservation, we are dealing with problems which are new to our Nation. As the honorable speaker who first addressed you pointed out, we have only

recently passed from an era of exploitation into an era of Conservation. We are surrounded by thousands of our fellow countrymen who have been brought up to honestly believe that the only method of developing the country is to turn its resources as rapidly as possible over into private hands. In putting into effect, therefore, the new policy to which the Nation has now come, there must be care taken lest false steps, or the injustice which may come from hasty action, may not produce a reaction which will delay or imperil the reform. As a former District Attorney, representing the people in the enforcement of the law, I have long had it impressed upon me how essential it was that no hasty, or harsh, or intolerant action, taken in the heat and controversy of a jury trial, should thereafter imperil the entire work and by producing injustice, and a subsequent reversal in the higher courts, bring some great reform into disrepute or temporary delay. Patience, thoroughness, and courage, mark the only pathway towards permanent progress and reform. (Applause.)

Now, the subject which I am going to call to your attention briefly this morning is one of those few matters where my own Department, instead of the Department of the Interior, touches upon the problems of national Conservation. It is also a subject the history of which, I think, exemplifies clearly the importance of the methods to which I have just alluded. I wish to point out to you the attitude of the administration as to the Federal regulation of water power in our navigable rivers.

It is needless to remind such a body as yours of the importance of that sphere of Conservation. All our other present sources of power—such as coal, wood, oil, and the like—are limited, and will be eventually exhausted. Water power alone is permanent. And just as we are coming to learn more and more the value of that permanence, we are simultaneously, through the development of electricity, learning to transmit its energy to greater and greater distances. No other subject occupied more keenly the attention of the past session of Congress, or was more vigorously debated upon the floors of that body.

For many years our national policy, or rather lack of national policy, towards our waterways and our water power, has presented a singular inconsistency. On the other hand, we have been spending hundreds of millions of the taxpayers' money on the improvement of the navigation of our great inland waterways. On the other, we have been granting away permits for the construction of dams on these same rivers and waterways, which will create waterpower of incalculable and increasing value; and we have been doing this without exacting *for* the taxpayers any return or compensation whatever.

I believe it was not until the administration of President Roosevelt that any effort was made to obtain for the public any compensation for the water power which was thus granted away. Mr. Roosevelt demanded

in his veto of the James River bill, and in several other messages, that no permits for dams in navigable rivers should be granted without a reservation of proper compensation to the public for the grant thus made. His action was courageous and right. But there were not as yet in the hands of the public sufficient carefully ascertained facts upon which the constitutional power of the Federal Government to take such action could be confidently based. And there was therefore great ground for misapprehension in the public mind of any action attempting to take such a position. A bitter controversy at once arose with those advocates of States' rights, who contended that the Federal Government had no rights whatever in connection with water power, that under the Constitution its powers were limited solely to navigation, and that water power was an entirely separate and distinct sphere, falling wholly within the jurisdiction of the several States. Such advocates contended that for the Federal Government to exact compensation for a water power right, simply because it was in a position to withhold the permit altogether if it wanted to, was little better than legalized blackmail; and the progress of the reform was stubbornly and for a long time successfully contested.

Even as late as 1906, the General Dam Act, passed by Congress and approved by the President, conveys to the Executive no clear right to exact compensation for these grants. It has remained for Mr. Taft's administration, following the method of patient investigation and research which I have above mentioned, to collect the facts necessary to solve the problem; and to show from these facts that the jurisdiction of the Federal Government over navigation must necessarily include jurisdiction over water power as an incident of the navigation.

Most of the rivers of this country are long and comparatively shallow. In order to make them commercially navigable, there has become prevalent among engineers a method of improvement known as the "slack water" method or the method of "canalization." The method consists in building throughout the length of these rivers, a series of dams and locks, by which the river is converted into a succession of deep pools, adequate for commerce of a far more important character than could use the river in its unimproved condition. In fact, many rivers which are not capable in their natural state of being used at all commercially, can by this method be made useful and available for important commerce.

Now, most of the dams thus constructed in a "slack water" improvement, particularly in the rapid portions of the streams, will create water power of commercial value. It is also manifest that if the commercial value of the water power thus created can be realized by the Government and turned into further river improvement, the improvement of navigation on our rivers can be greatly expedited, and the expense to the general taxpayer very much lessened. And, on the contrary, unless this is done, the complete improvement of the river will be just so much delayed

and postponed. The water power developed is thus shown to be intimately connected with navigation. It is a by-product of the improvement which can be turned into further improvement. And from the standpoint of constitutional law, it makes no difference whether the dam in question is to be erected by the Federal Government or by a private corporation. If it is a dam which is to assist the navigation of the river as well as to create water power, the power of the Government will be complete. What the Federal Government can constitutionally do itself it can do through an agent.

The corps of army engineers to whom are referred all proposed bills in Congress granting permits for dams for water power have been accordingly, under Mr. Taft's administration, directed to investigate and answer specifically four questions in every report. They are directed to ascertain in regard to every such bill:

First. Is the river on which the dam is to be created a navigable stream subject to being improved, either now or in the future of the country, at the expense of the general taxpayer?

In the second place, they are asked whether the dam which is sought to be constructed will form an essential part of any such improvement.

Thirdly, whether the dam will create water power of commercial value.

Fourthly, whether the value of that water power will tend to increase with the growth and development of the Nation.

You can see for yourself the pertinence of such questions. Once answered in the affirmative, there is a case presented upon which the jurisdiction of the Government's power can rest.

Trial has now shown that the answers to these questions are nearly always in the affirmative. And as a result of the information thus obtained we are in a position now, unlike our position six years ago, where we can take a step forward, and hold permanently the ground thus gained.

There is now laid before Congress a sure foundation upon which we can rest our national right to exact the fair value of these grants. Investigation has regularly brought out the fact that each one of these dams is essentially connected with navigation, and that a failure to preserve the right to regulate them and to exact compensation for the power created is throwing away a valuable national asset.

The issue has been sharply drawn by President Taft, and his position clearly stated in his message, submitted on the 24th of last August, vetoing the bill which proposed to grant authority to build a dam in the Coosa River. The Coosa River is in Alabama. The bill in question sought to authorize the Alabama Power Company to build a dam suitable for the development of navigation in that river, and at the same time to create water power for the exclusive benefit of the corporation.

It contained no provision permitting the Federal Government to exact any compensation for the rights of water power thus granted. The bill was strongly urged by powerful leaders of both houses of Congress. It was also vigorously opposed by the leaders of the conservation movement of Congress. But it ultimately passed. The President vetoed it in a message which asserts in unqualified language the duty of the Federal Government to reserve to itself the right to exact proper compensation. (Applause.) The President says on this point:

"I think this is a fatal defect in the bill, and that it is just as improvident to grant this permit *without* such a reservation as it would be to throw away any other asset of the Government. To make such a reservation is not depriving the States of anything that belongs to them. On the contrary, in the report of the Secretary of War it is recommended that all compensation for similar privileges should be applied strictly to the improvement of navigation in the respective streams—a strictly Federal function. The Federal Government by availing itself of this right may in time greatly reduce the swollen expenditures for river improvements which now fall wholly upon the general taxpayer. I deem it highly important that the nation should adopt a consistent and harmonious policy of treatment of these water power projects which will preserve for this purpose their value to the Government whose right it is to grant the permit."

There are few subjects of equal importance with the proper improvement of our great river systems. We are behind many of the nations of Europe in our appreciation of this importance. The development of our rivers is not only vitally important for the commerce that they will thus carry, but even more for the regulative effect which they should and can have upon the freight rates of the railroads with which they compete. If Mr. Taft's position is sustained, it means that all the potential value of these streams can be turned toward the improvement of their navigation. As he says, it offers one of the possible solutions for our swollen river and harbor appropriations. On the other hand, it also means that the hand of the nation is to be kept on this great national asset of our water power; and that this great subject of water power regulation will be handled comprehensively, consistently, and with due regard for the wants of the Nation as a whole.

If, however, the view of the opponents of the President prevails, it means that this necessary improvement of our rivers will be greatly postponed, and that all the expense of such improvement will have to be borne by the general tax-payers of the Nation. And it further means that the closely related subject of our water powers on these navigable rivers, instead of being treated nationally and broadly, will be subject to the piecemeal policies of forty-eight different States. Seldom is there presented an opportunity to apply the principles of conservation simultaneously to two such important subjects as river transportation and water power regulation. (Applause.)

President WHITE—I am sure we all appreciate the address that has just been delivered by our distinguished representative of the President. It has left upon our minds the significance of the importance of protecting those natural resources that are permanent and which should not be given away to private individuals, or corporations.

We will now hear some announcements.

Mr. THOMAS R. SHIPP (Executive Secretary)—The section of which Dr. Wiley is chairman, the section on "Food", will meet this afternoon at four instead of tomorrow morning. The meeting will be held in the Palm Room, Claypool Hotel, and will be open to the public. The fact that Dr. Wiley is at the head of this section and will preside and speak will make it of great interest to delegates. In addition to Dr. Wiley, there are other gentlemen of national reputation on this question who will speak. An invitation is extended to all delegates to attend this meeting this afternoon at 4:00 o'clock.

President WHITE—If there are no further announcements we will adjourn until this afternoon at 2:00 o'clock.

SECOND SESSION.

The Congress was called to order by President White at 2:00 o'clock p. m.

President WHITE—Gentlemen, we are a little late in getting together this afternoon, owing to the late adjournment of the morning session.

We have a program for four days, a most entertaining one. Those that do not get here will miss something, while those of us who are here are going to gain something.

The audience will please rise while the Rev. Dr. A. B. Storms invokes the Divine blessing.

INVOCATION—*Our Heavenly Father, we wait for a moment, asking for the blessings of Thy grace upon us. We need Divine guidance in all our counsels; may we be guided by Heaven. We return Thee thanks for Thy great kindness, for the bountiful harvest, for the resources with which Thou hast stored the earth. We thank Thee for the revelation of Thy love, for the redemption that speaks of the worth of Thy children. We thank Thee for all the impulses Thou hast set in motion for bringing good out of evil, for bringing men to their best. We pray for the guidance of the divine spirit that in all these councils which have for their purpose the good of our kind, we may have such guidance and be sustained by such grace that permanent good shall come.*

May Thy blessing rest upon this Congress, upon all it represents, upon our people and Nation. May this be a people whose God is the Lord, we ask in the Redeemer's name. Amen.

President WHITE—The first thing on this afternoon's program is a report from Dr. George E. Condra on "What the States are Doing." He is President of the National Association of Conservation Commissioners. We are very much interested to know how far the spirit of Conservation is being taken up and applied in the different States. We will now hear Dr. Condra.

Dr. CONDRA—Mr. President and Delegates: This report, prepared at the request of the Executive Committee of the Congress, is based on data received from several Governors, and the conservation organizations of various States. It can not be given in detail, for that would require too much of your time. Neither do we deem it advisable to treat the subject State by State, for it would call for needless repetition. Consequently the data are reviewed subject by subject corresponding to the leading departments of Conservation, and the States are mentioned only in connection with the progress they have attained in each department. It is assumed that: 1. You are in full sympathy with State Conservation and its coöperation with Federal agencies. 2. You do not expect to hear overdrawn statements. 3. You wish a review of such conservation facts as are really worth while in development. 4. You know how natural resources control industrial development. 5. You agree that the leading resources in the United States are mineral fuels, iron, water, soil, plant and animal life, the varying importance in the distribution of which determines to a considerable extent the locations of industrial and commercial centers, and that these resources are not distributed according to state lines, but that development is influenced to some extent by State laws.

COAL.

The importance of coal in our country is much greater than most people suppose. It is well distributed. The amount of power derived from it is many times that of all our man power working every hour of the day. The annual production of our coal leads that of Great Britain by a wide margin. The ranking States in output are Pennsylvania, West Virginia, Illinois, Ohio, Indiana, Kentucky, Alabama, Colorado, Iowa, Wyoming, Tennessee and Maryland. Wyoming is thought to contain even larger natural stores of coal than Pennsylvania. Mr. Edward W. Parker, head of the coal division of the United States Geological Survey, reports over two trillion tons of unmined coal west of the 100th meridian, lying principally in the Great Plains and Rocky Mountain provinces, and in smaller districts farther west.



MRS. PHILIP N. MOORE
OF ST. LOUIS, MO.,
VICE-PRESIDENT, FIFTH NATIONAL CONSERVATION CONGRESS

It is evident that there is much more coal for future consumption than most conservationists have claimed. This is a pleasing fact, for it indicates that industry should not be seriously hampered by lack of this source of power for many years to come. The argument that there is enough coal and to spare is used, however, to further selfish ends. It causes bad management of coal lands at many places. Notwithstanding the fact that the United States is so favorably endowed with coal it is coming to be known that some of the better bituminous and anthracite grades most favorably located are doomed to early exhaustion. The rapid increase in the use of these is causing some of the eastern States to show deep interest in conservation.

During the year the conservation of coal was directed mainly towards larger recovery from the mines, to the study and prevention of mine accidents, especially those caused by explosions, to improving the methods of use whereby more power is derived, and to the saving of by-products in coke making. The National Bureau of Mines lead in most of these investigations. Several States, mostly in the eastern province, studied the same problems, as for example, Pennsylvania, West Virginia, Tennessee, Virginia and Alabama. Illinois was equally active in the interior province. Practically all coal mines are now inspected by delegated authority.

The bee-hive coke oven produced relatively less coke during the year than the by-product oven in which is recovered coal tar and other useful products of considerable value. Investigations definitely proved that the most economic way to use certain soft coals is in the manufacture of producer gas. The culm heaps in the Scranton and Wilkesbarre districts were drawn upon more than formerly for the production of the smaller sizes of washed coal. This is an important utilization of what formerly was waste.

It would seem that every one in this Congress should be deeply interested in the conservation of coal whether his State produces it or not, for the permanence of this resource has a power relation, one that affects the industrial and social development of the whole country.

PETROLEUM AND NATURAL GAS.

These are uncertain resources as to their occurrence and permanence of development. The amount of production, however, is very large, coming from several States, and having increased from about 63,000,000 barrels in 1900 to over 200,000,000 barrels in 1911. New pools were developed in each province, though the annual production fell off at places. The largest developments were in California and Oklahoma, yet Illinois, West Virginia, Ohio, Texas, Pennsylvania, Louisiana and Indiana were important producers, as they have been for sev-

eral years. No new conservation movements were inaugurated except that California took more definite steps to prevent waste at the wells. Adequate tankage, together with a high degree of attainment in refining, are the two leading factors in the conservation of petroleum. This industry is a splendid example of conservation for special interests, yet the public is supplied with many useful commodities, such as kerosene, gasoline, waxes, paraffine, oils, etc. Kerosene has a close commercial relation to the gas engine and the automobile industry. The price of gasoline, for reasons not fully understood by the speaker, made a marked advance. Just how this may affect the future building of gas engines is not known.

The production of natural gas is even more erratic than petroleum. It is readily used in the manufacture of brick, tile, glass and cement. A lack of permanence gives to the gas-using industries a migratory character, a movement to and from gas regions. For several years such plants have operated up to their full market capacity in Kansas and Oklahoma. The financial depressions of 1907 and of the past year checked some of factory building in and near the gas regions. For about two years certain companies have been diligent in selling equipment for making gasoline from natural gas.

The conservation movement is partly responsible for the decrease in waste of natural gas. Formerly the unused wells of Oklahoma and Louisiana, especially, were allowed to cast their millions of feet of fuel into the air without even a remonstrance from the States. Flambeaux burned night and day in the streets of small towns and many persons between Indiana and Texas were then heard to say that gas is cheaper than matches. The States stand indicted. This wrong to nature and to present and future industry cannot be repaired. The deed is done, and our only hope is that we may escape without having to suffer for such an offense.

IRON ORE.

This is the basis of iron and steel manufacture. It supplies the materials used in harnessing the power of fuel and water and has importance in mining, transportation, smelting and milling. The industries connected with iron and steel making in the United States are conducted in a much larger way than in Great Britain and Germany next in rank. The increasing use of steel by railroads, in highway construction, ship-building, the making of engines and farm machinery, and for large building is causing many persons to wonder how long this progress can continue unhampered. Is there no limit to our high grade ore and to the development of the gigantic enterprises dependent upon coal, iron and steel? What appears to be the correct answer to this question has been made by good authority. It is that the supply of high grade ore, like that now used, is not permanent—that it will not

last many years. If this is true, the time will be when it will become necessary to mine less desirable ore, grading lower and lower as production continues. This, without doubt, will have an unfavorable effect upon our whole industrial organization.

The history of iron in the United States is most interesting. It shows that one by one many of the small districts were abandoned for the richer fields of the Lake Superior region, the Birmingham and Guernsey districts. The States that lost out in this change now realize that production may again return to their borders when the richer and larger deposits are exhausted. In consequence of this several States are beginning investigations looking to the future utilizing of low grade ores. At the smelters more than usual thought is given to the quality of output, making it more durable or otherwise better suited to the use for which it is intended. Experiments are under way for the purpose of testing out hydro-electric smelting in parts of California and other western States where the ore is distant from coal.

Much of the iron and steel conservation is directed by corporate interests in whom the ownership of ore and the development based thereon are definitely established.

WATER RESOURCES.

Dr. W J McGee, whose death we mourn, once said that “water is the prime necessity of life.” He also discussed its importance for drinking, in navigation, for power, and in the production from the soil of such materials as food and clothing.

The drinking water of the country and small towns is obtained principally from underground through wells and springs. A few States are trying to improve their domestic water supply by making sanitary surveys, noting the relation of the wells to drainage from lots, privies and other dangerous sources. Typhoid epidemics, due to sewage entering the water system, occurred in several towns. More than usual activity was manifest in making careful studies of streams in their relation to floods, drainage, power, sewage, water supplies and navigation. The Lakes and Rivers Commission of Illinois has gathered and published more data than other States in this line. The subject, “Navigation of Inland Waterways,” with special reference to the Mississippi and its “Lakes to the Gulf Route,” received new impetus principally because of its relation to the Panama Route. The Gulf States are now supported by Illinois especially in a campaign for larger attainments in this development.

Irrigation had a good year, especially so in the Rocky Mountain and Great Plains regions. The irrigation development is an important contributor to the larger industrial life of the whole country.

LAND AND SOIL.

The United States has vast areas of land of many kinds. The soil of this land is our greatest physical resource. Its fertility feeds the crops and is therefore of fundamental importance in agriculture and industrial development based thereon. Nevertheless, it is true that many disregard this great fact in their farm management. They conserve their own selfish interests and not the state. Just how to develop the State's view point in land management is not known. The southern States, in cooperation with the United States Department of Agriculture, are making progress in the solution of this problem. In many places there, the farmers are showing rapid improvement in crop rotation and methods of cultivation.

In Texas and Florida, much of the wet alluvial land is being improved by drainage. The Levee and Drainage Board of Texas surveyed over 300,000 acres last year and constructed 100 miles of levees. Land valued at twenty dollars an acre became worth seventy-five dollars to one hundred dollars at a cost of thirty dollars per acre. Deep floods of the Mississippi River did great damage in Louisiana, Mississippi, Arkansas and Kentucky, causing the Delta region to put forth a plea for National aid in draining the wet lands of the South. It does seem that their plea for support should not go unheeded when such a vast, fertile area lies unreclaimed.

Nearly every State is studying soil erosion, the tenant system and land taxation. Dr. E. N. Lowe, State Geologist of Mississippi, reports that his survey endeavored to secure the enactment of a law that would tend to check the great losses in the northern part of the State caused by soil erosion. The bill was opposed by a prominent senator on the ground that it would interfere with the personal rights of land owners. The bill did not pass, but Dr. Lowe is to conduct a campaign of education before the next Legislature is convened. The difference in viewpoint here shown, is the difference between the meaning of "legal" and "right." Does any one have the right to ruin the land?

Cooperative soil surveys were carried on during the year in the various States with complete success. Every State now sees the need of reliable study and mapping of its soils, to serve as a basis for farm management, taxation, and real estate. At a recent meeting of the National Tax Association, held in Des Moines, Iowa, the relation of land surveys and taxation was discussed with considerable detail. It was the conclusion that land value maps should be prepared by soil surveys to serve as a physical basis of taxation.

FOREST RESOURCES.

Though originally endowed with vast areas of forest on public domain, some having great value, our Federal Government was slow

to develop effective measures for its protection, utilization and future growth. One generation stripped the forest from the agricultural lands of the central west; and their posterity turned the trick with interest in the west. No wonder many persons took advantage of such an occasion as was presented in the Rocky Mountain and Pacific regions to help themselves where the public treasury was free for the asking, not having been carefully surveyed and evaluated. The large timber owners are not alone to blame for this history, which in considerable part is not what it might have been. It is time, then, to close the chapter and to turn our attention to present day events in so far as they are related to forest conservation. Now the State foresters and Federal forces closely cooperate with the large lumber producers along several lines. The Weeks Law, recently enacted, furthers cooperative effort in the prevention of forest fires. One of the first States to take advantage of this law was Wisconsin. Then came applications from New Hampshire, Montana and most other forest States. New York appears to lead in perfecting State patrol. Most States in the Appalachian province have perfected their patrol systems. Oregon appears to lead in the Pacific region.

Colorado of the Rocky Mountain province is fighting the Forestry Commission, the Conservation Commission and Federal agencies, under the guise of State Rights. Here the National Government has large reserves and is meeting the expense of fire protection. Certain State men are diligently spreading the doctrine of State Rights, claiming that the Federal Government should cede its domain to the State. Such a sentiment is echoed, but not so forcefully, in a few other western States. The opponents of this doctrine claim that the States do not have the means to patrol the forest, and that the State Rights people are making the campaign for selfish reasons—to secure ownership of the forest.

During the year, many cities and States added to the area of their parks and forest reserves. The Maryland Legislature voted \$50,000 for this purpose. The Appalachian bill passed the last Congress, providing funds for use in establishing reserves in the Appalachian province. A start in this development has been made at several places. It is reported, however, that land speculators are interfering with the project by securing options on land that is wanted for the reserves.

The work in general tree planting and forestation progressed about as usual. Promoters handle eucalyptus propositions in California with varying degrees of success. Many States, especially in the middle west, are planting catalpa for the production of posts. One of the largest problems in several States, as in Oregon, Washington, Wisconsin and Michigan, is that of utilizing the cutover land. Some of this is suitable for farming, but much of it is classed as forest land. The problem

then is one of reforestation, which cannot be done economically on most of the land because of high tax. The tax problem is closely related to and by many thought to be the controlling feature in the reforestation of land in private ownership. The Wisconsin and the Oregon Conservation Commissions are studying the problem. Louisiana has passed laws intended to promote timber planting on large holdings.

A few States published helpful literature on economic species of trees suitable for forestation, shade and decorative purposes. A little volume by the New Jersey Forest Commission, title "Planting and Care of Shade Trees," is a model that other States may well follow.

Following in line with the recommendations of this Congress, and in harmony with the policies of state foresters and the Federal Bureau, considerable progress was made during the year in forest surveys and forest studies. Fully half of the States are doing this work under the direction of their geological surveys, forest bureaus, or Conservation Commissions. Maryland and Rhode Island have completed such surveys.

Several large lumber producers report improvements in the way of saving practically all of the timber. When one wants to cite an example of extreme waste in lumbering, he usually refers to the Pacific region, perhaps not realizing that the method of utilization may be determined by commercial limitations. Be that as it may, it is pleasing to know that some companies in the West, as for example, the Smith Lumber & Manufacturing Company, are installing by-product plants. The company above named is building a fiber plant to utilize the waste mill products by the sulphate process, and to extract the turpentine from the red fir.

VITAL RESOURCES.

More than usual progress has been made in recent years in learning that living things, whether forest, forage, cereal crops, game, fish, farm animals or man, are natural resources subject to development.

Perhaps the greatest result of the Conservation movement is found in its helpfulness in improving the life and lot of people. Such a stimulus is needed, for it certainly is time society should conserve its men and women not only in working efficiency but in fitness to be fathers and mothers as well.

Most States have departments to promote good seed, fish and game resources, and the breed and health of animals. Some of the publications issued by these departments are most attractive and valuable as, for example, the reports on birds by the North Carolina Geologist-Natural History Survey.

More than usual State activity is now put forth in improving the stock, health, life and working efficiency of people. To further this end

there is inspection of water, milk, food, drugs, and factories. Several States are making preliminary sanitary surveys; others conduct investigations under the head of "conservation of people." It has been learned that the public health can be markedly improved by observing a few simple safeguards that prevent sickness and disease. This calls for education, and perhaps for organized inspection of both the home and the school. State medical colleges begin to realize their duty in preventive medicine, and in some cases show a willingness to cooperate with health organizations in extension work in the conservation of public health. A number of the Southern States have taken important steps to rid their sections of typhoid, tuberculosis and the hook worm disease. Mississippi reports marked progress in this line. The Louisiana Health Train is known to all. The exhibits at this Congress indicate the great progress attained by Dr. Hurty and others in their fields. In closing the discussion in this department it should be noted that practically all parts of the country show a deep interest in the work of Dr. Wiley and the fight he has made for pure food. It is further evident that there is a strong demand for a Federal health department to work in cooperation with the state departments.

CONSERVATION ORGANIZATION.

Several State departments are related to Conservation work, as for example, the Geological Survey, Soil Survey, Natural History Survey, Forest Commission, Public Service Commission, Pure Food Department, Health Department, and Experiment Stations. So, since most of these have been in existence for several years, we should know that conservation work is not a new thing. The various forces were united into a definite movement, however, in 1908, following the Governors' conference at Washington. Immediately after the adjournment of that meeting the Governors appointed State conservation commissions to serve their respective States. Unfortunately, many commissioners were selected mainly because of their political affiliations. In some cases the selections were made wholly on the basis of ability to serve. Such Commissioners were chosen from among public spirited citizens, and the State and university departments closely connected with industrial development.

Practically all commissioners chosen because of political affiliation did very little work. Most of them were not reappointed after changes in State administrations. The non-political commissions did better work as a rule, and soon received financial support and statutory authority from the State for a wider range of activity. The commissioners with this authority are now appointed by the Governor, or they become commissioners by virtue of their connection with certain university

and State departments named in the State laws. The tendency is to make the commissions entirely non-political and to give them full charge of certain natural resource surveys and the State supervision of development, at least to some extent. A resolution passed by the Trans-Mississippi Commercial Congress of this year is of interest in this connection. It reads thus: "We favor the selection of Conservation Commissioners from among those who are actively engaged in State surveys, in the investigation of conservation problems, or in the development of public welfare." It further urges that the work of such commissioners be done along non-political lines and in cooperation with Federal Conservation efforts. Most States have conservation commissions.

The best organized work is in New York, Rhode Island, Oregon, Nebraska, Wisconsin, Kansas, Utah, West Virginia and New Mexico. The New York Commission has three commissioners, a secretary, assistant secretary, deputy commissioners and several engineers, all well paid. The Commission has full authority to investigate and supervise the development of water, forest, fish and game resources. Rhode Island stands next to New York in organization, duties, and results attained. Its commission has full charge of the natural history survey, supervises the development of natural resources, and conducts an educational campaign. Nebraska's commission is non-political, composed principally of heads of departments in the University, who also direct the various State surveys. The duties of the commission are largely in supervision and education. A Conservation Survey unites the efforts of the University and State departments in systematic surveys of the water, soil and forest and in making careful field studies of the leading economic problems. Nebraska holds a Conservation Congress each year with a large attendance. This Congress has great value in unifying State development. It is under the guidance of the Commission, Conservation Survey and public spirited citizens and is an open forum for the discussion of development problems. The duties of other State Commissions are similar to those of the States above described. Utah is directing its effort mainly in the line of making non-political maps.

The Conservation Commissioners together with other persons directing State development have an organization called the National Association of Conservation Commissioners. It meets each year as a department of this Congress. The object of the association is cooperation, in which each State is able to learn of the progress attained in other States.

That the conservation activities in the various States are benefited by the different sessions of the National Conservation Congress is very evident. The influence also of the National Conservation Association is helpful.

In concluding this division of my report, I wish to emphasize the facts that the State conservation commission is coming into a broad field of work, that it must stand for the best interests of the State as a whole, that an important part of its activity is to unite the efforts of departments now existing in a cooperative work that has practical value to the State. Such commission must be composed of broad-minded men, preferably those who have a thorough acquaintance with the departments represented. The commissioners should be free from political entanglements, and refrain from using their position for selfish ends. They should stand for the greatest good of their States first, last and all the time.

Does your State have a commission of this kind?

SURVEY BASIS OF DEVELOPMENT.

The survey idea is now popular. In fact it may be abused in some cases, especially where the work is done with a lack of scientific spirit and undue rapidity. Such effort has no place in the conservation survey which seeks to determine useful facts, those really worth while in development.

In harmony with the spirit of the year which calls for the fundamentals, we have the following resolution by the Trans-Mississippi Congress, passed in its last session:

"Recognizing the natural resources as the physical basis of development, we urge the States of the Trans-Mississippi region to make surveys of their leading resources under competent direction, and to publish reliable reports upon the same. We favor such reorganization of the State conservation commissions as will qualify them to make inventories of natural resources, to study industrial problems, and promote the proper development of the respective States."

This demands that Conservation be placed on a survey basis. Just that thing is the order in many States under the leadership of conservation activity and through the cooperation of State and Federal agencies. During the past year, progress was made in cooperating the work of the different surveys, making them of greater value to the people and State. It is now understood and agreed that the following lines of information should be determined and made available for use in the development of each State as soon as possible consistent with good work and reliable results and in about the order herein named. The points considered in the complete survey are:

A. Topography. By topography is meant the surface features of the land. Topographic maps have many uses in development. Maryland, New York, Connecticut, Rhode Island, Oklahoma, and a few other States are now mapped.

B. **Structure.** By this we mean the underground make-up of a region, the kind and arrangement of the materials of the land. Structure is directly related to mineral resources, topography, water supply, and soils.

C. **Surface Water and Drainage.** This refers to the amount of run-off, to such as streams, lakes, marshes, and has importance in irrigation, navigation, fish culture, city water supplies, etc. Illinois is leading in this survey.

D. **Ground Water.** This is water in the land. It is the source of crop water and the largest source for domestic and town supplies. The amount of water held by the soil is even more important than the quantity of rainfall. The depth to the water table, and the quantity, and quality of well water are of great importance in agricultural regions.

E. **Climate.** The elements—temperature, sunshine, wind, humidity, and rainfall—are recognized as having importance and should be known for every part of our country. The latest movement is for facts in local climate, even that of the farm or certain parts of it, and of the soil.

F. **Soils.** The relation of soil to industry is generally known. The soil survey classifies and describes the soils as to origin and properties, and maps them accurately so that the farmer may know definitely the kinds and their distribution on his farm. Farm management demands intelligent comprehension of soil characteristics.

G. **Native Life.** The native plants and animals of a country represent the natural selection of the fittest for the conditions encountered. The life of a region reflects the topography, soil, and climate under which it lives. In new territory the native plant life reveals to the keen student much concerning the soil and climatic conditions. In older communities undisturbed patches of vegetation tell the same story. By studying such life the qualities needed in cultivated crops may be fairly well determined and the losses incident to haphazard experimenting avoided. Native life then needs to be considered in a rural survey because: (1) It gives a summary history of soil and climatic influences; (2) it may lead to economic production of certain native types of plants and animals; (3) it presents concretely the problem of utilization of waste lands; (4) it will give emphasis to the need of utilizing our lakes and streams as a source of food supply.

H. **Social and Industrial Conditions.** If a move into new territory is contemplated, the questions of vital interest are not only of the natural and industrial conditions but also in regard to social conditions. By this is meant the classes of people as to race and culture, and the opportunities offered for advance in social and intellectual lines. These characteristics of people are closely associated with their occupations. The pursuits of the people are largely dominated by the physical basis of

industry. Hence the social survey must recognize this influence if it is to correctly interpret conditions as they exist. Data of most vital interest in the social rural survey pertain to the following lines: (a) History of settlement. (b) Condition of agriculture. (c) Education. (d) Religion. (e) Recreation. (f) Sanitation. The industrial conditions of a region are practically determined by its physical features. The development is further related to the biological and social life. Hence the industrial survey must be based on these fundamentals if it is to be comprehensive.

In closing this review of the fundamentals in surveys it should be understood that: 1. The physical and biological surveys should come first, since they are necessary for accurate work in other investigations. 2. The special surveys of industries, rural and urban life should be made from the common basis of physical and biological conditions and extended into their respective fields.

It should be recognized that the broad controls affecting industry are structure, topography, drainage, climate, soils and native life, but that they do not have equal importance in any and every locality. Any one of them may be the controlling feature with the rest of minor importance.

It is not a pleasing fact to know that most States have not yet accurately mapped their lands, waters and forests. The departments responsible for this work should receive adequate financial support and the people in turn should demand results.

What progress has your State made in these lines?

RELATION OF EDUCATION TO CONSERVATION.

The State universities of the Middle West especially are meeting their obligation to the people by training students for real work—for efficient service. Such institutions, by their instruction, surveys and extension departments further the development of practically every line of industrial activity in the State. From these centers are directed geological, soil, water, sanitary, social, farm management and other surveys. Consequently the professors and advanced students get a good work-out and the citizens are caused to look to the institution for assistance in practically every development problem that arises. The State universities that are giving the largest service in this line appear to be Wisconsin, Minnesota, Cornell Agricultural College, Illinois, and Nebraska. It is my great privilege to be connected with one of these.

Unmistakably, the present tendency is to associate the public service State departments and conservation activities more with higher education, taking them from the field of politics. This noticeable feature in the rearrangement of conservation activities of the past year is worthy of consideration by all States.

CONSERVATION OF BUSINESS.

The different lines of business are conserved in many ways. This applies to practical developments in improving the process involved in handling commodities all the way from manufacture to sale; to trade, in the direction of economy in buying, transportation and sales; to farming in improving methods of cultivation, the better care of stock, and in less buying on time; to more economic use of school and church buildings; to the building and maintenance of good roads and clean streets, and to the improvement of public service generally. So there is room for practical conservation in many lines. It prevents waste, increases efficiency, and thereby decreases the cost of commodities. A very general movement for good business is the feature of the year. It is promoting real business by demanding that it be done on the square and free from fraud. This is working a public good.

At another time, I will discuss the subject, "Land Frauds or Get-Rich-Quick Schemes," with special reference to their effect upon real business.

CONCLUSIONS.

As a summary conclusion, you will permit me to enumerate the things that stand out in the progress of the year.

1. The prominence of Conservation on many State and National programs.
2. The tendency to place State development on a survey and fact basis.
3. Development of co-operation between State and Federal agencies.
4. Demand by the public for reliable land classifications, soil, sanitary and agricultural surveys.
5. Interest in soil fertility as a basis for agricultural development.
6. The affiliation of Conservation organizations with educational departments and removal from politics.
7. Discussion of Lakes-to-the-Gulf Route and success attained in presenting the cause of drainage in the Mississippi delta region.
8. Modernizing of State universities, making them of greater value to the State.
9. The determined demand for vocational training in the public schools.
10. A demand for less extravagance in public service.
11. Taxation of cut-over lands.
12. Perfection of forest control.
13. The very general recognition that people are the most important natural resource subject to development.
14. Increased regard for sanitation throughout the country.
15. Massachusetts minimum wage law for women.

16. A determined and widespread movement on the part of social workers to eliminate the social evil.

17. Widespread movement against fraud and the assistance given to the movement by the Postoffice and National Reclamation departments.

18. More than usual discussion of co-operative enterprises and methods of distribution.

19. Rapid progress in the building and maintenance of good roads.

20. A growing tendency for the citizens in every part of the country to outgrow provincialism; to come into respect and appreciation for the people and institutions of every State; to recognize the fact that the home State is but a part of the Union and larger world in which people live not to themselves alone but in helpful relationship with all others.

President WHITE—This was a very interesting address, which we allowed to extend beyond the time, because it is a summary of Conservation work during the past year in all the States. Heretofore, we have had a report from a representative of each State, but it was thought advisable this year to have these reports condensed into one paper, a work which Dr. Condra has done most admirably.

The next address, which is of the greatest interest, is on the subject of "Human Life, Our Greatest Resource," and the name of the gentleman who is to deliver it will be a sufficient guaranty that it will be replete with interest, and will be useful to every one of us who listens. I now introduce Dr. William A. Evans, of Chicago.

(Dr. Evans failed to return his manuscript for insertion in the Proceedings.)

President WHITE—We must hasten on, for we have some other addresses that will be very interesting to the children. There are a great many present that have come no doubt to see the wild life pictures. So we shall have to hasten in order to reach them.

Dr. Bessey, who was to have been next on our program, will be here at 3:30 o'clock.

We shall now call on Mr. E. T. Allen, of Portland, Oregon, whose subject is "Conservation Redefined."

Mr. ALLEN—On a hot afternoon, a bare-footed boy, on his way home from school, in western Washington, eager as any school boy for the swimming hole, or whatever waiting attraction had kept his eye on the clock since about 2:00 o'clock, stopped, hesitated, then clambered down a steep, brushy slope to the stream at its foot, filled his hat with water, climbed up the hill again laboriously so as not to spill his burden, and put it on a camp-fire some voting citizen had left burning by the road-

side. It still smoked, so he went back twice, three times. About then, the man who told me this story came along and asked the boy why he made it his business to put out that fire.

"Why, it told in a little book I got at school," was the reply, "why every one should try to stop forest fires. It told what grown-up people can do by being careful and passing laws and such, but it said a boy may do as much as anybody by putting out some little fire with water or dirt before it gets big."

Now, the action of that school boy, and of the teacher who handed him the booklet, and of the State authorities who instructed her to do so, and of the man who wrote the booklet and enlisted the State's cooperation in its distribution to a hundred thousand children, and of the timber owners through whose protective association that man was hired and the cost of printing and distributing that booklet was paid, was Conservation. It was forest Conservation, definitely conceived, definitely executed, and with an exceedingly definite result.

About a month ago I was talking to an extremely intelligent man, a scientific man whose life is devoted to bettering humanity. He said, "Allen, do you believe in Conservation?"

Rather astonished, I replied, "It's my trade, isn't it?"

"Oh, I don't mean forest protection, like putting out fires and making trees grow, but forest Conservation—Pinchotism, tying up everything for future generations."

Now that man's conception was the result of Conservation activity, certainly. Without our agitation there would have been no counter agitation. No doubt he has read of these congresses every fall and of countless other forms of our work. But, apparently, only one interpretation, and that a mistaken one, had ever reached him in a form definite enough to make an impression. How else can you account for getting effort and sacrifice from the irresponsible barefoot school boy, but no realization by a citizen of the highest type that Conservation wants his help in some way that he can give it?

To what extent these remarks apply to your work along other Conservation lines, I am not competent to say. In forestry, there has been, I will not say too much debate, but certainly too little other use of our Conservation machinery in presenting clear-cut principles of forest economics in the specific local forms and with the specific local needs that are necessary to engage and direct accomplishment. This is true of what we do at these meetings and more true of what we do when we go home.

What our forests need most is more patrolmen, more trails and telephones for them to use, more funds and organization to marshal fire-fighting crews when required, better fire laws and courts that will enforce them. public appreciation that forest fire departments are as

necessary as city fire departments, more consideration for life and property by the fool that is careless with match and spark, realization by more lumbermen that it pays in more ways than one to do their part, State officials who will handle State lands intelligently, tax laws that will permit good private management, consumers who will take closely-utilized products, and a few other things that demand specific study and specific action. Very few will follow automatically after any amount of agitation under the general term of forest Conservation. Do you suppose this would have sent the boy down the hill after water? No more will it write a good forest code and drive it through the devious channels of legislation. No more will it organize a hundred busy lumbermen and install a trained co-operative patrol. No more will it supply the necessary systematic campaigning to teach the people of your State and mine in just what ways their homes and pocketbooks are touched by every injury to forests or forest industry and exactly what they, as individuals, must do to prevent such injury.

Without decrying their sentimental aspects, these are business problems. They call for all the exact facts, all the systematic planning, all the decisive action, all the appeal to human motives, selfish and otherwise, that are essential to any business. We have a commodity to offer. By whatever name we call it, fire prevention, reforestation, or more vague yet, forest Conservation, we are really offering prosperity insurance. It must be paid for by the community in currency of individual and collective effort, by individual care with the forest and by public policies enforced at public expense. To make the community pay for this commodity requires the same methods that make it buy life insurance; the same devising of a sound, attractive policy that the buyer can see and understand, the same skilful advertising, the same personal persuasion by its agents. I believe that if this were a congress of life insurance agents they would be talking mostly of just these things, particularly of improved methods to close with procrastinating "prospects," with a view to putting these methods into the most definite kind of practice the day after they got home. We do not need argument on the merit of Conservation any more than they would on the merit of life insurance. We are converted, or we would not be here. But we need a whole lot of instruction in salesmanship, and I believe we fail to make this the feature of these congresses that it might be.

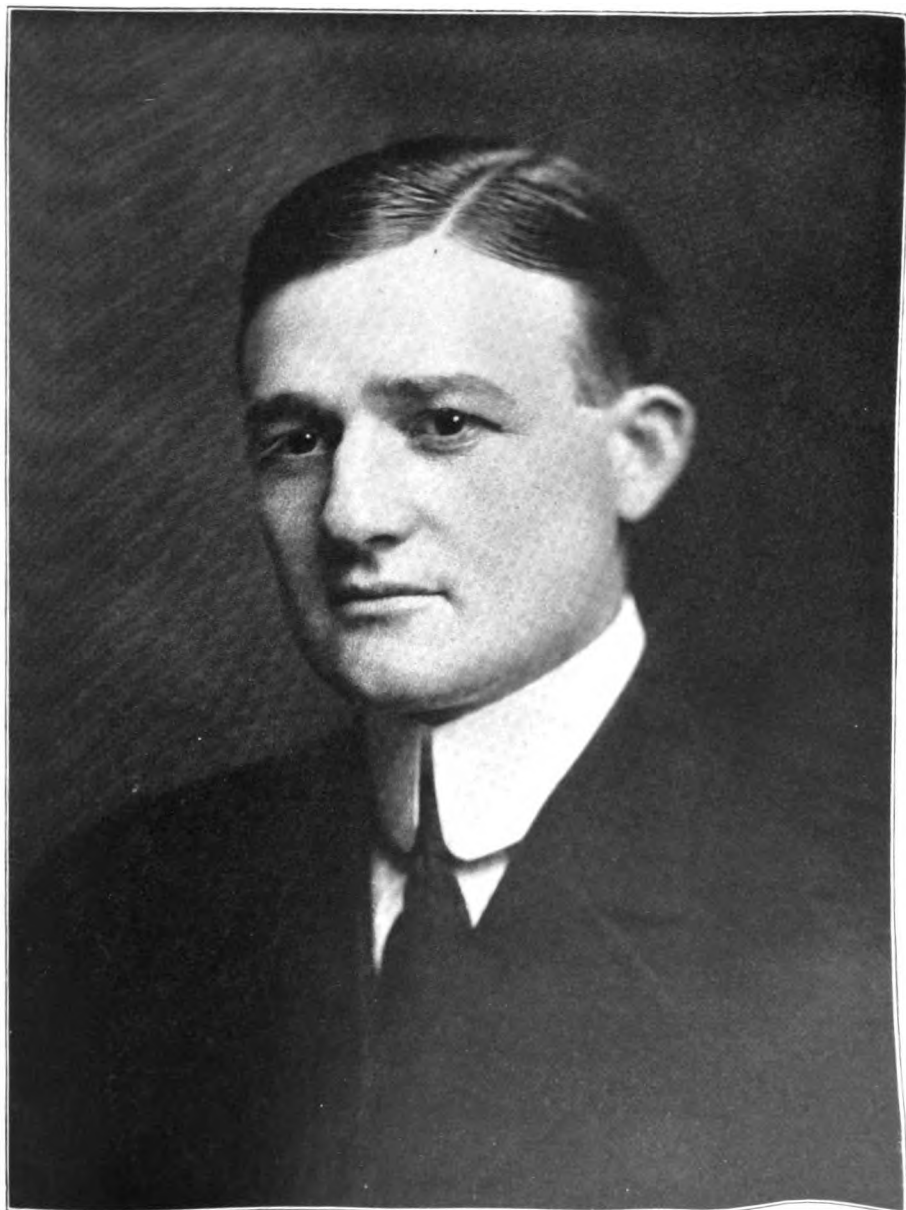
Let us look ahead, we agents of prosperity insurance, to see what is to be done after *we* get home.

The Government needs little but our moral support. The Federal Forest Service is our highest authority in technique, the national forests are our most conspicuous examples of practice. But the task of the Forest Service is stupendous, not only in protecting these vast forest areas and the lives within them, but also in replanting denuded areas

and managing great timber sales, so new growth will follow. Congress does not appropriate anything like enough for this work. The forest rangers out West are working for you and me, not for Congress. We want more of them, and better facilities for their work, and it is up to us to say so at the right time, to the right men, and so emphatically that there will be no misunderstanding. Petty politics and "retrenchment" would not be practiced so much more vigorously when dealing with the lives and resources of the people than when dealing with the "pork barrel" if we Conservationists were half as free with telegrams as we are with resolutions. Yes, this means you. So long as you stand for having the appropriations for preserving the Nation's forests from three to twenty times less per acre than the lumberman is spending on his contiguous holdings, or for any congressional attack upon the integrity of the national forest system, your Conservation preachments are going to the wrong address or are not properly spelled in words that look like votes.

There is even greater need of definitions that apply to the situation of our States. Many have done nothing. Others have ill-balanced laws passed by some one agency without due consideration of the needs of others or of the greater need of bringing all into harmonious co-operation. In few is there a far-seeing comprehensive policy financed and executed. Here, of all places, forest Conservation must narrow itself to specific issues. Scattered ideas do not pass good laws or prevent the passage of bad ones. Propaganda work must be as forcible and carefully directed as blows with an ax, to cut out one by one the local foundation of every obstacle. In presenting our remedy we must prove our knowledge of the principles and technical frame-work which will insure freedom from politics, just distribution of cost, effective organization, strict and enforceable fire laws, systems of patrol and fire-fighting, facilities for educating lumber men and public, management of State-owned lands, fair taxation, and, above all, co-operation with and stimulation of endeavor by private owners. Without such knowledge, and skilful publicity and campaigning, your very success in general agitation may result in legislation worse than none.

All this involves considerable knowledge of the problems of the private owner. After all, he controls most of our forest area. His use of it, our use of it, and the effect of our relations on our joint use of it, largely determine our forest destinies. And there is entirely too much forgetting that forests are useless unless used; that not forests, but forest industry, is what we really seek to perpetuate. Except from their protection of streamflow and game, the community has little to gain from forest preservation unless it also preserves, on a profitable and permanent footing, the industry that makes forests usable and worth preserving, that employs labor, affords market for crops and services, pays taxes, and manufac-



E. LEE WORSHAM

OF ATLANTA, GA.,

CHAIRMAN EXECUTIVE COMMITTEE, FOURTH NATIONAL CONSERVATION CONGRESS

turers and distribute an indispensable commodity. Forest wealth is community wealth, but not without forest industry to coin it.

The lumberman as a class, because he is honest and useful as a class, should be accorded the same encouragement as a captain of desirable industry that is accorded the leader in agriculture or irrigation who develops possibilities of utilizing our resources and supplying our needs. And as a class, because whatever may be true of the past he now sees his livelihood dependent upon forest preservation, he is a stauncher supporter of forest reform than any other class. He will utilize the present crop closely, and grow a new one, whenever these are business possibilities. The most efficient and liberally supported fire organizations in America are the lumbermen's co-operative patrols inaugurated in the Pacific Northwest and now spreading eastward. Most of our best State forest legislation has been promoted by lumbermen. Where this is not true, we can make it true quickest, as Judge Lindsay has found with his boys, not by censure and compulsion that make them sullen or antagonistic, but by learning their troubles and working with them hand in hand toward the ends which in the very nature of things must in the long run be of mutual advantage. And this means that we must talk a common language; that here, too, forest Conservation must be expressed in practical terms of fire prevention, just taxation, and business encouragement.

What I have said of propaganda for State and private action applies to our appeal to the ordinary citizen, with this difference that because his number is greater, and his interests are more varied, we must add to the list of our specific personal arguments and to the list of our publicity mediums for carrying these arguments. Every vocation, every trait of character, every selfish and unselfish motive, has its best avenue of approach.

Immediate tangible results come most surely from immediate injury. Even good laws are of small use unless the public of today is sufficiently warned to insist on their enforcement. Do not think me lacking in ideals when I say that our greatest need is vigor and skill in appealing to human selfishness. The altruist comes to us unsought. But to reach the hand with the torch, the vote withheld, the word unspoken; we must find the man, make him listen, and show the cost of forest destruction to his particular home and pocketbook. We will not have forest Conservation till we have done this, and we will not do it until we master and apply the technical knowledge of mediums and psychological appeal that go into any successful advertising campaign.

The definitions of Conservation I have outlined are those used by the Western Forestry and Conservation Association. Its field is the five Pacific forest States—the Nation's woodlot—containing over half the country's standing timber and capable, by reason of rapid growth, of

growing an adequate supply forever. In this field we practice what we preach. Our constituent local patrol associations spend from \$300,000 to three quarters of a million a year, all paid by lumbermen, but protecting your resources and mine.

Our booklet reached that school boy and three hundred thousand more. Through every modern avenue of publicity—newspapers, circulars, posters, railroad folders, telephone directories and a dozen others—we carry the lessons of forest economics to every citizen in terms he can best understand and apply. Although you had not made that scientific man style himself a conservationist, we had secured his help in passing a model fire law. We wrote that law. Under it State, Government and lumbermen work hand in hand to protect practically every forest acre, sharing the cost, and the lumbermen in that one State contribute \$150,000 a year.

But, best of all, we provide a common meeting ground for all four agencies in our entire territory, each having the hearty support and confidence of the others, and we talk only of our joint business of actual, practical, constructive work. We talk not needs, but methods, and find means to apply the methods.

We believe in this National Congress of Conservationists. We think it will enter a permanent future of still higher usefulness when it develops a more sectional organization, giving the real workers in every branch opportunity to get the very most out of meeting their own colleagues, and this not only in the technique of application but also in the lagging art of promoting the prosperity insurance of Conservation in terms and policies the public can understand and cannot evade.

President WHITE—It will now be necessary to drop a curtain in order to arrange a screen for the illustrated lectures that are going to follow, so everyone will retain their seats. We shall not be detained long. While the curtain is dropped, Secretary Shipp will make some announcements.

The announcements were made by the Secretary.

President WHITE—Dr. C. E. Bessey, of the University of Nebraska, having now arrived, will read his valuable report for the Standing Committee on Education:

Dr. BESSEY—Your committee recognizing that in the field of education we must for a time provide for a propaganda of suggestion and information, to be followed ultimately, when the public mind has been adequately awakened, with plans for a campaign of aggressive activity, now presents the following as a preliminary report. And while we feel confident that even at this stage something may be done more than the inauguration of a campaign of agitation, it is certain, nevertheless, that

it is agitation more than anything else that we can best promote at the present time. And we must not belittle the importance of this stage of our work, for in every great movement there is first the period of agitation during which the "seers of visions and the dreamers of dreams" talk, and urge, and plead, with increasing vehemence and increasing confidence

It is our privilege now to promote such a work of agitation. Accordingly our suggestions are all made with reference to this preliminary phase of our work.

There are three principal lines along which this preliminary work may be developed—namely, in the communities, in the schools, and in our law-making bodies.

I. WORK IN THE COMMUNITY.

Here we have to change the feeling of apathy, and carelessness, and irresponsibility, to one of active, conscientious responsibility. In this task we have to deal with the men and women and children who constitute the community. We must influence all of them. We must reach them in such a way that there will grow up in the community a better feeling with regard to the world we live in, and a clearer appreciation of our relation to it in every way. They must be led to see that the world is to be used, not destroyed. Just as the child has to be taught that his toy is to be enjoyed, and played with, but not wantonly destroyed, so we must bring the men and women in the community to see that preservation, and not destruction, is the higher duty. That citizen is the better one who leaves to the next generation a better world than he found; whose use of Nature's soil, and water, and plants, and animals, leaves Nature still the rich storehouse in which others after him may find these unimpaired, and in abundance.

How shall such a high sense of responsibility be developed in the community? How may we awaken this larger and deeper altruism? How can we bring the men and women of this generation to see that they are stewards of their Master's estate?

Your committee commends three agencies as rendering effective service:

(a) *Public Lectures.* For these we may rely upon public spirited men who are primarily interested in Conservation, as well as many whose affiliations to different branches of natural science have prepared them to appreciate the purposes of this propaganda. To these we may add the great number of ministers of the gospel who nearly to a man may be depended upon to favor the movement, and to speak for it as occasion offers. Last of all we may confidently enumerate the teachers in the public schools and the higher educational institutions, and from them we may certainly secure many regularly prepared addresses and many

more less formal short helpful talks. The influence of all of these presentations can scarcely be measured beforehand, but we confidently predict that in a few years we shall find that there has been a decided change in the general attitude of the community from one of ignorant indifference to a more or less intelligent interest.

(b) *Articles in the Public Press.* We believe in the power of the public press as a molder of the opinions of the community, and feel that we must enlist the interest and coöperation of the newspapers throughout the country. To do this generally will require carefully considered, nation-wide plans; but a great deal may be done in every locality by the printing of the addresses referred to above. Where this is not possible abstracts may always be published, as well as summaries of shorter talks and discussions. Now and then a short, pointed article should be prepared and printed in the local paper. Here we feel the need of admonishing writers to be brief. No communication should attempt to be exhaustive. Better far to say a little at a time, and to come back to the subject again and again, than to say it all at once. Short, suggestive articles are generally read, while long ones usually become so dry that few read them.

(c) *Books and Pamphlets.* For certain classes of people the appeal through the more permanent form of publication is far more effective, and therefore there is in our work a need of the book writer, and the writer of pamphlets. Here, quite naturally the writer must possess to a marked degree the ability to present the matter in such a sustained way that his book or pamphlet will be read throughout. Probably the most effective writing of this class is that which appears in our illustrated magazines where by the aid of half-tone reproductions of striking photographs the interest of the reader is held much more certainly. Such articles collected into small books or pamphlets would go far towards stimulating a proper state of mind in regard to the conservation of our natural resources.

It occurs to us also to suggest that now and then our state experiment stations might quite legitimately devote a bulletin to Conservation.

II. WORK IN THE SCHOOLS.

While the community as a whole is receiving such suggestions as are possible through the agencies mentioned—lectures, addresses, newspaper articles, books and pamphlets—there is a vastly more effective means at our disposal in the public schools, dealing as they do with no less than twenty millions of children. We suggest that teachers everywhere be urged to include in all the studies that pertain to nature something in regard to the preservation of natural objects. This need not be much in amount, and it should be brought in with care and wisdom. We are

reminded that once a very good cause was much discredited in the schools by the rash unwisdom of its advocates who insisted upon such an overdose of advice and admonishment that acute nausea resulted. So we would suggest that in the following studies care should be taken on the one hand to suggest conservation while on the other hand still greater care should be taken not to overdo the matter.

(a) *Nature Study*. Along with an appreciation of Nature there should be inculcated the feeling that others after us should have the opportunity of enjoying the same beauties that we have.

(b) *Geography*. As now generally presented this deals more with the earth and what it contains, than with its political divisions. Thus the soil, the forest cover, the streams, the water supply, all fall within this rejuvenated science, and here most readily can be inculcated the principles of conservation, as applied to the soil, the forests, the streams, and the underground waters.

(c) *Botany*. When the pupil's attention is more specifically drawn to the plant covering of the earth, in the study of botany, it is not at all difficult to impress upon him the desirability of preserving the vegetation of the present day for the generations that are to come after us. No lover of plants can contemplate with pleasure the thought that for the botanists of the twenty-first century certain curious orchids, some rare trees, and possibly some Golden Rods, may be as completely extinct as are the Palæozoic Calamites and Lepidodendrids. The latter perished from the face of the earth, and we know of them now only by the fragments that have been preserved in the fossils which we dig up from the old rocks. Extinction has been the fate of many a plant, and extinction of plants now living is by no means improbable. The botanical teacher should preach the doctrine of preservation, the preservation of the plants of the present for the people who come after us.

(d) *Zoölogy*. So, too, the teacher of zoölogy should improve his opportunity to help create a feeling favorable to the conservation of the present animal life. Especially do we need a propaganda of conservation in relation to the birds of the country. And here we remark that there are methods of presenting this part of zoölogy which emphasize rather the living bird in the tree than the dead bird in the cabinet. And these methods are happily displacing those that suggested if not required the death of every bird studied. We are well aware of the fact that it is not so much the killing of birds for study that threatens the extinction of some species, as the wanton killing for the sake of killing, and as in the case of birds of fine plumage, the killing for the money value of the dead birds. Yet we realize that the place to begin is to educate the children of the schools not to kill birds for any purpose. When they have regard for the life of a bird they may be trusted not to kill one needlessly.

(e) *Geology.* In this the pupil comes to see the foundations of the earth, fortunately little of which man may injure or deface. And yet how thankful we are that on the hills of New England there have been preserved in their original ruggedness the great masses of granite that have withstood the elements for millions of years. And who is not gratified that the great wall of the Palisades on the Hudson River has been saved for all time? These cliffs were valuable for crushing into gravel for road-making, and for the quarrying of building stone, but certain men of finer sensibilities felt that the Palisades had a far higher value for their grandeur and beauty. And so the Palisades were saved.

We need more of this fine sense of the value of rocks, and lakes, and waterfalls, and cliffs, and mountains, and of the need of their preservation.

(f) *Conservation Clubs.* Aside from much that may be done in school classes to foster a spirit of conservation something further may be accomplished by taking advantage of the club-forming instinct of children. Conservation clubs, Conservation leagues, Conservation guilds, pacts, societies, or what-not, may be suggested by the wise teacher, who can discreetly keep himself in the background while the youngsters do the work. If a nauseating namby-pambyism can be avoided such clubs may be joined by even the most vigorous of boys, the very class in whom it is desirable to develop the spirit of conservation.

III. WORK THROUGH LEGISLATION.

What has been already outlined is probably enough for the present, but the American people are not satisfied unless something is done in the way of enacting our ideas into laws. In the present condition of society we act as though we thought it quite impossible to do anything on a large scale without having the sanction of a direct law in regard to it. We are only very slowly learning that some of the best of human activities have been developed independently of legislation, and no doubt the time will come when we shall not be so anxious to have our plans formulated into laws found in our statute books. But for the present we may suggest the following legislation as helpful. We purposely avoid suggesting the passage of laws dealing with details. They must come later, when the conservation sense of the public has been adequately aroused. Here we may consider state and national laws.

(a) *State Laws.* These may well include those intended to preserve rare birds, and in some places certain rare plants which are in danger of extermination. To these may also be added provisions for the preservation of important natural features, as forests, waterfalls or massive rocks that lend interest or beauty to the general landscape.

(b) *National Laws.* These may deal with larger problems, as the preservation of certain widely distributed birds. Naturally, too, it is the National Government that must take the initiative in regard to the conservation of the great forests, waterways, waterfalls, and the features in the national parks and reserves.

Carefully drawn laws, both State and National, covering the foregoing will no doubt aid the cause of Conservation. Too much must not be attempted. More good will result from a constant vigilance with regard to the passage of bad laws which give away the heritage of the community, than from attempts now to formulate a general conservation code.

Respectfully submitted,

CHARLES E. BESSEY (Chairman),
DAVID STARR JORDAN,
EDWIN A. ALDERMAN,
E. T. FAIRCHILD,
EDWIN B. CRAIGHEAD,
Committee.

President WHITE--We have all been very much interested in this valuable contribution to Conservation, coming from such distinguished contributors as were on this committee, and I desire, for the officers of the Conservation Congress, to thank the committee for its admirable report. I feel that every delegate here would like to join in an expression of thanks for such an interesting and such a helpful paper, which will go forth to all sections of the country. All those who desire to so express thanks please rise to their feet. (The entire audience rose to its feet.)

This is a very grateful and pleasant expression of thanks. I thank you.

We will now be entertained by an illustrated address by Dr. T. Gilbert Pearson, of New York City, Secretary of the National Association of Audubon Societies. The subject is "Bird Slaughter and the Cost of Living."

(Dr. Pearson's address, which, unfortunately, was not recorded by the official reporter, was heard with keenest interest by a large audience and was interrupted by frequent applause. The speaker prefaced his illustrated lecture with a vivid statement of wild life conditions, which was heard with closest attention.)

President WHITE—I am sure you have been entertained by the very excellent address we have just heard. And there is another interesting address to follow. I want every one of you to know we are having a

very interesting Congress and a very large attendance. This afternoon there have been three section meetings going on; one, I understand, with about one thousand people in attendance. All belong to the Conservation Congress.

We will now listen to a discussion of "Federal Protection of Migratory Birds," by Dr. W. T. Hornaday, Director of the New York Zoological Park.

DR. HORNADAY—Mr. President, Ladies and Gentlemen: The subject presented to this Congress by the Committee on Conservation of Wild Life is one of the most practical subjects that you could possibly imagine. It touches the market basket and the dinner pail, and I know of nothing that can come much closer home to a family than that. Within the last three months, in the City of New York, we have had riots in our streets on account of the high cost of certain articles of food.

Whenever I have an opportunity to stand before an audience and speak in behalf of wild life, "I would that my tongue could utter the thoughts that arise in me."

We have reached the period now when it is absolutely necessary for us to adjust our ideas according to new conditions. I am trying to place before you conditions as they exist throughout the United States today, and I think when that has been done the facts will suggest to you the logical conclusion. The trouble is that our system of protecting wild life is nine-tenths absolutely wrong. We are confronted today by a slaughter of wild life throughout the whole United States, throughout the whole continent of North America, and throughout the world, that is absolutely appalling.

Now, in the City of New York there are several national organizations which make it their business to keep in touch with the conditions of wild life throughout the world. Unless a person takes pains to keep in touch with those conditions, as those national organizations do, you lose sight of the things that are actually going on and which ought to be of common knowledge. But our lives are so busy, there is so much to do, the days are so short, and we are so pressed for time that we grasp only the things that come close to us.

Now, take the slaughter of bird life, it is not like the cutting down of a forest. When a forest is cut down the stumps are left to be constant reminders of the destruction for days, for weeks and for years. When your bird life is destroyed, it simply fades from view. It fails to return in the spring and you go about your day's business and you see the beauties of the forest and field, but you forget to what extent the birds have disappeared. It is a difficult thing to obtain an accurate estimate of the decrease in the general volume of wild bird life throughout a given year, but it is possible to obtain such estimates. Now, there is in the United

States a tremendous force at work destroying wild life. The force that is preserving wild life is not nearly so large and not nearly so active. I will show you presently a picture especially designed to bring this home to you. Dr. Pearson has set before you many beautiful pictures showing bird life in protected areas. That points an important moral which I do not wish to forget. It means that if we are diligent, if we reform our system and our laws we can to a very large extent bring back the vanished bird life. There is hope for the future. Today we are confronted by the prospect of a country gameless and birdless everywhere except in the protected areas. We all know how important the game preserves and the protected bird areas are. We cannot have too many of them; they cannot be too large. But there is a vast volume of bird life that cannot be protected in the preserves, the migratory phase of bird life, which we cannot control except for short periods of the year.

I believe that the subject we are now bringing before you is one in which it is possible for the members of this Conservation Congress to achieve a practical result of the greatest magnitude and in the shortest possible time and with the least effort of any subject that will be presented to this Congress. I know that is a large order, but I think that before I conclude you will agree with me that my proposition is not exaggerated.

When I was assured that I could have the honor and the privilege of speaking to this Congress on the subject of wild life, the first thought that occurred to me was to endeavor to place before you some ocular proof of the slaughter of wild life that is now going on at so terrific a rate. I gathered from my side table a collection of pictures that had dropped into my hands from various portions of the United States and outside, and those pictures I wish you to see now. They will tell a story of their own with very few words from me, and after that we will come to the logical conclusion.

Dr. Hornaday here gave an illustrated lecture which was thoroughly enjoyed.

President WHITE—The Congress will now stand adjourned until 8:15 o'clock this evening, when Dr. Harvey W. Wiley will speak, at Tomlinson Hall.

A large reception was given by the officers of the Congress and the Local Board of Managers to the speakers, delegates and visitors, at 7:30 o'clock, Claypool Hotel.

THIRD SESSION.

The Congress was called to order by President White, in Tomlinson Hall, at 8:30 o'clock p. m.

President WHITE—We are a little late opening this meeting, because we are trying to do so much in different places, and we do not all get in one place at the same time. But I am glad to see such an enthusiastic meeting here tonight. The audience will rise while the Rev. Dr. Allan B. Philputt, of the Central Christian Church of this city, invokes the Divine blessing.

INVOCATION.

Lord, our God, we ask that Thy blessing may rest upon us in what we believe is work well-pleasing to Thee and for the upbuilding and welfare of our common humanity. We pray Thee, bless Thy servants who have gathered here to instruct and lead us on with the mighty host of those who are willing to follow in the good ways that shall be pointed out for the preservation, not only of our material resources, but for our moral, intellectual and spiritual well-being. We pray that strength may be given those who lead, and guidance and light, and the heartiest coöperation on the part of all our citizenship. May we be interested in these things which will add to our happiness, and wealth, and peace and plenty, and by which we may also come to a better knowledge of Thee and Thy laws. May Thy blessing rest upon all the sessions of this great Congress, especially upon those who have sacrificed time and means to come here and give themselves unreservedly to this great cause. May Thy favor rest upon those present, may Thy blessing be upon those who are strangers within our city, and may hospitality be unbounded, may sympathy and cordiality flow from heart to heart until we feel the strong ties that bind us, not only in one State, but with every State in our great Republic. This we ask through Jesus Christ, our Lord. Amen.

President WHITE—I have a communication to read to this audience from an old, well-known and well-loved conservationist, one of the great leaders in conservation work. I do not think there is any politics in this. I will read it.

“Omaha, Neb., September 30, 1912.

Capt. J. B. White, National Conservation Congress, Indianapolis:

Please tell the Congress I am keenly sorry to be away. I should be with you, except that I believe I can do the cause of Conservation more good where I am. We are working to make this continent a better home for a better race. It is a great task. I wish you the best of meetings and complete success.

GIFFORD PINCHOT.”

The speaker of this evening is well known to us all. He has impressed himself and his subject upon the people of this great country in the past

few years, and he needs no introduction from me. I have long wanted to know how old people managed to grow old and keep looking young. I do not mean to infer that the speaker of this evening is getting old, as I understand he has a boy only about a year old (applause); but I have found out his age, by persistent and tactful undertaking, and, being in pursuit of some way of living to a good old age myself, I inquired as to his habits. I will not give them to you now, except to say that he told me, briefly and epigrammatically, that he doesn't smoke, he doesn't drink (applause), he doesn't chew, and he says he doesn't swear (applause)—only occasionally. (Laughter.)

I now take great pleasure in introducing to you Dr. Harvey W. Wiley, who will speak on the subject "The Conservation of Man." (Applause.)

Dr. WILEY—The National Conservation Congress has at its previous meetings discussed in a most illuminating and helpful way the great problems of Conservation as applied to the soil, to the forests, to the mines, and to the running streams.

I do not suppose it is proper, with an audience of this kind, to refer to earlier papers, but I do believe I am the first person who ever made a public address in this country upon the subject of Conservation, and I am certain, as far as I know, that I am the last one that is making such an address. But as long ago as 1893—and being a very old man, as you have heard, I can remember that far back—I made an address on the conservation of the soil, so I am really the father of the conservation movement in this country—as well as of a very fine boy. (Applause.) I miss my dear friend, Gifford Pinchot, whom I love as a brother, but who has fallen into the patent medicine habit and is giving us "absent treatment"—I am not at all sure that he is doing a better work out there than he would be here. In the words of the Scotch poet, "I hae ma doots." But still we were glad to hear from him and know he has not lost interest because of the strenuous political life he is now compelled to lead.

With this great work, from its inception, I have been in deepest sympathy and have collaborated in such a manner as I could to further it. The work accomplished has produced benefits which are difficult to measure by any standard which can be properly appreciated. The American people have come to believe in the application of a single standard of value and this is a scientific principle with which, as a rule, I would have no quarrel, but unfortunately the single standard which Americans have been taught to value is that which pertains to the almighty dollar. The Conservation Congress, however, has not been blind to the fact that the standards of ethics, health, morality and happiness are of even far greater value than that of money. Nevertheless, in order

to present the subject in a manner easily grasped by the American people, attempts have been made to measure the value of health and life by a money standard. As a justification of this, we have the procedures of the courts, based upon statutory enactments, which fix a money value upon life, although in many cases, after mature deliberation, it has been found that the life for which compensation has been asked, was of small value. In like manner, in the treatises which have been written on the public health and its value as a national asset, it has been attempted to portray in dollars the most precious of all human possessions, namely, life. And, in point of fact, it is not wholly unscientific, though undoubtedly unsentimental, to thus value human existence. All useful members of a community render services of some kind, for which payment is made in the coin of the realm. Following one of the established customs of great financial operations, it has been customary to capitalize the human life on its earning capacity, either active or prospective. The infant and the child, measured upon an actual earning capacity, would have practically no value, but this would be an unscientific method of determining worth, because of the fact that the infant and the child represent the necessary preparatory stages of earning capacity. Based upon this fact they both have a real monetary value.

I shall not take up the time of this address with any effort to ascertain the actual values which may safely be assigned to the infant, the child, and the grown-up person. This has been carefully and sufficiently accomplished by other investigators. Abraham Lincoln said that in so far as efficiency is concerned the human race may be divided into three classes, namely, one, those who work effectively; two, those who work to no purpose, and three, those who do not work at all. Judging by rigid standards which have been set up by students of efficiency, class one is probably the least numerous of the three. Class two is composed of well-meaning people who do work, are willing to work, and anxious to work, but who do not know how, and therefore waste their energies. Class three is made up of the idle rich, the idle poor, and that considerable portion of our population incapacitated by disease or otherwise exempt from taking part in any useful employment.

FUNDAMENTAL PRINCIPLES OF THE CONSERVATION OF MAN.

Primarily, in the study of the conservation of human efficiency, that is of man, man himself and knowledge of what he is, and what he has been, within the years in which man has been studied, in a scientific way, is of the utmost importance. Unfortunately, we have not access to a universal system of demography, inasmuch as only a few countries have adopted scientific demography in its entirety. The world descriptions of human life, health, and efficiency are, therefore, exceedingly fragmentary. We are too apt to base our ideas upon personal acquaintance

and knowledge of the efficiency of man, than upon a scientific study thereof, and yet, in order to have a proper view of the subject of the conservation of man, the actual state of his health and his capacity for useful labor must engage our attention.

The Division of Vital Statistics of the Census Bureau has done much to furnish the student of humanity with fundamental data, and first of all let us consider what is the expectation of life in the various countries according to the latest authorities which can be secured. The Division of Vital Statistics has prepared the following table, which is to be accepted as the most authoritative which is accessible. No claim is made, of course, for entire accuracy, but it is sufficient to show what the condition was in this country twelve years ago. It is reasonable to suppose that conditions have improved somewhat in the twelve years which have passed since the compilation of the data submitted.

EXPECTATION OF LIFE IN VARIOUS COUNTRIES ACCORDING TO
LATEST LIFE TABLES.

(The "expectation of life" is sometimes known as the "mean after-life time," "average after-life time," "mean duration of life," and "average duration of life." Data are from the international tables in *Statistik des deutschen Reichs*, Bd. 200, *Sterbetafeln*, the French *Statistique internationale*; the English Registrar-General's Report; Supplement, 1891-1900, and Census Bulletin No. 15, Twelfth Census. Tables for the United States, or rather for that part of it having fairly complete registration of deaths, will be published in connection with the Reports for 1910, now in preparation.)

EXPECTATION OF LIFE IN YEARS.

| COUNTRY OR STATE. | Years. | Males. | | | Females. | | |
|-------------------------------|-----------|-----------|-----------|------------|-----------|-----------|------------|
| | | At Birth. | One Year. | Ten Years. | At Birth. | One Year. | Ten Years. |
| England and Wales | 1891-1900 | 44.13 | 52.22 | 49.63 | 47.77 | 54.53 | 51.97 |
| Healthy Districts | 1891-1900 | 52.87 | 59.13 | 54.16 | 55.71 | 60.53 | 54.46 |
| France | 1901 | 45.31 | 53.10 | 49.25 | 48.69 | 55.34 | 51.53 |
| Italy | 1899-1902 | 42.83 | 50.67 | 51.25 | 43.17 | 50.08 | 51.00 |
| Austria | 1900-1901 | 37.77 | 49.17 | 48.22 | 39.87 | 49.31 | 48.54 |
| Belgium | 1891-1900 | 45.39 | 53.51 | 50.32 | 48.84 | 55.88 | 52.78 |
| The Netherlands | 1890-1899 | 46.2 | 54.8 | 51.7 | 49.0 | 56.2 | 53.0 |
| Sweden | 1891-1900 | 50.94 | 56.25 | 52.79 | 53.63 | 58.04 | 54.61 |
| Massachusetts | 1893-1897 | 44.09 | 52.18 | 49.33 | 46.61 | 53.58 | 50.70 |
| German Empire | 1891-1900 | 40.56 | 51.85 | 49.66 | 43.97 | 53.78 | 51.71 |
| New South Wales | 1891 | 49.60 | ... | 50.89 | 52.90 | ... | 53.39 |
| India | 1901 | 23.63 | ... | 34.73 | 23.96 | ... | 33.86 |
| District of Columbia (white). | 1900 | 41.64 | 49.30 | 46.37 | 45.77 | 52.89 | 49.90 |
| Massachusetts (white) | 1900 | 44.29 | 53.13 | 50.15 | 47.80 | 54.96 | 51.70 |
| New Jersey (white) | 1900 | 44.06 | 52.05 | 49.27 | 48.27 | 54.45 | 51.59 |

One of the most remarkable facts presented by the above table is in the marked increase in the expectation of life after the age of one year. In other words, the terrible infant mortality, which prevails in all

countries, is so great that the expectation of life at birth is a number of years less than at the age of one year. In England and Wales, the infant mortality decreases the expectation of life at birth, in round numbers by eight years; in France and Italy about the same; in Austria, by eleven years; in Sweden, by six years; in the German Empire, by eleven years; in Massachusetts, by nine years. In the report of the Bureau of the Census on Mortality Statistics, printed in 1909, and referring to the calendar year 1908, data are collected from seventeen States, the District of Columbia, and seventy-four registration cities, comprising a total of 51.8 per cent. of the total estimated population of the country. The total number of deaths registered in this area in 1908 is 691,574, corresponding to a death rate of 15.4 per 1,000 of population, which is said to indicate a remarkably favorable condition of the public health.

In the mortality statistics for 1910, two years later, the registration area, which included in 1910 an estimated midyear population of 58.3 per cent. of the total population of continental United States, the deaths reported were 805,412, representing a death rate of 15 per 1,000 population. The death rate for 1909 was only 14.4 per 1,000. While these variations are marked, the work has not been carried on for a sufficient length of time to do more than to warrant an expression of opinion that the death rate in this country is generally receding. It varies as shown, on both sides, having decreased very considerably from 1907 to 1909, but increased to a very marked degree in 1910 over 1909. The registration area covers the following States in toto, and some of the principal cities in the other States: California, Colorado, Connecticut, Indiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, New Jersey, New York, North Carolina (municipalities of 1,000 population and over in 1900), Ohio, Pennsylvania, Rhode Island, Utah, Vermont, Washington, and Wisconsin.

The extension of the system of registration to a larger area and number of population and the improvement in the efficiency of securing data are all to be considered in comparisons of very small periods of time. For one hundred million of population a death rate of 15 per 1,000 indicates a total of 1,500,000 deaths per annum. This figure may be accepted as being sufficiently accurate for all practical purposes at the present time as representing the death rate of today in the United States.

Comparing the United States with other countries and giving the expectation of life at birth as the basis of comparison, we may safely assume that the average expectation of life for the United States is in round numbers 44 years. Comparing this with the other countries we find that Sweden, Holland and New South Wales have a lower death rate than the United States. England, France, Belgium and Holland

have almost the same death rate. The German Empire and Austria have a higher death rate. India is the banner country for shortness of life, the expectation of life in India being a little over half that in the United States.

WHAT ARE THE DISEASES WHICH ARE MOST ACTIVE IN CAUSING THE DEATH
OF OUR PEOPLE?

In the registration area of 1910, 154,373 infants under one year of age died, in round numbers one-fifth of all the deaths. Assuming the total deaths to be 1,500,000, the number of children dying in the United States every year under the age of one year is 300,000. A striking illustration of the danger of the hot months for children under 2 years of age is shown by the fact that the number of deaths from diarrhœa and enteritis for July and August was 12,535 and 12,565 respectively, while in February the deaths from the same causes were 1,373. From these data it is evident that during the hot two months nearly 1,000 infants under the age of one year die every day in the United States.

The report of the Division of Vital Statistics shows that beginning with the second month of life diarrhœa is the most serious cause of infant mortality. While infantile diarrhœa and its allied disease, enteritis, is the most frequent cause of death among infants, the greatest destroyer of the human race, without respect to age, is tuberculosis, which caused 10.7 per cent. of the deaths from all causes in 1910. Next in importance in destructiveness is found organic disease of the heart, causing 9.5 per cent. of all the deaths. For all ages diarrhœa and enteritis come third in fatality with 7.8 per cent. Close after this comes pneumonia with 6.7 per cent. Kidney disease causes a mortality of 6.6 per cent.

The number of deaths from tuberculosis during the year 1910 was 160.3 per 100,000, or for 100,000,000 people 160,300. The death rate from tuberculosis from 1900 to 1909, inclusive, was 183 per 100,000. Apparently the death rate for tuberculosis is decreasing.

The number of deaths from cancer in 1910 was 76.2 per 100,000, or a total of 76,200; the highest death rate ever recorded from cancer. Evidently the deaths from cancer are increasing in proportion to the population.

I wish sometimes that every house in this country could be burned to the ground, if the people could escape. Why? Because tuberculosis and cancer are house diseases, and if every house were burned, we would not have them any more—at least until we built new houses. But we can purify our houses, we can live out doors, we can sleep out doors most of the year, and by the teaching and practicing of the principles of hygiene and sanitation we need not burn our houses at all. But

people do not know, and worse than that, they do not care. They take no interest in such things. If you were discussing the tariff tonight, the house would not hold the people; if you were discussing trusts, there would be no standing room; but when you discuss this tariff on human life—they are not interested.

Organic disease of the heart: The number of deaths in 1910 was 141.5 per 100,000, which is a very large increase over that of the preceding year of 129.7 per 100,000. The total number of deaths from heart disease was 141,500.

Pneumonia: The death rate from pneumonia for 1910 was 147.7 per 100,000, making a total of 147,700 deaths from this disease. The death rate from this disease increased considerably over that of the preceding year.

Kidney disease: The total number of deaths from kidney disease in 1910 was 99 per 100,000, making a total of 99,000 for an estimated population of 100,000,000. This includes all forms of kidney trouble, nephritis and Bright's disease.

Typhoid fever: The death rate from typhoid fever was 23.5 per 100,000, a total of 23,500 for the estimated population of 100,000,000.

You older men like me who were in the war know that war is hell—not because you are shot—that is glory; but because you die of disease; and if you will read the military history of the Civil War, so-called (I do not know why, for it was not so very "civil") you will see that while one man died of wounds, four died of disease, because we did not understand the principles of serum, phophylaxis. We are not going to have in the next war four men die of fever where one is killed in battle.

One of the curious features in connection with typhoid fever is that some of the most sparsely settled States show the highest rates of fatality, for instance the number of people dying in Colorado of typhoid fever is 41.9; in Montana, 39.9, and Utah, 37 per 100,000. Only one of the thickly populated States equals this—Maryland, 40.7 per 100,000. Some of the lowest death rates for typhoid fever were found in New Hampshire, 10.7; Massachusetts, 12.4; Rhode Island, 13.6; Vermont, 14; New Jersey, 14.5. and Connecticut, 14.7. Of cities of 100,000 population or over in 1910, Omaha, Nebraska, showed the highest rate, namely, 86.7; Minneapolis, Minn., 58.7; Kansas City, Mo., 54.4; Atlanta, Ga., 50.1; Birmingham, Ala., 49.5; Nashville, Tenn., 48.9; Milwaukee, Wis., 45.7; Spokane, Wash., 45.4. and Baltimore, Md., 42. The lowest rates shown for some of the large cities were those of Bridgeport, Conn., 4.9; Paterson, N. J., 7.1; Cincinnati, O., 8.8, and Cambridge, Mass., 9.5 per 100,000. These cities seemingly are as well protected against typhoid fever as some of the cities of Europe, where death rates are as follows: London, 4; Edinburgh, 2; Dublin, 10; Paris, 7; Brussels, 19; Amsterdam, 7; Copenhagen, 3; Stockholm, 4; Christiania, 2; Berlin,

4, and Vienna, 4 per 100,000. Thus, evidently in such cities as Cincinnati, Berlin and London, death from typhoid fever is no longer a terror.

Measles, which is supposed to be almost a harmless disease, causes a large number of deaths, the death rate for 1910 being 12.3 per 100,000 population, or a total of 12,300 for the estimated population. In some cities the number of deaths by measles was almost as high as that by typhoid fever, notably in Pittsburgh, Pa., 33.1; Providence, R. I., 31.9; Kansas City, Mo., 28.4; Lowell, Mass., 28.1; Albany, N. Y., 23.9; Columbus, O., 23.6; Buffalo, N. Y., 22.1, and Richmond, Va., 21.1 per 100,000. Scarlet fever is not so deadly a disease as measles, since the fatalities per 100,000 for 1910 was 11.6. Death rates from this disease were high in the following cities of 100,000 population or over: Buffalo, N. Y., 53.6; Lowell, Mass., 41.2; St. Paul, Minn., 30.2; St. Louis, Mo., 27.1; Kansas City, Mo., 23.2; Milwaukee, Wis., 22.3; Pittsburgh, Pa., 22.2; Rochester, N. Y., 21.4, and New York, N. Y., 20 per 100,000.

Whooping cough produced as many deaths as measles and scarlet fever, the death rate for 1910 being 11.4 per 100,000 population. Diphtheria and croup produced a death rate of 21.4 per 100,000 population, or a total of 21,400 for the estimated population.

Influenza, or "la grippe," caused a death rate of 14.4 per 100,000 population for 1910. This disease is less prevalent than for the preceding ten years. The above data are sufficient to show the principal causes of death, old age, unfortunately, being so small a factor as to be almost negligible in the compilation.

It might be interesting to extend these vital statistics to a greater length, but a sufficient number of data have been given to establish some of the fundamental principles which should guide physicians and the sanitarians of the future in their work.

THE MEANS OF AVOIDING AVOIDABLE DEATH.

The question which is now presented for discussion at this Congress is, How can avoidable death be successfully avoided? I have not included in the discussion of this question the deaths by accident, which are lamentably all too frequent in this country. The motor car, the aeroplane, the railway, and the steamboat, still continue their deadly work in increasing violence as our population grows denser. It is easy to understand how the State could do much toward preventing these unfortunate accidents. No doubt concerted action on the part of the States will soon be perfected to prevent so many of the horrible catastrophes, whose descriptions form the principal reading matter, after murder and suicide, in the morning journals. And this leads us to say that murder as a means of ending human life is more prevalent in this country than in any other country of the world, and in consideration

of the features which relate to the conservation of man the prevention of murder should receive particular attention.

A study of the above data reviewed in connection with the known etiology of disease, shows clearly where the work of the conservation of man, especially by the prevention of disease, should begin and on what line it should be prosecuted. To this end it is sufficient to call attention to the fact that diseases are naturally divided into two classes: those which are communicated and those which are produced by the conditions of the personal environment. Physicians are pretty well agreed at the present time that disease is rarely inherited, therefore, most of the causes which produce death are those which come from without, or those which are developed from within by improper habits of life. But one may inherit deficient vitality and thus fall an easy victim to an infectious disease. The point for us to consider most particularly in this connection, is to what extent we can prevent these diseases, that is, those which are contracted from without.

EDUCATION OF FUNDAMENTAL IMPORTANCE.

It would be well to classify the efforts which we are making for the prevention of disease in some systematic order. I will begin, therefore, with the one which is the most important of all, and that is education.

In order to secure proper protection for the citizen, he must be made to understand that he needs it. Further than this, it must be made plain that the protection of the individual from communicable disease is not by any means wholly within his own power. Unless the State acts, the individual in many cases is powerless; hence education beginning in the family, continued in the public school, and illustrated in practical adult life, is the most important feature of prophylaxis. Into the details of education I cannot go, but one thing I do wish to insist upon, namely, that the child should be taught early, frequently and constantly, that most of the disease he has to fear are like enemies in the dark. I need not refer again by detail to the statistics of mortality, but simply would say that if the diseases which produce some of the most deadly inroads into humanity, such as tuberculosis, measles, whooping cough, scarlet fever, diphtheria, croup and typhoid fever, are solely communicated to the individual from without, they are the diseases which the State must help the individual to avoid. On the other hand, organic diseases of the heart, nephritis and Bright's disease, are apparently more of a personal character, due either to inherited weak qualities or to errors of diet or faults of metabolism. These are diseases which we should be taught to avoid by strict attention to personal hygiene. They are not, so far as known, communicable, and therefore the State can do little, aside from educational work, towards their prevention. Another

disease which may be partly communicated and partly the result of improper nutrition, is enteritis, and especially infantile diarrhœa, diseases which by proper education might be almost wholly avoided.

DISEASES OF UNKNOWN GENESIS.

There remain two great causes of human death, namely, cancer and pneumonia, which are still practically beyond control, because of our ignorance of their etiology or our powerlessness to prevent their progress. These diseases are considered communicable, that is, they are induced by specific infection, but the methods and the exact nature of the infecting germs are still subjects of investigation. It is true that we are told of the organism which produces pneumonia, and it is said to be constantly in the mouth of even healthy people, and we read almost monthly of the discovery of the real cause of cancer, but in spite of all this, these diseases remain as a rule unknown in character and are gigantic and terrible enemies which we have to fight in the dark. To one point attention should be called in regard to the increase in such diseases as those of the kidneys and the heart, that are essentially diseases of old age, just as tuberculosis and typhoid fever are diseases of early life. In proportion as we save people from tuberculosis and typhoid fever, just in that proportion will we save men and women who subsequently become victims of old age diseases. Therefore the increase in the number of deaths due to these causes may be an index to the increasing longevity of the people, instead of the opposite.

It is of course a question, which unfortunately we are unable to decide for ourselves, as to whether we should be saved from tuberculosis and typhoid fever for the express purpose of being killed by cancer, kidney lesions and diseases of the heart. Upon the whole I think, however, that terrible as these diseases are, especially cancer, most people would rather die of cancer at 70 than to succumb to tuberculosis at 30. But in the great problem of the conservation of human life we must not lose sight of the fact that many experienced and competent investigators are devoting their whole time to revealing the secret of these dread diseases, which still baffle the skill of the physician. We may hope in the near future that at least pneumonia and cancer may be put upon the same footing as typhoid and tuberculosis, that their actual genesis will be disclosed, and thus the road made clear toward their prevention. It is along these lines that education must go, because we cannot develop a public sentiment for the protection of life and health except by the desire of the people to live and be well, and the education of the youth and the adult is the best method of securing that result. When the people are educated, then we can successfully introduce the other methods of saving human life.

PREVENTION OF COMMUNICABLE DISEASES.

It is a self-evident fact, granting a disease to be of communicable origin by a specific germ, that the disease may be prevented if its victim be protected from infection. In other words, such diseases as tuberculosis, typhoid fever and others of the same character, which are undoubtedly communicated from individual to individual, could be wholly exterminated if the opportunities for communication were destroyed. We may assume, therefore, that all specific diseases due to a specific organism are capable of elimination by the simple exclusion of the organism.

Based on this are the great factors of prevention, namely, quarantine and segregation, which are practically one and the same. It stands to reason that an infected center should be removed or so isolated as to be no longer dangerous. For the same reason the infected center should not be allowed to enter a new community. Based upon this principle our systems of quarantine and segregation should be greatly strengthened. It is not a question of the wishes of the individual in this case; if it were, no ship would be detained and quarantined, and few people would go to a smallpox hospital or tuberculosis sanitarium. The principle of the welfare of the race as superior to the interests of the individual is dominant in these particulars. Tennyson, who foresaw many of the great truths of science, has beautifully presented this principle in his well-known stanza:

"Are God and nature then at strife,
That nature sends such fearful dreams?
So careful of the type she seems,
So careless of the single life."

In the protection of the public health it will become as much the duty of each State and Nation to provide sanitary detention camps for infectious diseases and rigidly enforce residence therein, as it is to watch the border and establish strict quarantine.

IMMUNITY.

It is evident, however, that it will take a long course of education and almost revolution in the sentiment of the people, to establish a system of segregation and quarantine as rigid and as perfect as that which is outlined. What then is the next best resort? I answer immunization. If we cannot keep the infectious organism from contact with the human body, we should endeavor to make the body immune from its ravages. There are two methods which might be adopted: the one which could be most generally practiced is that of good nutrition, proper housing, fresh air, pure water and pure foods. The child that sleeps in the open and eats an abundance of pure, wholesome foods and takes a proper amount

of exercise, will escape most of the diseases of infancy and grow into manhood with a body immune to almost every infectious germ. I need not go into detail in regard to the actual mechanism of immunity to prove the fact that a well-nourished body, sustained by blood of high nutritious power and bearing its untold millions of organisms, armed cap-a-pie to destroy intruders, is a sufficient illustration of immunity. The physiologists will describe to you the nature of the phagocytosthe opsins, and the hormones by means of which this immunity is secured.

For the above reason the campaign for pure and wholesome food lies at the very foundation of the protection of the public health. It is a mistaken idea that a food is not to be condemned unless it produces diseases. A food is to be condemned which is in any way so debased as to undermine nutrition and impoverish the blood, and thus open the door of the body to the invitation of every germ that may be coming along the road. Thus the addition to foods of bodies which in themselves are not poisonous or harmful, but which debase the product and make it less palatable or less nutritious, is a crime of the same magnitude as that of adding to the foods poisonous and deleterious ingredients or of suffering it to fall into advanced stages of decomposition.

What a sorry spectacle, in the light of these facts, was presented at the Fifteenth International Congress of Hygiene and Demography at Washington last week, when Professor Long, member of the Remsen Board, which has validated the use of some of these poisons, attempted to justify the addition of an active drug to the food supply of the nation! Such an act was so foreign to the purposes of the Congress as to constitute an unpardonable anachronism. Dr. Long was one of the most enthusiastic protagonists of benzoate of soda in the Federal Court in Indianapolis when those who secured the appointment of the Referee Board in defiance of law sought to force the people of Indiana to eat their adulterated products. The people ask for bread and Dr. Long and his assistants give them a stone in the form of the moribund benzoate.

Of a similar pernicious and mercenary character was the paper presented by Professor Sedgewick, of Boston, in which he urged the use of infected oysters and diseased meats as human foods. Professor Sedgewick was one of the principal witnesses in the celebrated egg case in New Jersey, where he testified that eggs so decomposed as to produce death when injected into guinea pigs were wholly fit for human food if sufficiently disguised in taste and smell by baking! Oysters, according to Sedgewick, should be classified into good, to be eaten raw by the rich, and bad, to be cooked and eaten by the poor. Meats of diseased animals should also be eaten by the poor, unless so badly diseased as to be physically seen to be unsound.

This is the doctrine of modern hygiene according to its prophets Long and Sedgewick. I cannot subscribe to these doctrines. There is

plenty of clean food for both rich and poor. To excuse processes of growing food animals, and manufacturing foods which permit and condone unsanitary methods and introduce active drugs into the finished products, stimulates and encourages reprehensible practices, which all interested in the public health should condemn. Happily the Federal courts, both in New Jersey and Indiana, were unconvinced by such specious arguments, and condemned the very processes which were praised and defended before the world's congress of sanitarians.

The workers for the conservation of man do not yet fully realize the great importance of the food supply of the country as a means of producing immunity of disease. The well-nourished body is clad in armor and bears an impenetrable shield which enables one to march into the midst of dangers and for the most part escape unscathed. All power and ethical spirit, therefore, to the men who are chosen to administer the food laws, in order that they may realize the importance of their office to the health of the people, and the life and efficiency of our citizens. Let them learn to put a heart and a soul into science.

IMMUNITY OF HEREDITY.

We are all familiar with the common phrase, the foundation principle of eugenics, "He inherited a good constitution." It is undoubtedly true that we come into the world with widely different vitalities. The true principles of scientific immunity to disease therefore lie imbedded in the human life principles of long past aeons. The ideals of eugenics, as formulated by Francis Galton and elaborated by his nephew, the son of the immortal Darwin, are but iridescent dreams. If man is to be bred scientifically, there must be many selected mothers and a very few high grade fathers. The human race is not yet ready to face the problem in the true light of science and contemplate a race of males of which 75 per cent. are eunuchs. This is kako- instead of eu-genics. As long as the heart is whole, men and women with only one lung will fall in love. For untold centuries to come we must be resigned to a human race composed principally of scrubs. But there is one principle of eugenics which can be and ought to be put into practice. It has been done partially in some States, especially in Indiana. It should be generally adopted. The degenerate, the vicious and the imbecile should not be allowed to propagate. These are classes of society that have no right to multiply. Before proceeding further in restricting parenthood let us see that individuals of both sexes, criminally vicious or imbecile, are segregated or rendered impotent. And even here only the typically bad cases are to be treated. It would be too nice a question for the jury if there was a doubt of any kind, even inconsiderable. Among those of average intelligence, education should do the rest. Teach those who are physically diseased the duty of celibacy. Persuade and not force them.

INDUCED IMMUNITY.

Another method of securing immunity in the human organism is by the development of some morbid condition of a nature similar to or identical with the disease to be combatted, so as to produce in the system anti-bodies, specifically adapted to fight the particular disease which has generated them. The principle of immunization by this method rests upon the successful experiments, or rather observations, respecting a given virus. Jenner's observations in regard to smallpox were purely empirical, and it remained for Pasteur to develop a scientific basis of induced immunization. Serum-therapy is by no means half so important as serum-prophylaxis, and here again comes the importance of education, because there is still a very large and respectable body of our citizens who resent any interference on the part of the State with their rights as regards medical relations. It looks almost like tyranny to force a citizen to subject himself to inoculation of any kind when his own belief in the efficacy of the process is hostile and where he resists enforced immunization. But here again the right of the people asserts itself and thus justifies compulsory vaccination. While education can do much to remove this prejudice, we must expect to always have with us those who conscientiously resent inoculation, and condemn all efforts to prevent disease.

Since, because of lack of care and proper supervision, grave disorders and disease and sometimes death result from the practice of inoculation, the State owes a special duty to its citizens in seeing that all forms of inoculation materials, no matter what their nature may be, are of the purest and best. Of course, the thought presents itself that induced immunization is only a confession of inability to protect the health by isolation of the invading virus. It is something like the pasteurization of milk, which is a mute tribute to insanitary conditions, uncleanly cows, and long keeping; but here it seems that there is no choice left. The impossibility of complete isolation, at least for many years to come, is apparent, and hence the desirability of general immunization becomes obvious. The successful inoculation which has lately been accomplished against typhoid fever is another promise of what the future may bring in the way of immunization by induction. Meanwhile it is the part of wisdom for those who seek the public welfare by the conservation of life to urge both prophylaxis and immunization, in the hope that the infecting centers will become so few and so remote that good nutrition, and all that it implies in a sanitary way, will eventually become a sufficient protection against communicable diseases.

THE SUPERVISION OF DRUGS.

Hand in hand with the supervision of our food supply, we should not forget the control of drugs. I am far from believing that drugs

are an efficient remedy for all human ills; in fact, I am convinced that they are not. They are at best only adjuncts, except in those cases where specifics have been discovered, as in the case of quinine and malaria, and the arsenic compounds, which have proven so useful in combating syphilis. But without discussing the efficiency of drugs, I think we will all admit that as long as they are articles of commerce they should be pure and of constant strength. To this end we should support, with all our enthusiasm and ability, the efforts which are made to perfect the pharmacopœia, and to standardize and purify the drugs of commerce.

THE CONSTANT THREAT OF PROPRIETARY MEDICINES.

In this connection I cannot refrain from alluding to one of the greatest dangers of drugs, and that is, their indiscriminate use by the laity. The fakers that pretend to find sovereign remedies for every disease, through the medium of the newspaper and the periodical, of the postal card and the circular, inflame the minds of the people and induct them into indiscriminate drugging. One can generally, by taking up a paper in any locality and scanning its columns even carelessly, see the wonderful vogue of these fakes and crimes. Such falsely praised substances as Peruna, Kilmer's Swamp Root, Duffy's Malt Whiskey, and the whole brood of wretched specifics, serve to illustrate the great danger to which we are subjected. But the worst of it all is that through the carelessness of physicians, and sometimes through their criminal pretensions, habits are formed for certain drugs, such as cocaine, opium and its products, chloral and alcohol, which enslave their victims, weaken their vitality, and invite disease. I think I do not exaggerate it when I say that the drug habit, no matter how induced, is a menace to the American people. No matter how slight the ailment or how easily controlled, the first advice and the first act is to "take something," no matter what, or whoever may recommend it, for every imaginable ailment. The effect of this continual drugging upon the human body is more easily imagined than described. The nerves and stomachs of our people are gradually succumbing to the bombardment of pills, pellets and powders. For the sake of gain every possible influence is brought to bear upon the American people to increase the consumption of drugs. The danger is so imminent and so acute that it is hoped that through the means of education a public sentiment may yet be awakened in this country which will protect our people against all these nefarious concoctions. I would not for a moment in any way curtail the right of citizens to consult accredited physicians, no matter to what so-called school they might belong, but it is the duty of the State, as an additional safeguard, to the health and life of our people, to see to it that no one sets himself up as a physician unless he has qualified himself in the fundamental principles of anatomy, hygiene and physiology, to understand the human body and its

operations. We are too prone to tolerate physicians who tell you that the blood which supplies the brain passes into the cranium altogether through the canal of the spinal cord. Charlatanry, quackery, and ignorance in the practice of medicine should be rigidly suppressed. The people of the nation who have freedom of choice should not be left helpless victims of avarice and ignorance.

DANGERS OF STIMULANTS.

In addition to drugs, as commonly considered, the people of our country are also subjected to imminent dangers in the use of stimulii, which have no food value and which induce activities that are beyond the power of the system to sustain. I refer especially to such beverages as tea, coffee, and alcoholic drinks and the manufactured articles containing their active principles, such as coca cola and all the great army of "colas," and to tobacco, as an illustration of additional dangers to which we are likely to succumb. In spite of the fragrance of the coffee, and the aroma of the tea, and the flavor of the rum, and the dreams of the pipe, I am inclined to the belief that it was a sad day for humanity when these things were first brought to the attention of man. In so far as intellectual development is concerned, I find the nations of antiquity, and especially the powerful nations of Greece and Rome, developed to be leaders in architecture, masters of painting and sculpture, and geniuses in poetry and expression, without the aid of any of the stimulii which the artist, the poet and the writer are supposed to depend upon today.

It would indeed be a happy day for the community if all of these stimulii, as appetizing as some of them are, could be relegated to the scrap heap, and the art of their use forever lost. (Applause.) Meanwhile, we all understand that this Utopian condition is at present impossible, and hence we must content ourselves with education and with legal control to prevent the abuse of these bodies and to eliminate the injury which they have done. Temperance may always be practiced, even where prohibition fails. It is therefore the duty of every one concerned with the public health to urge the extremest moderation in the use of tea, coffee, tobacco, and alcoholic beverages, in the hope that the injuries which have already been wrought may be avoided in the future, and temperate indulgence take the place of unbridled consumption until the day of final elimination arrives.

SUMPTUARY LAWS.

In the interest, therefore, of the public health and the lengthening of life and increasing the efficiency of man, we must bring ourselves to the point of acknowledging that the State should control things which in

themselves are injurious and unnecessary must be established. In other words, the individual's rights, so dear to every lover of freedom, the cardinal principle of democracy, must give way to the public good. No one has any right to practice any habit, or induce others to do so, which in itself is likely to prove injurious to humanity. I would leave to the individual the largest freedom in everything that is good, and restrict his activities to the lowest minimum in everything that is bad. I would not make of man a machine, nor would I desire that he should live in an environment which in any way would tend to affect his evolution and progress injuriously, and so I preach what seems to me the only solution of all these evils—education, temperance, legal restriction of abuse, and leave the rest to the manly part of humanity.

If I can in my life just put one nail in the coffin of quackery and false medicine, I will not have lived in vain; if by my voice I can get one man or woman interested in a healthy way of living, my work will not be in vain; if I can save one infant from premature death, my life will be well spent.

I believe when you conserve a man physically you conserve him mentally and morally, and then sin and sorrow and suffering will pass. There are only two learned professions in the world that are necessary—one is agriculture and the other is teaching. If you feed men right and teach them right, there will be no law breaking, and hence we will need no lawyers; there will be no sickness, so we will need no physicians; and when you have a country that is so happy as to have no law breakers or sick people, you will not need anybody's help to get you into heaven, so we can do away with the ministers. (Laughter.)

THE PROLONGATION OF LIFE.

What is in sight in the way of prolonging human life? I have briefly laid down what seems to be the fundamental principles of the conservation of man and the prevention of disease. If this plan can be carried out, is there any hope to be offered to man of greater freedom from disease and a longer life? I answer unhesitatingly in the affirmative. Why should we be content with an average life of 44 years? There is historical evidence to show that man's greatest activities are developed with experience and that the age between 60 and 70 is more productive for one who has lived in accordance with nature. It is shown from statistics that we die sixteen years before we reach the maximum usefulness of man. I would like to see more old age. I would like to see more men and women with gray hair and more wrinkled faces than I can see today. To all this, objection may be made that a place must be made for the young man and young woman; that the old man and woman keep the young from development and usefulness. But to this I reply, that there is infinite opportunity for good work offered to all.

If we can secure a race free from disease, endowed with all those qualities of mind and body which make for human efficiency, we need not ask that every one become eminent and wealthy, but each can perform the duties which come to him in a way to develop a uniform excellence of the human race. We have room in the country for millions of people. We welcome the infant and the child, but let us keep the man and woman. There is room for all.

This is my message to you tonight—the conservation of man—not only his health, but his life, the most precious possession man has. (Applause.)

Col. JOHN I. MARTIN—I move that the fullest acknowledgment and thanks of this gathering be and are hereby tendered to Dr. Wiley for his very interesting and splendid address.

The motion was seconded by many delegates and carried unanimously.

After announcement by the Secretary, the Congress adjourned until 9:30 o'clock Wednesday morning.

FOURTH SESSION.

The Congress convened in the Murat Theater, Indianapolis, on the morning of October 2, 1912, and was called to order by President White.

President WHITE—I want to take this occasion to state that there is a child's welfare exhibit richly worth seeing. It is an education in itself and is installed at the Capitol building. Every one should embrace the opportunity of seeing it.

The audience will now arise while the Rev. Dr. Harry G. Hill, of Irvington, invokes Divine guidance.

INVOCATION.

Father of us all and maker of all that is good, source of all light and life and love, early upon this morning, the second day of this Congress, we bring our respects to Thee and bow before Thee as the One worthy of worship, and invoke Thy blessing and benediction upon all who meet with us. We thank Thee that Thou hast so bountifully blessed us, and would have Thee, through these ministrations, at this time impress upon our minds that we are stewards of a great wealth, and we ask Thee to help us that we may so minister that there may be an equal distribution to all Thy people of the great goods with which Thou hast endowed us.

May we hold above everything else the wealth of human life, and may we look to our work as that of making a better world, a better place for men.

May Thy blessing rest upon the deliberations of this hour, on all those who are participating in this Congress, and may it go on and do much good in the years that are to come, that Thy knowledge shall be in the hearts and minds of men, and they shall serve Thee and make this is a great opportunity to increase Thy rule and kingdom through Christ, our Lord and King. Amen.

President WHITE—In the study of Conservation in this Congress we are getting around to the fundamental basis of all vital conservation. We are getting to the point where Conservation should have first begun—the study of human life as a national asset. It was Pope who said “The proper study of mankind is man.”

I take please in introducing to you, as the first speaker of this morning session, one who has had a great deal to do in the actual figures, the actual statistics, the actual knowledge of why human life is a national asset and why it should be conserved. I take pleasure in introducing to you Mr. E. E. Rittenhouse, of New York City, Conservation Commissioner of the Equitable Life Assurance Society of the United States, whose subject is “Human Life as a National Asset.” (Applause.)

Mr. RITTENHOUSE—The National Conservation Congress has been engaged in the noble task of guarding posterity against the waste of our natural resources by the present generation. It has had a most far-reaching influence, for its purposes are in tune with public sentiment, and with the spirit of the age. It has now given another and still more commanding reason for its existence by joining earnestly in the campaign for the conservation of our “human assets.” This is a field of usefulness that will endure for all time. However important the protection of our natural material resources may be, our greatest obligation to posterity is to preserve the health, virility and morality of our race.

The first and most important item in humanity’s Bill of Rights is *the right to live.*

The primary purpose and function of organized society is to guard the lives of its members from needless destruction. Liberty, education, wealth and other earthly blessings are important—but we must be alive to enjoy them.

The nation with the keenest sense of justice and the highest standard of intelligence and morals—virtues which some of us modestly claim for our people—is the one which should place the highest value upon human life and surround it with the greatest protection.

How would our civilization rank by this method of measurement? What have we already accomplished in preventing life waste? What is our present loss? How can it be reduced?

We may well rejoice over the achievements of the patient heroes of the laboratory and of the unselfish and devoted men of medicine who have provided, disseminated and applied the knowledge of prevention so far as it has gone. To them, to the press, the clergy, and the other good men and women who have helped spread the gospel of disease prevention belong the chief credit for the reduction of the death rate by nearly 25 per cent. in the past thirty years.

To these benefactors of our race is also due the honor of initiating and developing the widespread interest which now prevails throughout our country in the conservation of health and life. They have demonstrated that morbidity and mortality can be reduced—that human life can be prolonged by spreading and applying our present knowledge of the science of disease prevention. At the close of last year we had to the credit of these life savers over 400,000 lives that would have been lost that year if the death rate of 1880 had still prevailed.

If the present thirst for knowledge of health and life conservation continues to increase, it is not only possible, it is reasonably certain that during the next thirty years the present death rate of 15 per 1,000 population in the registered area will be reduced to 10.

While we have every reason to felicitate ourselves upon this wonderful result of the spread of life-saving intelligence, we must not overlook these facts:

1. That this great life-saving movement is still in its infancy.
2. That it has been directed almost wholly against preventable contagious diseases, and that the waste of life from these maladies has only been reduced—the loss is still excessive.
3. That while we have reduced the mortality from these diseases common to infancy and early adult life, the degeneration diseases of middle life and old age, against which we have waged no war, have been steadily increasing.
4. That we have increased the average length of human life only by increasing the proportion of people living in the younger age periods, while the average duration of life of those who pass into middle life and old age has been constantly shortened.

In other words, we are still furiously burning the candle at both ends—slower at one but faster at the other.

It is important that this point should be clearly understood. It is natural to conclude at first glance that if we are saving these lives of the younger age period that naturally there are more older people to die, but that does not follow. In the first place, we are dealing with a death

rate, the death rate for 1,000 population not in the bulk, and while it is true that the passing of these lives over into the older age period does affect that rate, it only affects it slightly. It has been asserted also that the lives saved from these communicable diseases have been weakened and that they die early after passing into middle life. It is also true that that does not explain the extraordinary increase in the death rate in the older age period. In England and Wales they have the same reduction in the death rate of communicable diseases common to the earlier age period, but not any increase above forty.

With all its blessings modern civilization has introduced hazards, habits and conditions of life which may not only invite, but which have increased in many ways, physical, mental and moral degeneracy.

What excuse have we Americans to offer for the excessive waste of human efficiency and human life from which the Nation is now suffering?

Surely we can not plead ignorance nor poverty, for we have both the knowledge and the money wherewith to stop this annual sacrifice.

How can we explain our growing contempt for the value and sacredness of human life? There is no other civilized country where this greatest of all assets—the most precious gift of the Almighty—is held so cheaply as in this glorious land of ours.

And why do we continue to view with indifference the constantly multiplying evidences of the mental and physical degeneracy of our race?

We may agree that in the long run the trend of humanity is ever upward, and that this is but a temporary reaction, but can we afford to rest wholly upon the hope that race deterioration will automatically cease when our people have had time to adjust themselves to modern conditions? Wise men doubt it. This problem will not solve itself; this adverse tendency will be checked only when our people are made to see conditions as they actually exist, and are aroused to the need of correcting them.

This is our task. Let us briefly survey it.

In order to measure the effectiveness of the Nation's life Conservation work, and the magnitude of the task remaining undone, we must now compare our efforts not with those of the past, nor with those of other communities or countries, but with our present loss from preventable and postponable sickness and mortality.

What are the principal items of life waste?

What evidence have we of degenerate tendencies? Here are some of them—the estimates are from competent sources and are based upon official records.

AN INDICTMENT.

Our birth rate is steadily declining, and at the same time the span of life is steadily shortening.

Twenty-seven per cent. of our annual deaths are of babies under age 5; 200,000 of them die from preventable disease; about 150,000 of these are under age 1.

To offset this waste of life, large families are demanded. Would it not be well to stop this needless destruction of infants before asking for an increase in the supply?

Of the 20,000,000 school children in this country not less than 75 per cent. need attention for physical defects which are prejudicial to health.

Insanity and idioy are increasing.

Diseases of vice, the most insidious enemy of this and future generations, are spreading rapidly according to medical men. So far we have lacked the moral courage to openly recognize and fight this scourge.

The alcohol and drug habits are constantly adding new victims to the degenerate list and to the death roll.

Suicides are increasing and now reach the enormous total of about 15,000 annually.

Lynchings and burnings-at-the-stake continue, and are common only to our country.

Attempts upon human life by individuals and mobs under trifling provocation, or none at all, are obviously increasing.

Over 9,000 murders are committed every year, and it is estimated that but an average of 116 murderers are executed for these crimes. We have the appalling estimated homicide record of over 100 per million population as against 7 in Canada, 9 in Great Britain and 15 in Italy.

In the United States the death rate above age 40 has increased steadily for years (about 27 per cent. since 1880), while it has remained virtually stationary in England and Wales.

The important organs of the body are wearing out too soon—the diseases of old age are reaching down into the younger age periods.

The death rate from the degenerate diseases of the heart, blood vessels and kidneys, including apoplexy, has increased over 100 per cent. since 1880. These diseases claim over 350,000 lives annually.

The doctors tell us that fully 60 per cent. of these deaths are preventable or postponable if the disease is discovered in time.

Periodical health examinations would detect these chronic diseases in time to check or cure them, but aside from the efforts of the Equitable Life Assurance Society and another smaller company, no public campaign to educate our people to this vital need is being carried on.

All of our money, all of our energy, seem to be directed against diseases that can be communicated. Is not a life lost from Bright's disease as valuable as one lost by typhoid fever?

The annual loss from pneumonia aggregates 135,000 lives, a large portion of which is due to weakened bodily resistance resulting from these degenerative affections.

Cancer, a baffling disease to which our people in their present physical condition are highly susceptible, claims 75,000 lives annually and is increasing very fast. Deaths from external cancer alone have increased 52 per cent. in ten years.

Pellagra, a deadly plague new to this country, is increasing rapidly in some of our Southern States, and it excites but slight public concern.

Over 150,000 Americans are destroyed annually by tuberculosis. We know how to prevent it, but our taxpayers object to the expense and leave the battle almost wholly to charity.

Nearly a million afflicted people are spreading the poison of tuberculosis to the well, with virtually no official restraint or supervision because of the expense.

Over 25,000 Americans are still sacrificed annually to the preventable filth disease—typhoid fever. About 300,000 suffer from it and are more or less impaired by it.

Other germ diseases are wasting more lives than typhoid and tuberculosis combined. We are warring against them, but compared to the lives still being lost our efforts are feeble and only partially effective.

Over 90,000 Americans are killed annually by accidents and various forms of violence. Our efforts to prevent the steady increase of this waste have failed.

The annual economic loss due to preventable disease and death is conservatively estimated at \$1,500,000,000, and our fire loss at about \$250,000,000.

To prevent fire waste our cities spend through the public service approximately \$1.65 per capita, and to prevent life waste, 33 cents per capita.

It is estimated that 1,500,000 of our people are constantly suffering from preventable disease, and that during the next ten years American lives equaling the population of the Pacific Coast and Rocky Mountain States (about 6,000,000) will be needlessly destroyed if the present estimated mortality from preventable and postponable disease continues.

These are the conditions we are asking our people to correct. Is there anything unreasonable in the request?

The money loss is stupendous, but if this does not impress our people, surely they should be stirred to action when they reflect upon the immeasurable sum of sorrow, suffering, poverty, immorality, crime and the hereditary degeneracy which results from this wholesale wrecking and destruction of human life from preventable cause.

RACE SUICIDE.

We are not only reducing the fertility of our race and also shortening the span of life, but we are permitting at least 650,000 lives to be destroyed annually which we could save by the application of simple and well-known precautions.

This is the real race suicide problem.

If we would save these lives, they together with their natural offspring would solve the problem of maintaining an adequate surplus of births over deaths. What we need is not necessarily larger families, but *more* families. A larger number of small families is surely preferable to a smaller number of large families.

THE DOLLAR AND THE DEATH RATE.

The primary duty of conserving our human assets resting with the State, it is obvious that the State must lead in the national movement. It is, therefore, the first duty of every individual and of every unofficial

organization interested in this efficiency and life-saving campaign to rally to the support of the public health service.

We must not only teach the individual how to guard his life against preventable disease and accident, we must educate our communities to the need of an effective public health service to enforce sanitary regulations and otherwise guard the health and lives of their members.

But it takes money to carry on a great educational movement, and it takes money to conduct the public health service.

The war against preventable disease and death is therefore in the final analysis, a struggle between the dollar and the death rate.

So far the dollar is ahead. The body politic seems still to prefer a high death rate to a slight and temporary increase in the tax rate.

"How much," says the American taxpayer, "will it cost to reduce this annoying death rate to the lowest possible limit?"

"About \$1.50 per capita at first, much less later on," answers the health officer, "and you will gain immeasurably by the increase in the wealth and happiness of the community."

"Very well," says the taxpayer, "here is 25 cents; we will save two bits' worth of these lives. The rest will have to die. We have much more important places for our money; we must improve the streets and roads, beautify our cities with much needed parks and public structures. We must improve our harbors and rivers, build canals, and encourage commerce generally. Besides, we are absolutely obliged to use about two and a half billion dollars this year for automobiles, jewelry, candy, alcoholic drinks, tobacco, diamonds and other similar urgent needs of life. What is the loss of a few hundred thousand lives compared to these vital necessities?"

And so the health officer plods along with his two-bit appropriation and naturally runs a two-bit health service. His own fitness and efficiency may be 100 per cent., but the effectiveness of his department only 15 per cent. because of the 25-cent limit.

TRIFLING WITH A SOLEMN DUTY.

National Government.—Of all the money provided by the people for the expenses of the National Government only about 1.3 per cent. is used for the conservation of health and life.

Our national health corps has an international reputation for efficiency and achievement. Although the service is undermanned and its personnel underpaid, the patriotism and high sense of duty of these able and energetic men have spurred them to the performance of the very highest service to their country and to humanity. They have not only jeopardized their lives, but numbers of them have sacrificed health and life in the performance of duty.

Through their discoveries in the science of prevention, they have

been the means of saving thousands of lives, not only for one year but for all years to come. They have won the admiration of the American people and deserve their most hearty support.

And yet, when it is proposed to co-ordinate the various public health activities of the Government in order to increase the efficiency and usefulness of this splendid body of men, the interest of our countrymen in this service seems to end with admiration. For notwithstanding our confidence and appreciation we have permitted a small but active body of people who are more concerned in treating disease than in preventing it to block the consummation of this thoroughly sensible and business-like consolidation of the various bureaus under one responsible head.

We have many educational agencies at work throughout the country which are directly or indirectly arousing public interest in health conservation, but this experience emphasizes the need for a permanent central organization to stimulate interested people to back up their judgment with action, and no organization is better fitted to render this invaluable service than this National Conservation Congress.

At the last session of this Congress Dr. Harvey Wiley told you something about the dangers of impure food, drink and drugs, and what was being done to guard the public against them. Your individual interest was excited. How long did it continue? Were any of you inspired to give actual support and assistance in the enforcement of the pure food laws or to any other official public health activity? To be interested and to agree is not enough—again, we must act, individually as well as collectively, and stimulate others to act.

States.—The same lack of practical support of the public life-saving service exists in most of the States. The appropriations for the public health work of our State departments can only be characterized as trifling. The exception is Pennsylvania, which is paving the way for a fully adequate health service, as was explained to you at the third session of this Congress in the able paper of Mr. A. B. Farquhar.

The appropriation for the Pennsylvania State Health Department is about 48 cents per capita. Arkansas makes none at all, the State of New York spends about 1.7 cents; Massachusetts, 4.2; Florida, 10; Indiana, 1.8; Kansas, 2.7; Virginia, 1.9, and so on.

Municipalities.—We have many cities with active and efficient health officers, but there is not a city in this country with an adequately equipped and financed health department. Not one of them has sufficient financial support to successfully perform its task, which must be measured by the preventable sick and death list in each community. And we must not confine this list to contagious affections. It must include an educational campaign against all preventable diseases.

The duty of the State to teach our people, through the health departments, how to avoid preventable disease of all kinds that they may live

healthful and productive lives, is just as imperative as is the duty of teaching them, through our schools, how to avoid illiteracy and how to live intelligent and useful lives.

While health appropriations have increased over former years, all of our cities place the value of property far above that of human life in applying measures to prevent waste. Here are a few examples:

In 1911, fifty of our important American cities, with an annual preventable death list of 117,724 people (which means an economic loss of at least \$200,000,000) spent through their public service to prevent life waste, an average of 30 cents per capita, and through their fire departments to prevent fire waste, \$1.63 per capita.

Here are a few examples: Providence, R. I., spent for health conservation, 11 cents; for fire prevention, \$1.99 per capita; Portland, Ore., health, 13 cents; fire, \$1.91; Minneapolis, health, 14 cents; fire, \$1.67; Louisville, health, 12 cents; fire, \$1.36.

In 1910, 184 American cities could spare but two per cent. of their total public appropriations for the public health service. The average for all expenses was \$16.54 per capita. Of this but 33 cents was for the public health. Seventy-one of these 184 cities spent less than 15 cents per capita for the public health, and among these are such cities as Quincy, Ill., 2 cents; Lansing, Mich., 5 cents; Rockford, Ill., 6 cents; Scranton, Pa., 7 cents; Bridgeport, Conn., 9 cents; Portland, Ore., 10 cents; Harrisburg, Pa., 12 cents; Jersey City, N. J., 13 cents; Springfield, Ill., 14 cents.

There are many of our largest cities that are well below the average of 33 cents per capita. Among them: Toledo, 15 cents; St. Paul, 17 cents; Minneapolis, 18 cents; Indianapolis, 20 cents; Kansas City, Mo., 20 cents; Milwaukee, 20 cents; Cincinnati, 21 cents; Chicago, 22 cents; St. Louis, Mo., 26 cents; Buffalo, 27 cents; San Francisco, 28 cents.

The natural result of this sort of economy is that the health laws we have are not properly enforced.

How can we benefit from the pure food laws, for example, while we refuse to provide the means of enforcing them?

The great city of New York has an ably administered health department, but it has only thirty inspectors to supervise over 27,000 food dispensing establishments. The request of the health officer for an inspection force of 209 men has been steadily ignored for years.

How do you suppose the meat ordinances of Philadelphia are enforced where the people allow the health department but seven inspectors to watch over 8,000 meat shops and slaughter houses?

How can the eight pure food inspectors in Kansas be expected to enforce the pure food laws in the drug and grocery stores, the meat shops, bakeries, etc., in 800 towns? These inspections must be made frequently to be of any value.

These are not exceptions, they are examples.

Could anything be more absurd from a business point of view than this record of "economy" in providing for the public life-saving service?

HOW SOME COMMUNITIES SAVE MONEY.

Some prosperous American communities hold human life so cheaply that they maintain no public health service at all. Others—and there are many of them—have a mere skeleton service. The citizens imagine that if they appoint a health board consisting of doctors, all will be well with them. The suggestion that the board be provided with money to carry on its functions would be regarded as wanton extravagance.

There are scores of cities and towns which select a doctor to head the health department and expect him to earn his living by practicing his profession among the very people over whom he is supposed to exercise police authority in enforcing sanitary and other health regulations.

There are cities of from 5,000 to 100,000 population that hire a doctor on the "part time" plan as chief health officer, and pay him a trifling salary. Whether he is a competent sanitarian or in any way skilled in the prevention of disease is a matter of little concern to them. The fact that they are saving a few dollars in his salary fills them with joy and indifference as to the consequences to the community.

I know of a thriving, wealthy young city in the South of 130,000 population with a substantial preventable death rate which saves as much as \$800 annually in this way.

I know of a prosperous New England city of 40,000 population with but three people in its health department—two of them are "part time" employes. It is a six cents per capita department *and 50 per cent. of the annual deaths in that city are of children under five years of age.*

In theory, we must all stand ready to serve the State when called upon, even at personal loss. But does it not seem the height of absurdity to expect a competent professional man to leave his practice to take charge of these under-manned and under-financed health departments at the small salaries which our States and cities offer them? If he does his duty, he is sure to make enemies during his term of service, and if he is an able man he will certainly lose money by leaving his practice.

Surely we offer our health officers every inducement to follow the line of least resistance.

A SAMPLE GROUP OF CITIES.

An investigation was recently made of forty-four Illinois cities averaging in population about 16,000; fifteen of them had over 20,000 population, and three had over 50,000.

The average salaries paid the chief health officer amounted to the magnificent sum of \$300 annually.

Twelve of these cities paid nothing for health protection—and this included three cities of 22,000 population and one of 30,000 population.

One city of 26,000 population employed a layman as a health officer.

In one of 22,000 the police matron served as "health officer" when she was not otherwise engaged.

Twenty-nine of these cities made no pretense of supervising their milk supply.

Only nine of them had isolation hospitals for contagious diseases.

Thirty-one of them kept no mortuary records whatever.

These conditions exist in a prosperous agricultural and manufacturing State—and they can doubtless be found to exist in almost any State in the Union.

AGENCIES THAT CAN HELP.

These are unpleasant facts, but they give us an idea of the way we are performing the primary function of government—the guarding of human life against avoidable destruction.

We have now briefly considered the extent of the waste of the most vital asset of the nation, and how we are conserving it, or rather how we are not conserving it.

Now let us rejoice over the fact that we not only know how to reduce this waste, but that thanks to those who have aroused the life conservation sentiment in this country, a general improvement in the public health service is taking place in many States and cities. The experiment has been successful. We now know what we can do. We have the wealth and knowledge, and the machinery is organized throughout the country to rapidly correct our appalling record of life waste. Our work is to induce our people to use it.

Every business and social organization should do its full share of this work.

The life insurance institutions of this country have a constituency of 25,000,000 policyholders. These policyholders are directly interested in the promotion of longevity, not only from the humanitarian but from the financial viewpoint; for the lower the mortality among policyholders, the greater will be the saving and the larger the dividends to policyholders, which means a reduction in the cost of their life insurance. It is estimated that about \$50,000,000 is lost annually by postponable mortality among the insured.

The Equitable Life Assurance Society, with which I have the honor to be connected, is endeavoring to do its part not only in conserving the lives of its policyholders, but in stimulating community action. The Metropolitan Life Insurance Company of New York is also rendering a valuable public service in Conservation along somewhat different lines. Two or three of the small companies, and perhaps the same number of fraternal insurance societies, have also given it attention. Let us hope that the time is near at hand when the other two hundred-odd life in-

insurance companies, and the fraternal societies as well, will also increase their usefulness to their policyholders and the public by joining in this great work.

SOME SUGGESTIONS.

This Congress will be asked to do and to advocate many things, for there are a multitude of independent activities connected directly or indirectly with this general subject. Among others I sincerely trust the following suggestions will be duly considered:

1. To encourage business institutions, civic, social and religious organizations which have influence over any considerable number of people to join in at least some of the many phases of the life conservation campaign.
2. To encourage the education of the individual to adopt healthful habits of life—to avoid the intemperate life, which means excess in eating, drinking, working, playing—and unhealthful indulgence in indolence as well.
3. To encourage communities to establish and maintain ample public health organizations consistent with the magnitude of the work in hand.
4. To advocate the organization of local health leagues as a stimulus to public interest and to give aid and support to the public health service.
5. To encourage the slowly growing sentiment for a rigid supervision (and isolation if necessary) of tubercular victims, which is the only way in which this devastating plague can be stamped out.
6. To advocate the employment of civic nurses in the health service, who may also act as health inspectors and aid in educational work.
7. To advocate the issuance and distribution by the States or municipalities of an official prevention manual to teach the public how to avoid preventable disease.
8. To urge every individual to go to his or her doctor for periodical health inspections to detect disease in time to arrest or cure it.
9. To urge employers of labor to give their employes these examinations free as a part of their efficiency and welfare program.
10. To encourage philanthropy, now so generously contributing for the care of the sick, to also enter the field of disease prevention which it has so far quite generally neglected.

Human life is our paramount asset. Its conservation should be your paramount issue.

President WHITE—The audience is certainly indebted for this great and interesting paper. It is hard to get over stubborn facts and figures, especially where figures are facts.

A great doctor once shocked the people of the country by saying that everybody should be chloroformed when they arrived at the age of sixty. From this paper it would seem we ought at least to reach the age of sixty, the age of being chloroformed, and, better still, we had better so conduct the board of health and so support liberally the board of health in our city that people may just begin to live when they get to be sixty.

I now have the pleasure of introducing Prof. Irving Fisher, of Yale University, who has given this subject many years of study and research

and will now speak to you upon the "Public Health Movement." (Applause.)

Prof. FISHER—The Conservation movement is a movement to prevent waste. When the Conservation Commission was appointed, four years ago, emphasis was placed on the wastes of our natural resources, but by the time the Commission made its report, it had come to the conclusion that by far the most serious as well as the most preventable wastes are the wastes of human life.

A generation ago it was a common impression that the average human lifetime was fixed as by a decree of fate. When I was in college one of our reverend instructors showed us a mortality table and said with great impressiveness: "There is no law more hard and fast than the law of mortality." I believed it, and even yet many people are under this delusion. Pasteur did much to introduce a more optimistic view. He stated his belief in these immortal words, "It is within the power of man to rid himself of every parasitic disease." He staked this opinion on his own wonderful laboratory revelations as to germ life. Today we can confirm his words by absolute statistics. And now his successor, Metchnikoff, has surpassed even Pasteur in optimism. Metchnikoff is devoting himself to the question of the prolongation of human life and already gives us a vision of the time when centenarians will be regarded merely as in the prime of life and when the normal span of a century and a quarter will be a frequent occurrence.

The growing consciousness that human life is not a fixed allotment, which we must accept as our doom, but a variable, which is within our power to control, has recently led to extraordinary exertions all over the world to save human life. This impulse has gained strength also from the great and almost universal decline in the birth rate. Old countries like France, and new countries like Australia, are confronted with the specter of depopulation. Consequently, as human life becomes scarce, it becomes precious—like any other commodity! These two facts, the consciousness that much mortality is preventable, or at any rate postponable and the fact that increasingly fewer babies are being born in the world, are together operating to produce a great health movement throughout the world. Nothing will stop it until the whole world is convinced of the paramount importance of this problem of human Conservation.

This world-wide movement for the conservation of human life has expressed itself in many ways—in medical research; in societies for preventing tuberculosis, infant mortality, social diseases, alcoholism, and vice; in the growth of sanatoria, dispensaries, hospitals and other institutions; in an immense output of hygienic literature, not only technical books and journals, but also popular articles in the magazines and daily news-

papers; in the constant agitation and legislation for purer foods, milk supply, meat supply and water supply; in the movement to limit the labor of women and children and to improve factory sanitation; in the establishment of social insurance in Germany, England, Denmark and other countries; in the improvement of departments of health; in the spread of gymnastics, physical training and school hygiene; in the revival of the Olympic games and the effort to revive the old Greek ideals of physical perfection and beauty, and last, and most important, in the sudden development of the science of eugenics.

In the summer of 1911 was held in Dresden a unique world's fair, devoted exclusively to health—the International Hygiene Exhibition. In this were shown the fruits of the whole movement in all lands—except, alas, our own; for to our shame it must be said that we, as yet, are among the backward nations in this movement for the conservation of human life. Our Congress was asked to appropriate \$60,000 to erect a building and supply an exhibit to show what we have done for our part in this movement, but Congress thought it could not afford so large an expenditure for so small (!) an object, and the result was that from the millions of people who visited this exhibition one constantly heard the question asked: “Where is the United States?”

And those few Americans who did go to visit the exhibition found that other nations had far outstripped us in this movement for national sanitation and health. Some of the achievements already attained by other nations should be recorded among the wonders of the world. One is the striking decline of the death rate in the city of London. Within two decades, London's death rate has virtually been cut in two and is now only thirteen per thousand, or less than that of most cities one-fiftieth its size.

Probably, however, the greatest achievement of any country is that of Sweden, where the duration of life is the longest, the mortality the least and the improvements the most general. There alone can it be said that the chances of life have been improved for all ages of life. Infancy, middle age and old age today show a lower mortality in Sweden than in times past, while in other countries, including the United States, although we can boast of some reduction in infant mortality, the mortality after middle age is growing worse and the innate vitality of the people is, in all probability, deteriorating. The reason why Sweden of all countries has succeeded in improving the vitality of middle age and old age, while other nations have failed, is, I believe, to be found in the fact that Sweden, of all nations, has seen the problem of human hygiene as a whole instead of partially. In most other lands, and particularly in the United States, public health has been regarded almost exclusively as a matter of protection against germs; but protection against germs, while effective in defending us from plague and other epidemics of acute

diseases, is almost powerless to prevent the chronic diseases of middle and late life. These maladies—Bright's disease, heart disease, nervous breakdowns—are due primarily to unhygienic personal habits. Medical inspection and instruction in schools, as well as Swedish gymnastics, have aided greatly in the muscular development of the citizens of Sweden. Swedish hard bread has preserved their teeth. The Gothenburg system is gradually weaning them from alcohol. There has even been a strong movement against the use of tobacco. Other countries are tardily following in the path which Sweden has trod so successfully.

The significant fact is that Sweden has not hesitated to attack the problems of personal habits. I believe we must have a revolution in the habits of living in the community if we are going really to realize the promise of Metchnikoff and others as to the prolongation of human life. Health officers in this country have not regarded it as a part of their duty either to live personally a clean, hygienic life, or to teach others to do so, or even to investigate what those conditions of well-being are which make for personal vitality.

I can remember, thirteen years ago, talking with a doctor in Colorado as to the habits of living of his patients. I said to him, "You tell me that tuberculosis is a house disease, and that the reason it exists is because people do not open their windows. Why, then, do you not tell your patients they must open their windows, or sleep out of doors?" He said, "I wouldn't dare to do that; I would lose my practice. They would think I was a crank and meddling in their personal affairs." Today that battle has been largely won. Today, not only in Colorado and California, and in the places where there is perpetual sunshine, sleeping out of doors is common and not confined to invalids, but indulged in by the community generally. Even in New England and throughout the country you will find sleeping balconies going up all over. The change has even affected in some degree the architecture of the country, and while as yet only a minority of the people sleep out of doors, yet I believe it is true that the majority of the people in the United States have far more air in their sleeping and living rooms today than ten years ago. The fact which the doctor in Colorado did not dare tell his patients thirteen years ago, has in some way been told to the people of the United States.

But there are many other things that need to be told, after we are sure that they are true. When we have, through our National, State or municipal officers made thorough investigation and have been able to discover the actual truth as regards eating and drinking, hours of work, recreation and play—all those facts that go into what may be called personal habits, then we may gradually overturn existing unhygienic habits of living. John Burns attributes a large part of the great reduction in London mortality to the improved personal habits of

working men, particularly in regard to alcohol. In this country, Dr. Evans, both as health officer of Chicago and later as health editor of a Chicago newspaper, has shown how public instruction in personal habits can be made effective, and it will be largely through affecting personal habits that the life insurance companies will improve the longevity of their policy holders.

Scientific men today have reached substantial agreement that alcohol is a poison. When everybody understands this, the days of alcohol as a beverage will be numbered. Sweden in the thirties was called drunken Sweden, but today the antialcohol movement there has converted Sweden into one of the soberest of countries.

But the use of tobacco, tea and coffee ought also to be investigated, so that we may know how far they are deleterious, and to spread this knowledge among the people.

Fashions are in their essence changeable and the time will come when the world will not be built on fashion but on reason. Japan has made more rapid progress in civilization than any other nation, because the late Mikado resolved and publicly stated that the institutions of Japan must not be tied by tradition but must be based on reason. When we have replaced tradition by reason, we shall have gotten a solid basis for civilization, and this must apply to ancient customs and habits of every kind. I am firmly convinced that we are looking at only one-half of this public health movement as long as we confine ourselves to the acute or infectious diseases. We shall not get more than half the results obtainable until we realize that there must be a revolution in the personal habits of the people.

Yet the United States, in spite of its shortcomings, has some special triumphs to record. We have, through hygiene under Colonel Gorgas, made it possible to dig the Panama Canal. We have virtually abolished yellow fever on our shores and in Cuba. We have nearly eliminated hook worm disease in Porto Rico and are gradually doing the same in the Southern States. We have found a cure for spinal meningitis. We have, in New York, made an object lesson in the last year of reducing the summer death rate of infants in a striking manner. We have, by individual milk stations in Boston and other cities and in individual sanatoria, dispensaries and other institutions, demonstrated that the death rate from specific diseases can often be cut in two.

Yet we have depended altogether too much on private initiative. In New York the summer death rate of infants was reduced chiefly through the work of the milk committee and individuals like Nathan Straus. The elimination of hook worm disease and the discovery of the cure of spinal meningitis came through the gifts of Mr. Rockefeller. It is well that individuals should apply themselves to these problems and without such personal interest they could never be solved. Nevertheless, progress

will be many times as rapid when the problems for the nation are managed in a national way. There are three great agencies to which we must look for the saving of human life in the future and it has been the object of the Committee of One Hundred on National Health, of which I am President, to help stir these three agencies into activity in this country. They are the public press, the insurance companies and the Government.

To a limited extent, all of these agencies have increased their health activities in recent years. A few years ago, popular articles on public health were seldom seen because the public and the press thought the subject of disease uninteresting and repulsive. Today, on the other hand, one can scarcely pick up a popular magazine without finding not only one but several articles dealing with questions of public health; and it has been found possible not only to make these articles interesting, but, by emphasizing the positive, or health side, instead of the negative, or disease side, to render them attractive and beautiful. And yet, as Dr. Wiley has said, the newspapers in spite of all the good they are doing with their right hands are, with their left hands, in their advertising columns trying to undo that good by advertising the fraudulent part of the "healing" profession who are trying to line their own pockets at the expense of the lives of the public.

The second great agency from which I believe we may expect wonderful results in the future is life insurance. As our committee pointed out to the Association of Life Insurance Presidents several years ago, life insurance companies can save money by preventing deaths just as fire insurance companies have saved money by preventing fires, and steam boiler insurance companies have saved money by preventing explosions. Since this suggestion was made, a number of progressive life insurance companies have tried the experiment. The Metropolitan and the Equitable have established departments of human conservation and a number of other and smaller companies have undertaken similar enterprises. The Postal Life Insurance Company has recently published the statistical results of their experience, worked out in a most careful manner, and have demonstrated absolutely that it pays life insurance companies to save human life. This being the case, we may expect life insurance companies in the future to become active in life conservation. Already there are probably fifteen million policy holders in the United States insured in companies which are trying to do something for their health—through medical examinations, instruction in hygiene, utilization of visiting nurses, participation in civic health movements and otherwise. To save human life merely to save money is sordid enough, but it is well to harness commercial motives, when possible, in the service of humanity.

The third, and most important, agency is the government. State and National health offices are becoming yearly stronger and more efficient; and yet much remains to be done, particularly by the National Government. We need a National Department of Health or a Department of Labor which shall include in its operations the conservation of human life. We have already passed the phosphorus match bill to prevent one of the worst industrial diseases—phossy jaw. We have passed effective legislation in regard to interstate commerce in prostitution. We have established a Children's Bureau and a Bureau of Mines to prevent industrial accidents in mining. We have enacted suitable legislation in regard to cocaine and habit-forming drugs. We have a Pure Food Law and laws for the inspection of meats. Yet, as Dr. Wiley, Mrs. Crane and others who have watched the operation of these laws at close range well know, they need to be executed with a stronger hand.

The truth is that as yet we have only made a feeble beginning in public health work, especially in this country. We need first of all to do what Sweden has done for a hundred and fifty years—namely, to keep proper vital statistics. Vital statistics are the book-keeping of health, and we cannot economize health any more successfully than we can economize money unless we keep books. At present only a little over half of the population of the United States has statistics of its deaths, while the statistics of the births are as yet nowhere sufficiently accurate to be called real statistics.

Our National Statistician, Dr. Wilbur, illustrates by a story how much better we keep our commercial books than our books of vital statistics. In a Western State a girl was entitled to a fortune when she became twenty-one. Reaching, as she supposed, her twenty-first birthday, she laid claim to the fortune. Much to her surprise, her father said, "But you are only nineteen;" and then the two tried to look up the records. They had no family Bible, they had no public record office to go to, and they were at sea as to how to discover exactly the date when she was born. However it suddenly occurred to her father, who was a farmer, that the very day his daughter was born a calf was born on his farm and the birth of the calf had been recorded. In that way he established the date of the birth of his daughter.

In view of the great lack of our vital statistics, therefore, we cannot measure even the death rate, much less the number of preventable deaths in the United States. All that we can do is to study carefully the registration area and on this basis to work out certain minimum figures.

Four years ago, as a member of President Roosevelt's Conservation Commission, I endeavored to do this and to report on the condition of our "National Vitality." I found, after getting together all the statistics available and taking account of the degree of preventability of

different diseases as estimated by experts that, out of some 1,500,000 deaths annually in the United States, at least 630,000 are preventable. Of these preventable deaths, the greater number are from seven causes. These seven causes include three great diseases of infancy, then typhoid fever, which usually makes its attack in the twenties, then tuberculosis, accidents in industry, and pneumonia which come in the thirties.

Now 630,000 unnecessary deaths per year mean over 1,700 unnecessary deaths per day or more than the lives lost on the Titanic disaster. The nation cannot continue indifferent to hygiene as it gradually dawns on the public that for lack of hygiene we suffer a Titanic disaster every day of the year. The popular imagination was deeply stirred by the image of 1,600 helpless human beings suddenly engulfed in mid-ocean. That was a vivid dramatic picture which the blindest of men could see and understand. It led to immediate official action on both sides of the Atlantic to safeguard human life at sea. Yet on land we lose three hundred and sixty-five times as many lives as this every year and never stop to add it up. They are scattered and diffused throughout the land—a Wilbur Wright lost from typhoid, a handful of miners in an explosion, some railway employes in an accident, some victims of lead poisoning, a little army of infants, here a few and there a few. Yet these deaths are just as real and mean an infinitely more serious loss than were the deaths from the Titanic disaster. Moreover, they could be as easily prevented.

And concomitant with this unnecessarily great death rate, there is, of course, a colossal aggregate of needless sickness. We have no real statistics, but by analogy with English statistics we may assume that, on the average, for every death per annum there are two persons sick during the year. This makes about three million people constantly lying on sick beds in the United States, of which, on the most conservative estimate, at least half do not need to have been there.

If, now, on the basis of these figures, we try to compute how much human life is needlessly shortened in the United States, we find that it is shortened at least fifteen years. Again, if we translate these preventable losses into commercial terms, we find that, even by the most conservative reckoning, this country is losing over \$1,500,000,000 worth of wealth producing power every year.

What does this mean? To us individually, it means that we are losing a large part of our rightful life not only by death itself which cuts off many years we might have lived, but also from diseases and disabilities which are not fatal but cripple the power to work and mar the joy of living. I believe I am far within the facts when I venture the opinion that the average man or woman in the United States is not doing half of the work nor having half of the joy of work of which the human being is capable.

With all this room for improvement before our eyes, it is not surprising that the zeal of the health movement is growing fast. Each success serves as justification for further effort.

One of the most encouraging symptoms of progress is the great attention which is being paid to public health in the present political campaign. All three of the party platforms included planks in behalf of public health. The Democratic and Progressive platforms were particularly explicit and emphatic and all the candidates have emphasized health in speeches and in their record in public life. The Democratic campaign managers are carrying out plans to make progressive health legislation prominent in the campaign.

These and other indications augur well for better legislation, more energetic enforcement of the law and, above all, a more appreciative public sentiment as to the transcendent importance of the conservation of human life. It is now reported that the Hon. Dr. Roche, Secretary of State in Canada, is in strong sympathy with the proposal there for the establishment of a Federal Department of Health and the Republic of China is reported to have already established such a department.

From all these indications of actual activity as well as from the logic of the situation we are justified in predicting that an age of human conservation is at hand. Men and women are waking to their responsibility to the race. Eugenics will be a watchword of the future. To squander our natural resources is ignoble indeed, but far worse is it to squander our vital resources. The most sacred obligation of each generation is to bequeath its life capital unimpaired to the generation which comes after. Scourges like typhoid and tuberculosis must be swept off the face of the earth. Habit-forming drugs, including alcohol (and even tobacco, especially for young boys) must be recognized in their true light as means of depleting the vitality of nations. Prostitution and the white slave traffic must be condemned anew as robbers of the race. Industries which kill and maim, poison or infect their workers, which deform and stunt little children, which incapacitate women for normal motherhood, which through overlong hours of toil close each successive day's work with progressive exhaustion, must be controlled. Machinery was made for man, not man for machinery. Immigration which drains European public institutions of their criminal, insane, feeble-minded and other defectives and delinquents and sets these creatures loose in America to breed with and contaminate our population, must be regulated. Marriage laws and customs must be adjusted so as to discourage or forbid the procreation by the unfit. All these and other hygienic and eugenic reforms will be realized as fast as public sentiment becomes educated to the solemn responsibilities and higher valuations of human life.

The noblest task, therefore, which I can conceive for any man is to aid in erecting true ideals of perfect manhood and womanhood. Our ideals, though improving, are not yet worthy to be compared with those of Japan or Sweden and the ideals even of these countries have not yet reached the level of those of ancient Greece still imaged for us in imperishable marble. With superior knowledge our health ideals should excel those of any other age. These ideals should not stop with the mere negation of disease, degeneracy, delinquency and dependency. They should be positive and progressive. They should include muscular development, a sound mind in a sound body, integrity of moral fiber, a sense of the splendor of the perfect human body as a temple of the human soul, a sense of the enjoyment of all life's proper functions. As William James said, simply to breath or move our muscles should be a delight. The thoroughly healthy person is full of joy and optimism. He rejoiceth like a strong man to run a race. Said Emerson, "Give me health and a day and I will make the pomp of emperors ridiculous." Our health ideals should be nothing short of an abiding sense of the sweetness and beauty, the nobility and holiness, of human life.

President WHITE—We have had wonderful addresses this morning from the distinguished speakers upon this question of conservation of human life.

I wish now to announce the Committee on Credentials: Mr. E. T. Allen of Portland, Ore., Mr. Volney T. Foster of Chicago, and Col. W. A. Fleming Jones of Las Cruces, N. M.

I wish also to announce the Chairman of the Committee on Resolutions: Mr. Walter H. Page of New York. The different State organizations will report to him a member for that committee from each particular State. It will be well to report to Mr. Page either tonight or early in the morning.

We all need to be put under authority. We find people are not taking good care of their health, of themselves or of the community. We will now hear from Dr. L. E. Cofer of Washington, D. C., Assistant Surgeon-General of the United States Public Health Service, who will address the Congress on the subject of "Authority In Health Control."

Dr. COFER—Mr. President, Ladies and Gentlemen: I do not think any invitation has ever been received with more satisfaction than the one for a representative of our service to appear before you. It was received with the greatest gratification.

The Public Health Service is absorbed in the work of health conservation and Surgeon-General Blue evinced the greatest interest in your invitation for him to send a representative to explain the scope of the work being performed and discuss the question of authority in connection therewith.

This topic is now receiving the consideration of many authorities on public health matters, and on this account one may approach the subject in a hopeful attitude. I say "hopeful" because public health as an institution is rapidly growing, and its practical value is becoming more and more manifest, and sanitary science is not now nearly so far in advance of its practical application as it was even a few years ago. The possibilities of sanitation in the general advancement are being made a part of all high ideals of government, so that it is not to be wondered at that the general government should be called upon to do its share. The difficulty lies in determining just what the government should do in aid of public health and just what should be left to the States and municipalities.

History furnishes no precedents for this Nation to follow. It is almost useless to seek a model for our guidance in some foreign country. A nation with our conditions of boundary and magnitude, with millions of immigrants coming to our shores from all parts of the earth, has its own salvation to work out in the public health as well as in many other problems. In other words, we must rely upon ourselves, whether we proceed in haste or by feeling our way step by step. There is a marked divergence of sentiment growing in regard to national health control. One is that the government should do far more than it is now doing towards the protection of the public health, another that too much is expected of the National Government, and that there is a tendency on the part of State governments to call upon the Federal Government for service which should be performed by the States themselves, but which service is asked for largely in the interest of economy. These widely differing ideas in regard to the apportionment of public health responsibility lead us to a consideration of the provisions of the Constitution of the United States relative to this matter. These provisions are contained in Section VIII, paragraphs 1 and 3:

Section VIII. The Congress shall have power—

Par. 1. To lay and collect taxes, duties, imposts and excises, to pay the debts and provide for the common defense and general welfare of the United States; but all duties, imposts and excises shall be uniform throughout the United States.

Par. 3. To regulate commerce with foreign nations and among the several States, and with the Indian tribes.

It has been held by some that the powers of the National Government, relating to public health, are restricted to paragraph 3, which gives the right to Congress to regulate commerce, and, in regulating commerce, to so regulate it as to prevent its being a carrier of disease. Others have held that under the general welfare clause, in paragraph 1, Congress has the right to legislate for the public health.

Should the latter interpretation be the correct one, Congress could establish the national health control over States and municipalities with regard to municipal and domestic sanitation, with all details as to house drainage, plumbing, sewerage, and disposal of garbage, water supply, ventilation, school houses and public buildings ventilation, examination of milk supply, food and drugs, disposal of the dead, disinfection of dwellings, etc. Would it be desirable for the National Government to have such authority? Would it be tolerated by the people? It is a fact that the American people have already decided this question when the old National Board of Health was abolished.

The National Board of Health was created by an act of Congress, approved March 3, 1879. Another act was approved June 2, 1879, clothing the board with certain quarantine powers, but this last act was limited to a period of four years, at the expiration of which time Congress declined to renew it. The National Board of Health, therefore, had an active existence from 1879 to 1883. The act establishing the board remained upon the statute books until February 15, 1893, when it was formally repealed by Congress.

To state the case concisely, the National Board of Health was not in accord with the spirit of American government, and the people rejected it. Now, what do the American people want? I will not attempt to answer this question, but will suggest that they want a general sanitary administration which is capable of steady development, and yet may be subject to such modifications as the changing conditions of our country may necessitate, a sanitary policy which can be made to expand until it will answer the public needs not only for the present but even for decades to come.

Its direct aim should be the ultimate intelligence and education of the average citizen in matters relating to his personal health, and the health of his commonwealth. No better plan for sanitary government appears at the present time than one modeled upon the structure of the general government itself. Broadly stated, this sanitary policy expects of each State a sanitary autonomy whose influence should be appreciated by every individual in every hamlet, however small, in its domain. It contemplates a State pride in the development of sanitation, a self-reliance and an unwillingness to surrender functions or call for aid from the general government excepting after the clearest convictions of propriety or necessity. This policy expects from the general government that since it controls commerce, both maritime and interstate, it will prevent commerce from conveying disease; that it will respect the sanitary institutions of the States; that it will have such organizations and establishments as properly belong to its sphere of action to supplement where States fail, and to enable it to wield its peculiar power when urgency demands.

As an apt illustration of this conception of authority in health control, let us consider the present activities of our Federal Public Health Service. These are as follows:

1. The prevention of the introduction of infectious and contagious diseases.
2. The sanitary regulation of foreign commerce.
3. The observance of international sanitary treaties.
4. The prevention of the spread of infectious and contagious diseases from one State to another through co-operation with State and municipal health authorities.
5. The collection and dissemination of sanitary information.
6. The conduct of scientific research in matters pertaining to the public health.
7. The enforcement of sanitation in Federal territory and in connection with Federal administrative affairs.

THE PREVENTION OF THE INTRODUCTION OF INFECTIOUS AND CONTAGIOUS DISEASES.

The chief national quarantine law is that approved February 15, 1893, amended and extended by acts of Congress approved August 12, 1894, March 2, 1901, and June 19, 1906.

Under these acts the maritime quarantine administration has become national, many state stations having been voluntarily surrendered to the Government, others supplanted by the General Government, because of failure to comply with government regulations, and others superseded by direct authority of law.

The diseases excluded from the country by the national quarantine establishment are cholera, yellow fever, smallpox, typhus fever, leprosy and plague.

Some quarantine stations are inspection stations only, but many are large institutions, comprised of hospitals, quarters, barracks for detention of crews and passengers, wharves and disinfecting machinery, and boarding vessels, all requiring good administrative ability on the part of the commanding officer, who must also be expert in the detection of disease.

When a ship from a foreign port arrives off a port of the United States, it is met by a quarantine officer for inspection under the national regulations. Fifty medical officers of the service are engaged in this work at forty-seven separate stations, extending along the Pacific, the Gulf and Atlantic coasts from Alaska to Portland, Me. Without the quarantine certificates given by these officers and the bill of health obtained at the foreign port, the ship would not be allowed entry by the collector of customs and without his permit it would be unlawful for the ship to unload its cargo.

At a few ports, not more than three or four in number, this inspection is made by a State quarantine officer, a relic of the system which

prevailed prior to 1893, when quarantine was considered a State rather than a National function. They are obliged, however, to enforce the National regulations, and are subject to inspection by the Federal officers, and if they fail or refuse to comply with the United States regulations the President is authorized to detail an officer of the Government for that purpose.

In addition to the diseases remanded by quarantine, others are excluded under laws relating to immigration, and for this purpose at the principal ports of entry there are also stationed seventy medical officers, who, during the past year, for example, examined more than 1,280,000 immigrants, certifying more than 30,000 of them on account of physical and mental defects. The immigration laws exclude persons afflicted with any loathsome or any dangerous contagious disease, or having mental or physical defects which may affect their ability to earn a living.

Humanity requires the treatment in hospital of immigrants arriving sick with ordinary as well as prohibitive diseases, and the large hospitals connected with the stations are under the professional conduct of service officers.

Although the immigration stations are under the control of commissioners attached to the Department of Commerce and Labor, nevertheless the medical officers are subject in their professional work to supervision by the Public Health Service, and their instructions as to the medical inspection of aliens are prepared by the Surgeon-General and approved by the Secretary of the Treasury.

THE SANITATION OF FOREIGN COMMERCE.

At certain foreign ports and at certain times, depending upon the presence of the various quarantinable diseases, either in the foreign ports of departure or in the country contiguous thereto, officers of the Public Health Service are detailed by the President to serve in the offices of the American consuls, to assist them in enforcing the quarantine regulations for foreign ports. These officers keep themselves informed of the prevalence of contagious disease in these cities and the surrounding country. They sign a bill of health which certifies that all the regulations required to be enforced at foreign ports on vessels leaving for the United States have been complied with.

This involves a knowledge of the point of origin of the freight and passengers, disinfection of material from an infected locality, the personal inspection of passengers, particularly steerage passengers, and their detention if necessary. The power of enforcement of these regulations lies in the above mentioned act of Congress approved February 15, 1893, which imposes a penalty of \$5,000 upon any vessel from a foreign port seeking to enter a port of the United States without this con-

sular bill of health. The consul can legally refuse a bill of health if the regulations are not complied with.

In this connection it may be said that officers of the Public Health Service are stationed constantly at such ports as Hongkong, Shanghai and Amboy, in China; Yokohama and Kobe in Japan; Salina Cruz, Manzanillo and Puerto Mexico in Mexico; Guayaquil, Ecuador; La Guaira, Venezuela, and Havana, Cuba. During the summer of 1911, on account of cholera conditions prevailing in Italy, Russia and France, there were officers of this service detailed in the offices of the American consul at Naples, Genoa, Palermo, Messina and Catania, in Italy, at Libau in Russia, and at Marseilles, France. In addition to this, officers were ordered to several other foreign ports of departure, there to confer with the American consular officers as to the enforcement of the regulations for foreign ports, and for the purpose of insuring uniformity of procedure.

The State Department has done much to assist in the quarantine and sanitary work in foreign ports, through the interest it has aroused in the said work on the part of its consular corps.

THE OBSERVANCE OF INTERNATIONAL SANITARY TREATIES.

These treaties or conventions establishing them have been ratified by the Senate of the United States, as well as by the other governments.

The International Sanitary Bureau of American Republics at Washington was founded by the International Conference of American States held in the City of Mexico in 1901. That conference also called for international sanitary conventions, which are now held every two years. Two have been held in Washington. The object of the conventions is to freely discuss all matters relating to the public health and particularly those which affect the American Republics, and the purpose of the International Sanitary Bureau is to encourage the execution of the resolutions or agreements decided upon by the conventions. The convention held in Washington in 1905 drew up a treaty with regard to the quarantine treatment of cholera, plague and yellow fever, which was signed ad referendum by the official delegates, and has been confirmed by practically all of the American Republics. At the meeting in Mexico in December, 1907, action was taken which has brought the International Sanitary Bureau at Washington into relations with the International Office of Public Hygiene at Paris.

The International Office of Public Hygiene at Paris was formally inaugurated December 9, 1907. It is the outgrowth of international sanitary conferences at Rome, Venice and Paris, with regard to the bubonic plague. The following governments are represented: Algeria. Argentina. Australia. Belgium. Bolivia. Brazil. British India. Bulgaria. Egypt. Canada. France. Great Britain. Holland. Italy. Mexico. Peru,

Persia, Portugal, Roumania, Russia, Servia, Sweden, Spain, Switzerland, Tunis, Turkey and the United States.

Each of these governments has agreed to pay its pro rata of the expenses necessary to maintain the international office. The principal object of the office is to collect and bring to the knowledge of the participating States facts and documents of a general character relating to public health, especially as concerns infectious diseases—notably cholera, plague and yellow fever—as well as the measures taken to combat these diseases.

PREVENTION OF THE SPREAD OF INFECTIOUS AND CONTAGIOUS DISEASES.

These operations are conducted under two laws. One is the national quarantine act of 1893, already referred to, which contains practically the same provisions for interstate as for maritime quarantine. The other is the annual law passed by Congress appropriating an "epidemic fund" which contains a provision that it may be used in aid of State and local boards of health in the enforcement of their quarantine regulations, as well as those of the national service—to be used, however, only against certain specified epidemic diseases, viz., cholera, yellow fever, smallpox, typhus fever and bubonic plague.

Now, with these two laws in hand, and when the appearance of any of the above-named diseases in any State so require, the officers of the Public Health Service are at once upon the scene with the double object of seeing that the Treasury Interstate Quarantine Regulations are enforced by the State or local authorities and to offer aid, as authorized by law.

When aid is extended, the Government's funds must be expended by its own officers, and the latter are therefore placed in charge and have the coöperation and assistance of the State or local authorities. They have, therefore, the support of the State and local laws and regulations, as well as those of the Federal Government. This is fortunate, since experience has shown the importance, in a Republic like ours, of local sympathy and support.

THE COLLECTION AND DISSEMINATION OF SANITARY INFORMATION.

The Public Health Bureau, through its Division of Sanitary Reports and Statistics, compiles and publishes each week a pamphlet called the Public Health Reports. It contains a statistical report from all cities in the United States of more than 10,000 inhabitants, and some others, giving the morbidity and mortality in each city with regard to twelve diseases and the total mortality from all diseases. It contains also a statement of the weekly mortality in some 120 foreign cities from thirteen communicable diseases. It gives special information concerning quarantinable diseases and sanitary measures in the United States and

foreign countries. The foreign information is received through the United States consuls and service officers abroad.

Collective investigations are being made of the prevalence of pellagra, infantile paralysis and leprosy.

A compilation has been prepared of state laws bearing upon reporting diseases, with a view to increasing the collection of morbidity statistics and bringing about improved methods and greater uniformity in their collection.

CONDUCT OF SCIENTIFIC RESEARCH.

In the District of Columbia, in a commodious building, the Public Health Service has its hygienic laboratory, a research laboratory exclusively for public health investigations. It is conducted in four divisions, viz., bacteriology and pathology, chemistry, zoölogy and pharmacology. This organization brings under the same roof, and in intimate association, scientific workers in each of these several branches, interesting facts developed in one line of investigation being made freely known to the investigators in other lines of research.

Officers are detailed to receive instruction in this laboratory, thus enhancing the scientific attainments of the corps and giving opportunity for selection of those best qualified for permanent detail in research work. In this manner specialists have been and are being developed on various subjects, such as typhoid fever, pellagra, hookworm disease, infantile paralysis, scientific disinfection, etc.

Public Health Service officers may be found in the States investigating other diseases than those named in the epidemic law, viz., typhoid fever, infantile paralysis, cerebro-spinal meningitis, hookworm disease, malaria, pellagra, dengue fever, milk sickness, etc. These investigations are usually made at the request of State health authorities. The bureau at Washington, on receiving a request from a city or locality for expert aid, invariably refers the request to the State Board of Health before compliance.

The laws permitting these investigations are, first, the interstate section of the quarantine law of 1893; and second, the act of Congress approved March 3, 1901, providing a building for the hygienic laboratory for investigations of contagious and infectious diseases and matters relating to the public health. As the investigations require laboratory examinations, they come within this last-named law and the appropriation which supports it.

In various States of the Union, there are thirteen establishments engaged in the production of vaccines, antitoxins and serums, which play so important a part in modern therapy. The variation in the potency and the occasional impurity of these products caused Congress

to pass an act July 1, 1902, requiring a license for their manufacture for sale in interstate traffic.

ENFORCEMENT OF SANITATION IN FEDERAL TERRITORY.

In the Philippine Islands, where the government is by commission and a legislature, much work of value to the public health is performed in the bureau of science under the insular government. There are, however, in the several ports of the Philippines medical officers of the Public Health Service under appointment from the Treasury Department in Washington, engaged in the transactions of both incoming and outgoing quarantine. Two of these officers, in addition to their supervision of the national quarantine, are also director and assistant director, respectively, of the public health of all the Philippines.

In Hawaii you will also find medical officers conducting the national quarantine. They are also assisting the territorial health board in preventing the recurrence of plague by the extermination of rats and continuous bacteriological examination of those captured. One of these officers is the official sanitary adviser of the Governor of Hawaii, and is carrying on a campaign for the eradication of disease-bearing mosquitoes.

Here also may be observed the leprosy investigation station, also controlled by our officers, both on the island of Molokai, where hospital and other accommodations have been erected under the law of March 3, 1905, appropriating \$100,000 for this purpose, and at the receiving station at Honolulu, where cases are seen in the earlier stages.

In Porto Rico public health officers are enforcing the United States quarantine regulations under the acts of Congress relating to Porto Rico and national quarantine. The campaign which has practically eradicated plague from San Juan is being conducted by the Federal Public Health Bureau.

In the Canal Zone you will find two commissioned officers enforcing quarantine regulations at Ancon on the Pacific and Colon on the Atlantic. These officers are loaned to the Isthmian Canal Commission. This is an important adjunct to the work of the canal, because it would be useless to clean the zone if fresh importations of disease were permitted.

I will now devote a few words to the Health Bureau organization in Washington by means of which all the functions or activities above described are administered under one head.

THE ORGANIZATION OF THE BUREAU OF PUBLIC HEALTH SERVICE.

The law which changed the name of the Marine Hospital Service and made it a Public Health Service was approved July 1, 1902. This law

fixed the status of the officers, enlarged the hygienic laboratory and gave it an advisory board, provided for the conferences with the State and Territorial Boards of Health, provided for compilation and publication of statistics, and directed that the President should prescribe rules for the conduct of the service and the uniforms of its officers and employes.

It also provided for a Public Health and Marine Hospital Bureau at Washington.

By an act of the Congress approved August 14, 1912, the name of the Public Health and Marine Hospital Service was changed to Public Health Service. The public health functions and duties of the service were extended and certain changes were made in the salaries of the officers.

The Public Health Service is under the supervision of the Secretary of the Treasury, and is in charge of the Surgeon-General, who has six Assistant Surgeons-General in charge of the Bureau Divisions. These divisions are as follows:

1. Foreign and Insular Quarantine and Immigration.
2. Domestic (Interstate) Quarantine.
3. Personnel and Accounts.
4. Marine Hospitals and Relief.
5. Scientific Research and Sanitation.
6. Sanitary Reports and Statistics.

The above lengthy description of our present public health activities has been necessary not only in order to demonstrate their character and scope, but also as an illustration of the variety of legal authority existing for the enactment on the part of the general Government of public health work.

This paper will not admit of the incorporation into it of the national laws relating to public health which are now operative, but a careful inspection of these laws will demonstrate that they will admit of such interpretation as would make possible an almost unlimited amplification of our present public health activities, the limit being only one of appropriations and officers.

Careful analysis of the present health laws and activities will also show that the Government is seeking to control nothing which any other public health organization would wish to control. The foundation of the national public health service is in the quarantine law of February 15, 1893, referred to above. The quarantine service is today almost entirely national, notwithstanding a local sentiment for State or municipal control, which exists in two or three cities only, and which it is believed is destined to a short tenure for the following reasons:

It must be admitted that maritime quarantine should be a national affair. It is a concomitant to commerce, over which under the Constitu-

tion the national government has absolute control, and it naturally belongs to that department of the government regulating commerce in other respects. In other words, it seems especially appropriate that quarantine should be one of the functions of the Treasury Department which registers, licenses and enrolls all merchant vessels of the United States, inspects the hulls, boilers and machinery of such vessels, determines the number of passengers which said vessels may carry and provides for the housing and rations of the crews.

Besides this, it carefully examines all pilots upon American vessels and determines upon granting them licenses. It enforces the navigation laws and aids vessels in distress by an efficient revenue cutter service. It also provides for the care of the sick of our merchant marine. Then why should it relegate to a State authority, or health officer of some small port, the one remaining act of surveillance over vessels, namely, the determination as to whether they may be admitted to entry from a sanitary standpoint? Why should it be left to a local appointee, responsible only to a mayor or governor, the power to determine whether all the people and the merchandise on vessels destined for all ports of the United States, shall be permitted to enter without detention; and why should it give this local officer power to detain such vessels; and further than that, why should such local officers desire that power?

In the same way, the other activities of the Public Health Service conflict in no way with the functions and prerogatives of the State and local boards of health. Therefore, the term "national health control" is a misnomer. The term "national health co-operation" would be much more descriptive of the conditions actually existing. The interstate health activities above described must of necessity be governmental functions. The duties and responsibilities connected with them could not be discharged by States with any degree of uniformity. Therefore, interstate commerce laws are considered as appropriate national enactments, and their operation encroaches upon no State or municipal rights.

It may be said with a feeling of conviction that the health control in the United States today is just exactly in accordance with the desires of the people. The people know that their State and municipal boards are being aided by the health activities of the national government rather than being encroached upon. In addition to this the Federal Public Health Service and the State and municipal boards are acting in harmony to the following ends: They are controlling commerce, in order that commerce may not be clogged, and where necessary they are laying the net of healthful restraint for purposes of good.

The government is receiving the good-will and co-operation of the State and local health authorities in its work of catching and throwing back the diseased persons who seek entrance to our shores in the great waves of immigration. They stand together to check the merchant or

the manufacturer when he is ready or willing to risk the lives of the people by furnishing improper or impure food or drug products. They stand together to frustrate the lawyer who seeks by illegal technicality in the behalf of an individual, or steamship company perhaps, to force a way around a sanitary barrier erected for the protection of the people at large. Again, the municipal, State and government health authorities are standing together to stimulate the knowledge of our legislators in public health needs and are combining their knowledge to insure reasonable appropriations for the carrying out of general public health projects.

The mission of the three classes of sanitarians above mentioned may go still further. It may go to the extent of prodding the conscience of the tardy doctor, and even to the sweeping aside of the sentimental obstructions which the unenlightened are able to put in the path of the conservation of life. There is ample law for present and probably for future needs, and the control of national health remains, after all, today where it has remained in the past, and where it always will remain, that is, with the American people, not solely with the government, nor with the State or municipal health agencies. Each of the great nations of the world has gone about the direction of its public health work in its own way, and always with the realization that the ideal is not necessarily the practical, and what is best today may be supplanted by better tomorrow.

To summarize the situation, we have today State boards of health in control of State sanitation, operating under proper and ample State law. We have municipal health organizations operating under their own legal authority, and finally we have the United States Public Health Service, operating under several laws, as stated before, more far-reaching in their scope than is indicated by the activities pursued under their authority. The people, apparently, are satisfied so far as the Public Health Service is concerned. When the people want anything more they will demand it, and if available appropriations will not admit of compliance with such requests they will be forthcoming. Therefore, I am at a loss to suggest what additional health legislation is necessary or desirable to be engrafted upon that already existing in this country, and I am unable to see the necessity for any different plan of organization so long as the people, in whose behalf the organization is being maintained, are satisfied.

In closing, I wish to say that I have endeavored simply to place various facts before this Congress, and while I do not pretend to have exhausted this branch of the subject, I fear that I can not say the same with regard to your patience. -

President White here requested Dr. Henry Wallace, of Des Moines, Iowa, to take the Chair.

Chairman WALLACE—We are now ready to hear the report of the Committee on Lands and Agriculture. The first speaker will be Dr. George E. Condra, of Lincoln, Neb., whose subject is "Land Frauds, or Get-Rich-Quick Schemes."

Dr. CONDRÁ—Mr. President and Delegates: Some of you may recall the fact that the speaker has briefly outlined this subject at each of the preceding Congresses, under the head, "Conservation of Business." The discussion offered at this time is based on reliable information secured from many States. It is largely the result of field work. The data are presented according to the viewpoint of Conservation and should be so considered.

Do you fully realize that the principles of Conservation are permeating every department of human industry, improving the processes, increasing efficiency, and promoting common honesty, that the idea of equity is increasing in force? That it is being extended to business not for the purpose of holding it in check, but primarily for protection against fraud? This movement for square dealing certainly is in order for business is sore with graft and tracked by fraud at every turn. Plain it is that many transactions in the realm of commerce fall outside the sphere of true business. They grade from those that are doubtful on through to those that are plainly fraudulent and therefore criminal. The term "business," however, has a splendid meaning which should be conserved. It symbolizes honesty, stability, honor and reliability. Sharp practice, double dealing and doubtful promotion are but parasites and should be so regarded. They have no legitimate place in business and are being eliminated.

Several persons have spoken in this Congress on pure food, eugenics, etc. Their messages will tend to make people healthier and better fit to be fathers and mothers. All this is good. Dr. Wiley and others have emphasized the importance of pure food and health laws, but how many go back of this matter of health and food to the land, or source of our food and raiment and show the great need for pure land laws? (Applause.) The State trains its sanitary engineers, lawyers and physicians for their life work. It examines the lawyers and doctors before permitting them to practice, but how about land agents? They are good and bad. Many of them have no special qualifications for their work and should not be permitted to do about as they please without restriction, promoting this and that deal which may or may not have merit. Grant me your closest attention and I will point out certain classes of fraud that operate in connection with the development of mineral lands, irrigation, fruit lands, eucalyptus culture, drainage, dry land farming and the small tract propositions.

Promotion of Mineral Land.—The amount of money sent from the country and town and city to doubtful mine promoters is enormous. The return for this outlay is small, in some places less than one cent for each dollar. Yet the public does not fully realize that nearly all reasonably sure propositions are not available for wanton promotion, that a mere prospect is not a mine, and that fraudulent promoters are hurting the mining business.*

Oil and Gas Promotion.—The excitement caused by a developing oil field is intense. Agriculture gives way to a spirit of speculation and over valuation and everything looks good to an investing public. Fabulous returns appear to be in sight for all who invest in time. This gives opportunity for professional promoters to do their work, sometimes on a large scale. They claim a sure thing even when wildecating. So they send unwarranted prospectuses broadcast and the money harvest is on. It is difficult to place the criminality of such procedure. We only know that it works out badly as a rule. You should know that it is bad business to accept the unqualified statements of most oil and gas promotion concerns as a basis for investment. These persons and concerns interfere with legitimate development and should be brought under control.

Irrigation Schemes.—The Federal Government spends vast sums in developing the irrigation resources of several dry land States. Such reclamation is of economic importance. Furthermore, many reliable individuals and private companies do as well and even better in developing some projects. As a result of successful irrigation thousands of happy homes are made where once was only dry land. Notwithstanding this fact there are fraudulent irrigation promoters. Scheming individuals sell illegitimate propositions which can not succeed because of lack of water, unsuitable land or heavy graft. Such promotion has gone on to such an extent as to call for severe criticism by many practical irrigationists of the West, and the Reclamation Department of the Federal Government is increasing its diligence in checkmating the work of persons who attempt to promote bad projects.

Fruit Land Promotion.—Have you visited the great fruit districts of Oregon, Washington and other Northwestern States? Do you know what care is there given to the cultivation and marketing of apples especially? The fruit is so perfect in form and color. It is accurately graded for the Eastern and foreign markets. These splendid successes are widely known and are taken advantage of by scheming persons who promote the sale of any and all kinds of land in and near fruit districts. One of the leading fruit men of Washington says that thousands and thousands of dollars are going into the hands of concerns that are sure to fail and that the fruit business is being hurt by such operations. The trouble of it is that the average investor does not know that the fruit

* These statements are based on many specific examples of fraudulent promotion.

business is highly specialized, and that many matters concerning soil, exposure, climate, markets, etc., not known to him, are the features that determine success and failure. Furthermore, the fraudulent promoter does not know, neither does he care.

Doubtful promotion of this kind is not confined to the Northwest alone. It has hurt the South and may do damage to New York and other States in which are lands well suited for fruit raising, if the proper authorities do not conserve the larger interests of the industry and State against promoters.

Eucalyptus Promotion.—For many years the forests of the United States have been in process of depletion. Some have seen in this, and with good reason, an approaching timber famine. The alarm has been sounded, and the demand has gone forth for better methods in timber utilization, for fire protection, and tree planting. This is the right thing without doubt, but it affords a loop-hole for promoters. It is understood, also, that some trees grow faster and are more all-purpose than others. The eucalyptus are of this kind. They are of many kinds. Such trees can not be grown on any and every type of soil and are limited somewhat by climate. It so happens that California, because of its soil and climate, is the leading State in culture of eucalyptus. It has several successful groves and larger plantings, yet the situation is promoted for all it is worth, and perhaps more. The public (in the Central and Western States) is worked by carefully-planned selling schemes. The fact is that there is too much graft in some of them. The process has gone on to such an extent as to cause the friends of eucalyptus planting to sound a warning against such procedure. This should cause investors to make a more careful inquiry of reliable persons, not controlled by the promoters, before parting with money. The trees must have suitable soil, climate, and care.

Drainage Schemes.—One of the largest lines of development in the United States is in the field of drainage, whereby swamp and flood lands are improved. The amount of land that either has or can be reclaimed by drainage is said to be about 75,000,000 acres. The Federal Government, various States, companies, and individuals, are doing this work. Much of such development is well founded, yet there are bad deals, which might be called deliberate steals in some cases. Examples of these exist in a few States and much money has been squandered on projects that can never succeed. Teachers, ministers, farmers, merchants and others are victimized. In the language of one of Florida's representatives at the National Irrigation Congress of this year, "Persons selling certain wet lands of Florida are practicing fraud and should be prosecuted as criminals. They are hurting the good name of Florida and swindling people in the North." This person severely criticized certain cities of the North as being promotion centers. Further comment is not necessary.

Dry Land Deals.—Much dry land promotion is fraudulent, caused in part by misinformation on the part of agents, but due to some extent to deliberate misrepresentation. For instance, there are places in Texas, Oklahoma, Kansas, Colorado, western Nebraska, Wyoming, and other States subject to such promotion. The fact is that a part of the land in the dry area of each State named is well suited for dry farming, but that unscrupulous agents sell anything and everything to unsuspecting persons as being good, awaiting the plow and successful development. So it is that geographic position has been overworked. The following points are sometimes overdrawn in securing sales:

- a. The idea that nearly all agricultural land is under cultivation.
- b. The notion that dry farming methods are successful on almost any kind of dry land.
- c. That the climate, referring to the rainfall especially, is becoming more favorable for agriculture in dry regions as the years go by. This notion, used in deceiving thousands of people, is greatly in error.
- d. Advantage is taken of such fluctuations in rainfall as occur from year to year and at more or less regular periods, ten to twelve years apart. During the wet years the country is boomed; at dry times the people move out and industry wanes. These ups and downs are recurring features on certain areas not permanently suited for farming. The process works havoc with the misguided settlers, hurts a State that encourages it, and brings no lasting beneficial results to land men who manage the operation.

Apparently, Nature is no respecter of persons, especially so on the dry, sandy lands. It is coming to be known that there is no permanent change for the better in rainfall, frost belts or any thing of the kind. Some lands are better suited for grazing than for ordinary farming and should be so managed.

The speaker is pleased to be the servant of a State that stands strongly against misrepresentation of land values. Such a policy works out the greatest good in the long run. It breeds a healthy demand for a fact basis of development and minimizes the tendency to "stand up" for the home State by unwarranted "boostings."

Land Schemes in General.—There are many other land projects. The public has invested largely in small tract propositions in Florida, Texas, and other States. Much of this promoted land has considerable value, but some of it is overestimated, and many investors are quite apt therefore to lose all or nearly all of their money. Certain kinds of land look more inviting during one season of the year than at another. For example, there are places in Texas and Mexico to which the promoters take their victims in the dry season and to other lands during the wet season. This year the speaker heard a Texas representative declare, in a national meeting, that many of the small tract propositions, together with certain

other land schemes of his State, are filled with fraud. He criticized northern people for promoting Texas. This should serve at least as a warning to unthoughtful investors. The good agricultural propositions of Texas and elsewhere are handled by responsible land agents.

The movement for the reclamation of the so-called abandoned lands of some of the older States is quite apt to be hurt by unreliable promoters.

Misrepresentation and Overvaluation.—Not only do some promoters misrepresent propositions for the purpose of receiving gain therefrom, but they often advance the sale price unduly. Many examples of this kind have come to my attention. Two weeks ago I received a prospectus from Oklahoma, advertising lead and zinc land for sale at \$6.00 a block, twenty feet square, making 1,089 blocks in the tract of ten acres. This would be \$6,534 for the land. I happen to know the region and own land close to the small tract. The fact is that one can purchase such a place at \$10.00 or less an acre, or at not to exceed \$100 for ten acres. So the difference between \$100 and \$6,534 is too much of an advance for those who invest. What do you think of such a deal? The persons handling it use the general statement of a geologist which recites the fact that the geological formation that contains zinc and lead in the Joplin District, some thirty miles distant, extends through the promoted land. This statement has no specific importance, but is sufficient for persons who accept the "get-rich-quick" bait. It is my judgment that Oklahoma should not permit such a clean-up. (Applause.)

The public craze for land makes it easy for promoters to do their work. Many farmers, dominated by a spirit of consideration for their children, accept the "spiel" and assurance of the "dopster," sell in agricultural regions and move onto nearly worthless land, believing that it will become about like the old home place in time, and that each child will then have a farm and home. May we not say that he who deceives a family in this way is a mean man? (Applause.) Can you think of a worse service to a community? Certain railroads are not free from blame in that they promote this traffic. The farmer who accepts the bad "dope" is also to blame. It has taken a long time for the people to learn that mere belief, opinion, and sentiment are not strong enough forces to overcome the influence of land not suited for agriculture.

If our land seekers could realize how important and far-reaching is this matter of choosing favorable places for home building, they would be less easily led astray. They would consider soil, climate, water supplies and other necessary conditions of success, as they actually exist, and be governed less by the old arguments and slogans so often used for land development in general. They would pay less attention to deceptive literature written for the special purpose of securing emigrants and sales. They would inquire into the methods whereby this phase of the

land business is carried on, and avoid being carried off of their feet, especially when on "home-seekers'" excursions and worked by a well-organized plan.

Formerly, the newer States encouraged the work of grafting land men. Time has shown, however, that this was bad business and really a drawback to permanent development. The present trend is to conserve the interests of those who go onto and manage the land, making it easier for them to succeed. They are assisted by the publicity of useful facts and the censure of fraud. Furthermore, it is coming to be recognized that State emigrant agents, agricultural experiment stations, soil surveys and Conservation Commissions should not lend their support to any interest other than that which brings the best results to the people of the State. They should stand for the policies that insure permanent development and do so as their plain duty. Do you know how public men are urged and tempted to further the interests of promotion concerns and that there are plenty of opportunities to sell one's influence? That it requires diligence and courage to rightly serve the State? Happily, our public-spirited citizens who have at heart the best and largest interests of their States, stand strongly against misrepresentation whether unintentional or not. They claim that doubtful promotion serves only in closing deals, and in directing settlers to the land, but that in the long run the process works a positive harm to the misguided people and to the State as well, if the land is not suited for habitation. Fortunately, most States are coming to this viewpoint. They have learned that it pays to tell the truth when transplanting a population and directing the permanent development of a State.

Where do you delegates stand on this proposition, and what is to be the attitude of your States?

Promoters' Methods.—Do you know the signs of fraud? They are exposed in the method used in securing money from the community. The plan is about as follows: A selling scheme is perfected. It is constructed in a way that leaves no flaws, apparently. Each agent learns the scheme; he becomes skilled in applying it to the different types of individuals. Too often it is of little concern whether the project has merit or not. The chief object is to get money. Extravagant claims are made in which returns of 100 per cent. or more a year are said to be a sure thing. The influence of nationality, church, and fraternal orders are brought to bear in securing sales. The support of persons with good standing in the community is secured. Those who assist the promoter are given a reduction for their influence. The dope is given them often and systematically. So they soon realize the greatness of the project. This is promotion psychology. The land is offered at high enough price to permit reduction for quick sale, which bait works in many cases. Persons filled with greed for money are easy victims. The above kind

of thing, though less common than formerly, is practiced in most States, and the wonder of it is that it can continue and why it is permitted to continue. It is fraudulent and should be stopped entirely if we are to conserve the interests of good people.

Effects of Land Fraud on Local Business.—Many families lose enough through fraudulent entanglements to give a college education to the son, a piano to the girls, and general improvements for the home or farmstead. The drain is away from home and school. Perhaps the greatest loss is the people who are lured to places where in many cases they are less well off than in the old home. Persons who lose in bad deals become suspicious of real business done by reliable men in the community. They refuse to invest in local developments in which the returns are sure, though smaller than those promised by promoters. Many are put out of business entirely by land frauds.

Do you agree with me in that it is not good business to farm the land, cash in its fertility and then scatter the proceeds among grafters? Let us quit chasing the ends of the rainbow, and turn our attention more towards the right use of the fruits of our labor in education and home building. (Applause.)

Regulation.—There are many laws for the conservation of business. The Federal Government prosecutes persons who make fraudulent use of the mails. There is opportunity under the law to recover on account of misrepresentation; but these laws are not sufficient. Public sentiment is now ripe for the enactment of special laws to conserve business against land frauds. Nebraska has made a special study of the subject, reduced fraudulent procedure by the force of publicity and public opinion, and will pass special conservation laws in its next Legislature. Kansas has gained distinction by the enactment of the well-known "Blue Sky Law." This is good so far as it goes. It provides for registration, reports, supervision and penalties. Many States, as, for example, Wisconsin, Wyoming, and Texas, are to undertake legislation of this kind at the next sessions of their Legislatures.

Provision should be made in the special act against land frauds for field examination and report upon properties offered for sale. This field work might be done by the State Soil Survey, or the State Conservation Commission.

An essential feature of the act will be the registration of realty agents and the furnishing of proof that they are competent and reliable. This will reduce the number of land agents and insure the responsibility of those permitted to do business. The Western realty men are now framing a law of this kind to meet the needs of the various States.

Apparently there is no opposition to the proposed legislation for it is to conserve business and eliminate fraud. It is sure to receive the support of all unless we except those who make gain through doubtful pro-

motion. If opposition appears before the various Legislatures it will have the embarrassing position of being on the side of fraud.

Summary.—Let me close this report with the following statements:

1. This discussion, though favorable to reliable land agents is against doubtful promoters.
2. Realty agents should have a practical knowledge of land classification, soil types and the land business.
3. Reliable and competent real estate agents have an important place in the State. They are against promoters and promotion values.
4. No one should deal with an agent who is not favorably known and is not good at the bank.
5. See the land you purchase. Also get a reliable report upon it from a competent, disinterested party. Base your transaction on facts—not on opinions. Get a good title and not a mere promise to deliver.
6. Keep out of the “get-rich-quick” schemes. Quit chasing the ends of the rainbow. If your fever gets too high, consult a banker.
7. As a rule, it is best to avoid the “home seekers’ ” excursions and “boom” literature, unless you are sure of your footing.
8. Consult disinterested old-time residents whose places show that they are actual, successful tillers of the soil in the locality where you are to buy. They will give you the farm value, and not the promotion value.

Ladies and gentlemen, are you ready to support in this important movement? (Applause.)

Chairman WALLACE—I am sorry we haven't half an hour longer to give Dr. Condra to skin those skunks.

We will hear from Mr. Charles S. Barrett, President of the Farmers' Union, and finally from Mrs. Lund, of California. I want these speakers to show their appreciation, their gallantry, by giving her the last five minutes, and I am going to call them down unless they do.

Dr. CONDRA—It has been suggested that we close this discussion in one minute. I am very sorry that neither Mr. Barrett, or Dr. Bateman can be heard.

My friends, when a State puts upon its statute book an adequate law, no fake concerns will seek to do business in that State. That is true. Now, we ask that your committee be continued to the end that we may report the conditions of the soil and the development of the soil. I thank you and give ten minutes additional time to the lady.

Chairman WALLACE—It is my great pleasure to introduce Mrs. Haviland H. Lund, of California, whose subject is the “Conservation of Land and the Man.”

Mrs. LUND—It is a great pleasure to follow Dr. Condra, because his speech is such a good precedent for what I have to say.

If the masses of the American people knew what one man could accomplish for himself, physically and financially, upon from one to five acres of land, this knowledge would revolutionize the life of the Nation. The congestion in our cities is more than a country-wide menace. It is an unnecessary outrage. There is land, good, health-giving land, enough for all the people.

The conservation of the man has been too long overlooked. The commercial policy of the Nation could scarcely be called far-sighted—so wasteful have we been of all natural resources.

We have despoiled our forests, impoverished our soil, given away the public domain. Our labor conditions in many respects shame us in comparison with other nations. Looking about today, it would seem that our thought has been "Get all we can, no matter how, and waste it as we will, for after us, the deluge!" But a new commercial and political spirit is being born; a renaissance of righteousness is setting in, and the commercial leaders of the country are taking stock, as it were, of the actual situation.

Big business men are realizing that a healthy man is worth more in dollars and cents than a half sick one; it is recognizing that sanitation is a good investment. It is beginning to wake up to the fact that the children are more valuable producing machines when they are well protected, housed, fed and educated. The cry of the philanthropist to give because it was right and necessary that these conditions be ameliorated, has met with only sporadic response, but this new call to do the right thing because it pays in dollars to do it, is meeting a greater answer from the people.

Little Farms Magazine found it impossible to evade the responsibility imposed upon it by its readers. We roused them to a desire to go out upon the land—to try the new condition. They came to us for information. We could not go into the land business. We decided to form "Forward-to-the-Land Leagues" in all principal cities.

Moneyed men are not asked to contribute alms but only to invest their money at a nominal rate of interest, which the workingman with his own home and garden, with health and a living assured, is willing and able to pay. This has been proved where the experiment has been tried in the manufacturing cities in England, and in such communities as San Ysidro, Southern California, in our own country.

The work of the Little Farms Magazine in the founding of these Forward-to-the-Land Leagues has been unique and necessary. And its purposes two fold.

In the first place, it was of the utmost importance in meeting the grave problems confronting the nation, particularly that of the bringing

our ratio of agricultural production where it safely balances the ratio of population, to have a medium by which knowledge of the intensive methods of agriculture could be brought to the individual.

The wide-spread interest in the forward-to-the-land movement, which has been taken up alike by press and magazine, has created a hunger for specific information which occasional columns of general news can not satisfy. Little Farms Magazine tells, specifically, how a small acreage will yield and has yielded, industrial independence. It quotes stories of those who have made good after leaving the old work of bookkeeping and clerking and taken a "little farm."

The problem which the farm presents today is not the same as that of yesterday. The loneliness and isolation no longer obtains. The message that the Little Farms Magazine takes to the world today is that *scientific agriculture makes the acreage necessary for individual maintenance so small that social life can be developed on the farm in the most ideal manner.* The magazine advocates the upbuilding of the social center, with its library, its clubhouse and gymnasium, its moving pictures and mechanical music.

As I came through the country from the Pacific Coast and saw the empty acres of farm land waiting, and then entered the big eastern cities, and looked into the hopeless, pallid faces of its people, I could think that the earth, if it had a voice, would cry aloud with the cry of Him of long ago, who said: "How often would I have gathered thee as a hen gathereth her chickens, but ye would not."

Chairman WALLACE—There are fifteen minutes left. If Mr. Barrett, President of the Farmers' Union, is here we would be glad to give it to him.

Mr. BARRETT—Mr. President, Ladies and Gentlemen: Speaking for approximately three million American farmers, I can say with absolute accuracy that the primary article in the creed of Conservation should be the conservation of the man on the land.

In volume and variety of resources, the United States is the mightiest nation in the world. It is true that the British Empire may, through its dependencies, have a greater territorial reach, but from the standpoint of a continuous stretch of land and the body of acres cultivated and susceptible to cultivation, America admittedly leads the world.

The effect of this handicap is indicated not only in the present breadth of our domestic and international commerce, but to a greater extent in the promise of its more wonderful commercial conquests yet to come. The Nation is barely on the threshold of its destiny. That fact should not mislead us as to the difficulties in the way of making the destiny real, and not merely a boastful prophecy.

In the process of transmuting our possibilities into assets—what is the dominant factor? The American farmer. I challenge any of my distinguished audience to mention a single phase of commerce, one feature of trade, the smallest detail of actual subsistence that does not eventually trace back to the man plodding out there on the acres.

Napoleon said an army traveled on its belly. He could have said, with equal truth, that civilization travels on its belly. And the farmer is the factor that fills the Great American Stomach, and that keeps full every dinner pail, regarding which we have heard so much during political campaigns. More than that, he also clothes the armies of development. Nor must we forget that with the South's cotton as the lever, he keeps the international trade balance on the American side of the ledger. You tell me the manufacturer plays a large part in our current and our probable development. This is true. You tell me also, that what might be called trade-strategy, pure and simple—the proverbial “Yankee shrewdness”—is going to win for America the bulk of the world's business.

I do not dispute these assertions. But I answer: That back of trade-strategy and of dollar-diplomacy is—the American farmer. Without him, all would be in vain; without him, all of those resources we agree ought to be conserved would melt into impalpable air.

Let us admit, then, that the farmer is the keystone in the arch not only of national advance, but of sheer national existence. His problems, then, are the Nation's problems and his welfare, the Nation's welfare. No nation is stronger than its farmers. If the farmer is poorly nourished, if the Government is negligent of his rights, indifferent to his mental development and moral soundness, the way will be surely blocked to our national march forward.

It is to the vital interest of America to cultivate intensively not only the farm, but—what is more important—to cultivate intensively the farmer. What use to conserve our resources, unless we conserve the man behind the resources? The stability of national progress and of government itself is dependent upon conserving the farmer.

All of you within hearing of my voice may say: “We concede these facts. Are we not, right now, trying to aid the farmer, to conserve him, to intensively cultivate his possibilities and safeguard his rights?” And I answer: “Probably you are. But you can not help—you can not conserve—you can not cultivate the farmer unless you mix and mingle with him in the first person—not for twenty-four hours, but more likely for twenty-four months or twenty-four years.” I give full credit to the splendid intentions of the men who have tried and who now are trying to aid the farmer. But you can not adequately grasp his problem by using field-glasses from the convention hall or interviewing him over a long distance telephone, so to speak.

The scientists who are searching for secrets, the missionaries who are looking for converts, use neither of these methods. They go straight to the scene of battle. And so must all persons do, my friends, if they expect intelligently to conserve, to cultivate the American element which is the pivot of all other elements in this country. Study him at first hand, then your sympathies will be practical, not theoretic; your suggestions based on conditions, not on conjecture. Fight with him, side by side, in the ranks, day by day. That is the only way you can learn of the foes—not the least of which is his own weakness—which he has to combat, and what his victory means to the weal or woe of this common country of ours.

At this point President White reassumed the Chair.

President WHITE—The ex-President of this Congress, familiarly called "Uncle Henry," and, in dignified circles, Dr. Henry Wallace, but who doesn't like the name and prefers "Uncle Henry," will speak tonight, as will Judge Ben B. Lindsey, of Denver, Colo., the children's friend.

The morning session is now at an end. We hope you will get back here at 2 o'clock, because we have a very full program.

FIFTH SESSION.

The Congress reconvened in the Murat Theater, at 2:00 o'clock p. m., and was called to order by President White.

President WHITE—On account of Professor Fairchild's being called away, having to leave on an early train, we will listen to his address first this afternoon. Professor Fairchild is foremost in the ranks of modern education, in teaching the conservation of human life, the conservation of the soil, and everything that goes to make up thorough manhood among the boys of the land. I now introduce to you Prof. E. T. Fairchild, of Topeka, Kan., President of the National Educational Association, whose subject is "The Duty of the Teacher."

Professor FAIRCHILD—Mr. President, Ladies and Gentlemen of the Congress: With your permission I want to change my subject as printed. It is not the subject of my remarks this afternoon. I should like to call it "A Plea for More Equal Educational Opportunities."

In the few minutes allowed me, I can only hope to sketch briefly some of the conditions that confront us today. I shall have some things to say that represent definitely a great lack of progress, but that I may not be labeled as a pessimist, I wish at the beginning to state as my conviction that the present is the best moment educationally that the world has

ever seen. Had I the time, I should like to describe to you the marvelous progress that has taken place in certain types of our educational activity.

The growth of our universities and colleges is little short of marvelous. In a single decade in these United States the increase in enrollment has been fully 98 per cent. This increase in enrollment has also been manifested in Europe, in England, where there has been a genuine increase in the number of provincial universities. The increase in enrollment in the past ten years is most marked in Germany. In Germany, where there have been no new institutions erected the increased enrollment in a single decade represents 60 per cent. Such is the history of the increased enrollment, which, with increased efficiency in the way of larger and more efficient faculties, has taken place in this country and in Europe. It is a world-wide movement, by friends, and so far as I can see, is a recognition that the best field of opportunity to the ambitious and capable youth is through the college.

Then we come to the story of the success of our high schools. Here again the growth has been phenomenal. Those schools in number and in enrollment have gone forward by leaps and by bounds. In a single State, in my own, if I may be pardoned for this allusion, let me tell you what has happened in five years. The increase in the number of high schools in five years is one hundred per cent. and the increase in the number of teachers one hundred and twenty per cent. This is simply typical of the condition all over these United States. Again we have a concrete instance of the conviction upon the part of our people that the boy or girl of to-day who is to have something like an equal chance to-morrow, should have the opportunities provided by our high schools. I wish I had time to expand before you this growth and its meaning to our nation, but it is not my purpose to discuss that at length. I want to say, however, that as the result of this marvelous activity and growth we have had in our high schools and our graded schools in the cities, we have reached a maximum term. We are having a constantly enriched curriculum and generous expenditures are being made everywhere. Modern buildings, the latest word in lighting and heating and ventilation are found everywhere. Thorough organization characterizes this type of our educational work.

A vital point in the development of this growth, this high organization, is the expert supervision that has charge of these schools everywhere.

It is upon these higher institutions, the universities, the colleges and the high schools that the emphasis of educational thought and interest has been bestowed. Here notable investigations are constantly in progress with a view to still greater efficiency. Here the active and moral influence of the best and wisest of our country finds expression. Every

one is aware of these educational activities and all are proud of them. We are spending money most generously for the city grade schools, for the high schools, for the colleges and the universities.

But, good friends, now I come to the essential thing I wish to present to your attention. Of the twenty-five million boys and girls in the United States today of school age a majority receive their foundation training in the rural schools, or in an environment that is characteristically rural. And what of these types of schools? Do we find the same advancement? Do we find the same public concern? Do we find the same skill and organization and supervision? Do we get such results as are being secured by city schools? They do not measure up in the character of teaching, friends, in the kind of courses of study, in the length of the term, in the results obtained and this is perfectly obvious to the student of rural schools. There has been no such progress. What we have too often is the untrained teacher in the rural schools; terms ranging from three months up to six and seven; buildings that lack in every modern application of light, heat, ventilation and sanitation and all attractiveness; ground that too often is the sore spot of the community; houses that too often represent or suggest the pest house rather than a place of learning; inadequate support financially and inefficient supervision.

I want to speak briefly, then, to you in the few minutes that I have left as to four vital defects, as I view them, that it seems to me are the defects that we, as a nation, ought to undertake to remedy.

First, we have too many untrained, inexperienced teachers in these schools. In saying this, my good friends, I am not unmindful of the fact that in thousands of communities in this country of ours are to be found rural conditions that are most pleasant, that there are thousands of teachers in rural schools consecrated to their work, performing a daily service for those boys of inestimable value; but listen, in one of the largest cities of this Union the superintendent of public instruction in a report said of 10,500 rural school teachers 9,400 are themselves but eighth grade graduates. I want to avoid being too explicit in pointing to the places, but I personally know of a State, a State that stands well above the average, I think, educationally in the United States, in which of the 8,000 rural school teachers 4,400 in 1910 had only such training as is found in the country school and not beyond the eighth grade. In too many places this condition prevails. I believe I am well within the truth when I say that of the teachers of the fourteen million boys and girls in the rural districts of America today who are being taught, more than fifty per cent. of those teachers have themselves an academic training that does not extend beyond the grades.

But, to return to the subject of the high schools, that I spoke of a moment ago. See how conditions have changed as to the training and

kind and character of the teachers that must be placed therein. It is rare that you see a teacher of a high school who is not a graduate of a high school and in many cases of a normal school. In the rural school, the first defect is that we have too many poorly trained teachers.

The next thing I wish to speak of as a great defect in our present system is our manner of raising and distributing tax. You are aware that the prevailing unit of school organization in America is the district. In my own State we have 13,400 teachers; to boss, guide and direct those 13,400 teachers is an army of 30,000 school officers. By the way, he is the most numerous officer in this country. Within a radius of three miles you will run across a school officer in most of the States of the Union, a condition that makes for lack of uniformity, lack of singleness of purpose, the most wasteful, the most extravagant system that could be devised. But I want to speak a word in regard to taxation. The trouble is, good friends, that our system of distribution of taxes is utterly unfair and utterly prejudicial to the best interests of the child. On the one side of the road is a district having a splendid valuation with a low tax that may maintain eight months of school with a splendid teacher, a good building, and on the other side of the road, the maximum reached by law or gone beyond it, they are only able to supply the most inferior facilities for the boys and girls. The day must come when we shall have a prevailing system at least with the county as a unit for the taxes to be raised and distributed, so that the boy or girl who lives in some poor part of that county or State shall have the same opportunity as far as money will bring it to have a good teacher. The fact is that poor communities are the ones that ought to have the best teachers in all this land (ap-*plause*), and that the contrary is too often true I am sure you will all agree.

Let me say as to the courses of study now a word or two. I have, good friends, said to you that there are twenty-five million boys and girls of school age in America, fourteen million of these in rural schools. Now, listen, of these fourteen million less than twenty-five per cent. are so much as completing the work of the grades in this, the morning of the twentieth century. If this does not spell tragedy then I have no means of interpreting these facts. Less than twenty-five per cent. To assign the reasons for this is difficult, but because of the kind and character of these schools, because they are lacking, because they are not making the progress, because they have not the attractiveness that our city systems have, is a reason why these boys and girls do not stay. But there is another and further reason. The course of study too often lacks vitality; somehow and somehow we have not grasped the thought that the school has a larger and wider duty than consuming all its time and energy in text book knowledge. Somehow and somehow we have failed to see there, as we are coming to see in our more highly organized system, that to

interest that boy and girl, to send them out capable, self-sustaining citizens, we must do more than consume our time and energies on the text book knowledge. I should like to see a reasonably but not rigidly classified course of study with adequate attention to fundamentals, to large opportunity for hand work and with every possible connection between the experience of the school and the actualities of life. We must vitalize these schools. Another important thing in connection with our rural schools is this: the great majority of these boys and girls are denied high school privileges. Here in the city of Indianapolis with the splendid system of high schools that they have small wonder is it that the boy and girl in the grades if possible persevere in the work, looking forward always to the opportunity to get this liberal education afforded in the high school. Often this is not true in the country. As I said a moment ago, the great majority of these boys and girls are denied such opportunities, denied for geographical reasons, for financial reasons. If every township there could be created a rural high school, in its course of study emphasizing the things that are most needed in the lives of the boys and girls in that township, preparing them by a well developed and organized course of study for the great and important and practical business of life—if such an institution could be put within the reach of those fourteen million boys and girls don't you agree with me that many more than twenty-five per cent. would finish the work of the grades in the hope that they, too, might enter these schools and enjoy their advantages. And so I say, there is another great defect that some way ought to be overcome.

Now, just a word or two further. The last defect that I will mention is the question of supervision. In my judgment the commanding reason for the development and growth of our city schools is the skilled supervision supplied by the city superintendent. If we could have like supervision in these schools in the country the development would be marvelous and it would be rapid and vital. We have county superintendents. They have them here in Indiana. We have them in our State, but in no single instance so far as I am aware, is this supervision adequate. First of all, to remedy the question of the supervision of our schools, the question of the superintendency should be taken absolutely out of politics. (Applause.) It is a crime against the children of this nation to select either a city superintendent or a county superintendent upon any other basis than educational qualifications. (Applause.) The children of Indiana, the children of every other State of this Union will never come into their own, good friends, until the supervising element is selected because of their being experts in the job they are looking for.

Now, just one other thing on that. It is perfectly preposterous to expect a superintendent in a county such as there are in my State, for illustration, to visit one hundred and fifty or more schools, going over

roads in all times of year, in all conditions, to make his visits worth while. He may get there once a year. We ought to imitate Oregon in this respect. In Oregon they have subordinate superintendents, one for every twenty schools. There they can accomplish something.

My time is more than taken. You have been patient, as has your President. I thank you most sincerely. I only regret that I can only touch the edges of this problem.

In conclusion, you representatives of this National Conservation Congress, here is the problem. The great thing we need to do, first of all, is to make public everywhere the actual condition of the rural schools. Publicity is the first step; organization is the second; organization of national scope and of State scope. Give me twenty common people in any State in this Union and I will guarantee to see that the rural schools make more real genuine advance in the next five years than under ordinary circumstances they would do in ten years.

The country is the Nation's great recruiting ground. Here we look for the best men and women of to-morrow who are to take leadership, who are to represent in their actions and in their lives the good red blood that characterizes the Anglo-Saxon race. Are we doing our duty when but a paltry three million five hundred thousand out of a total of fourteen million are not so much as accomplishing the work of the grades? (Applause.)

President WHITE—Louisiana has been first and foremost in several phases of Conservation. Louisiana stands first in making forestry possible by wise and beneficial laws that encourage forestry, and I think Louisiana stands among the first in its State Board of Health, doing something worth while in every parish. I have the pleasure of introducing to you Dr. Oscar Dowling, of New Orleans, Louisiana, President of the Louisiana State Board of Health, who will speak on "Hygiene in Relation to Public Health."

Dr. DOWLING—Mr. Chairman, Members of the National Conservation Congress, Ladies and Gentlemen: We are very glad to have this opportunity to appear before this great Congress. In the beginning I want to say that we owe much of our enthusiasm to the good work of the Indiana State Board under Dr. Hurty, and to your pure food department, under Dr. Barnard; also to Dr. Evans, of Chicago, and Dr. Wiley, of Washington. We have endeavored to imitate them in some ways, but nevertheless, in some ways we have fallen short.

Hygiene, the science of preservation and promotion of health, in some form, has been recognized by every nation since the dawn of civilization.

Among the people of antiquity, conquest and domination were directly dependent on physical vigor, hence their laws regulating this feature of national life. Among the Greeks, the health idea was embodied in the

cult of Hygeia which arose hundreds of years before the Christian era, consequent probably to a devastating plague. In the early period of Rome, when courage and patriotism were cardinal virtues, physical development was provided for and emphasized. Social and political fluidity in the middle ages precluded the evolution of organized thought or systems in sanitary science.

Individuals set aside conventional thought and method and strove with Nature that they might learn her secrets; their work was not in vain, but with few exceptions their discoveries were unimportant.

The experimental method popularized in Baconian philosophy gave an impetus to the study of the physical sciences, but many decades passed before notable deeds were recorded. It was the nineteenth century, scientific in spirit and achievement, that made vital the long result of time and opened a perspective before undreamed of. The awakened health conscience of today is the crystallized result.

In scientific annals, the discoveries of the bacteriologist rank among the first. Perhaps, in the evolution of knowledge no truths are more potential. Within a generation the influence is marked, not only in relation to the individual and community, but in effect on the civilized world. The sanitarian with this knowledge was enabled to demonstrate control of environment. The success of the experiment has opened a new world just as surely as did the discovery of October, 1492.

The changed viewpoint of the relative value of hygiene in its application to life is due not wholly to the discoveries in medical science. It is one phase of the general awakening to the defects of the present social order; a manifestation of the modern attitude toward "waste." Efficiency implies economy, not alone of expenditure, but of material resource and vital force.

Conservation and preservation of the material wealth of the country is dominant in the intellectual activity of all enlightened people. But it becomes increasingly apparent that the Nation which conserves its mines, forests, soil and sources of power is poor indeed if its men lack virility and mental initiative. This thought is back of the public health movement. The impulse is in part commercial, in part scientific. It grows out of recognition of the futility of remedial and philanthropic measures and the conviction of the potentialities of science for human betterment. In import the movement is ethical and spiritual; it is beyond question the greatest of modern times.

This meeting is significant of the changed attitude toward the Nation's greatest natural resource—its people. The Congress is national, its purpose conservation, its main topic—to quote from the invitation—the conservation of vital resources. There is significance also in the topics selected for discussion in the health section. They relate to the larger aims of sanitary science. In the popular mind health work has

reference only to superficial conditions, control of epidemics, cleaning of streets and similar activities, but the hygienist knows that sanitary regeneration means an attack on many existing institutions, customs, practices and methods that lie deep in the roots of the social structure.

Housing, child labor, industrial occupations, labor insurance, vital statistics, food supply, community methods and conditions are the subjects chosen for discussion. Their primary importance is apparent.

The period of twenty minutes allotted for the opening of this division makes imperative only brief suggestive statements of the essentials in their relation to public health and individual well-being.

Mr. Lawrence Veiller, in the *Annals of the American Academy*, says: "We have paid dear for our slums. . . . No one has ever 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? Of the burden which the State is called on 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?" Describing surroundings, the author continues: "The sordidness of it all, the degrading baseness of it, unfortunately is withheld from the eyes of most of us. What it can mean 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."

Moreover, not alone in the slums do these conditions exist. In almost every city of the Union, a few blocks from the main thoroughfares, there are congested districts unspeakably bad.

With the knowledge we now have of the relation to health and sickness of air, sunlight and propagating agencies of disease incident to dirt, it is nothing short of criminal to tolerate such conditions. If physical suffering only were the result, indifference would be unpardonable, but overcrowded homes, insanitary in every respect, make for low standards of decency and morality. Vice, with its correlatives, disease and pauperism result. Often crime and insanity make the chain complete. The conditions of life in the middle ages as recorded in history seem to us barbarous in the extreme; relatively, ours really are. Then, there was no certainty as to the effect of insanitary environment; the people did not know; we do, yet with inexplicable indifference communities not only let the worst obtain, but they permit a perpetuation of the system. Authorities stand aghast at the expense involved in the tearing away of a whole section of a city, but the cost of such a measure easily, often probably,

may become a mere item in comparison with the economic loss from an epidemic of a virulent type.

It is a hopeful sign that a few enlightened municipalities have set an example in remodeling districts, not only in the erection of comfortable homes, but further in the establishment of healthful and beautiful environments. The housing problem is one of the most difficult and complex of our day. It can be solved only by enlightened legislation supported by public opinion.

About a century and a quarter ago the factory system began to develop with intensity in England. Later, in this country, it grew by leaps and bounds. Child labor with its attendant evils was a logical result. For nine years there has been systematic effort to control the unhygienic features of the system. Some good has been accomplished, but because of the nature of the problem progress is slow. The injury to the child is plainly apparent. Long hours in poorly ventilated rooms, with constant use of the same set of muscles, stunts and dwarfs the body; equally, the mind. Toil of this nature uses up the young life; it leaves the State the burden of caring for an individual hopelessly inefficient if not worse. But of more importance is the consequential physical deterioration. If these youthful toilers grow to maturity their bodies are devitalized; if they marry their children are almost invariably low in vitality. Hygiene in its application does not imply the remedy of existing conditions alone for the individual or the present; it looks to the future. Therefore, protection of the child is a principle of paramount importance.

Child labor laws are now more humane than a few years ago; conditions in many factories have been vastly improved. But as yet we are far from an ideal stage in the regulation and supervision of this feature of industrial life.

Every argument concerning the employment of children in factories may be applied to women engaged in similar occupations. In the mills and shops where women stand all day, where they endure for hours not only unhygienic environment, but in addition mental anxiety, where the whip "employed by the week only" is held over them, the nervous strain as well as physical exertion saps the very foundations of vitality. Investigations made by Dr. R. Morton of New York, show the health of industrial women is proving a serious thing in the United States, and unless conditions are bettered that there will be a general breakdown of the working women of the country. Nor is this the sum total of the consequences. In the children of these women low vitality is perpetuated. Records quoted by Dr. George Reid, Health Officer of Stafford, England, give the mortality of children under one year of age as greater among those of mothers who work in factories than among home mothers. Statistics compiled by him show the death rate one hundred and forty-five per one thousand births for infants of home mothers and two hundred and

nine per one thousand births for infants of mothers who work in factories. The injury to the State is apparent.

On the question of prevention of occupational diseases, I cannot do better than quote the measures suggested by Dr. H. Linenthal, of Boston. They are: collection of accurate data about working conditions; data relative to the effect of occupation on mortality; proper medical instruction; reporting to health authorities specific industrial diseases; examination of all industrial workers; exclusion of minors and women from certain industries; sanitary laws for factories; regulation of dangerous trades by health authorities, and the carrying of an educational campaign of hygiene among employers and employes. The comprehensiveness of these measures indicates the extension of the problem. No movement of recent times is more humane and economic than the one termed industrial insurance.

The purpose is the capitalization of the workingman's energy at the time of his greatest productivity; the basic principle that every farsighted social policy is founded more on energy reserve than money reserve. The aim is to secure for the nation the greatest possible reserve of bodily and mental force and power and physical and moral health.

The problem has been attacked in various ways by different countries. Germany has been the most successful. There the workingman's insurance has attained the dimension of a gigantic social institution. Dr. Frederick Zahn of Munich, Director of the Bavarian Statistical Office, in a recent address, gave the following interesting figures: Out of 16,000,000 laborers in Germany, 14,000,000 are carrying sick insurance, and 15,700,000 invalid and old age policies.

In the past twenty-five years over one billion six hundred million dollars have been paid in benefits. In addition, prophylactic measures are provided for.

Only those familiar with the necessities for correct data in health work appreciate the immediate and imperative need for statistical information. Records of births and deaths and of supplementary details form a basis for advancement. Without such data, the sanitarian gropes in the dark. Yet no request from the health department is so lightly treated. Reform in this can be wrought slowly. Appropriations to pay registrars and enforcement through the courts are the means for the inauguration of a more perfect system.

One of the hygienic essentials in this country is education in the relative values of food products. The phenomenal growth of the urban population which has reduced the number of producers and the almost universal practice of adulteration make imperative the enforcement of stringent laws and instruction in the nutritive value of classes of foods and the economy of selection.

The campaign for a supply of clean, pure milk in many centers has

grown out of the effort to lower the infant mortality rate. It has stimulated inquiry and supervision of other food products which is encouragingly prophetic.

Hygiene in its application to personal and community life is essentially preventive. This idea is not sufficiently understood to be taken at its real value; curative measures the people commend, but possible calamity seems remote, therefore, prevention does not appeal. It is this concept of the collective mind that lies back of the extravagant parsimony universal in health appropriations. It also explains public apathy and indifference.

The most practical means for sanitary progress are two, education of all the people in the primary truths of hygiene, and the application of the science through governmental agencies. These are so closely related that they are practically inseparable, but logically may be differentiated.

Hygiene is an organized science; its principles are rational and demonstrable; its application will bring returns economic, ethical and spiritual. This must be acceptably taught to the people by methods suited to the present state of the public mind. Conviction that will lead to action is the end to be sought. Education will create a public sentiment persistent and insistent for measures promotive of public good. Concomitant with this effort, in fact a part of it, the various units of government should be executives in the establishment of hygienic measures and the abolition of insanitary conditions. When people believe that the eradication of typhoid fever and hookworm disease is more important than high or low tariff; when they become convinced that malaria is a national disgrace and uncleanness a relic of barbarism, there will be money and judicial decisions for the elimination of these defects.

Fortunately, these are the views of an increasingly large number of people. There is a health awakening. The principles of the science of health are every day becoming concrete in laws, and habits of thought and living. It is the conviction of the progressive minority that a Nation's first duty is to conserve and protect its citizens, to develop a community of efficient men and to minimize natural disadvantages. Further, that collective intelligence must plan for the preservation of the people and the perpetuity of the State, and in so doing must recognize public health as fundamental, both in the simple phases and in its comprehensive aspect. (Applause.)

President WHITE—The next subject to be discussed is by one who employs labor in the State of Indiana, and who is a large employer of labor. His subject is "The Duty of the Employer." I now take pleasure in introducing to you Dr. Edward A. Rumely, of Laporte, Indiana.

Dr. RUMELY—Mr. President, Ladies and Gentlemen: Four generations ago, there were but three millions of Americans scattered along the

Atlantic Seaboard. Back of them was a vast virgin continent, the richest the white man had ever found in the long migration upon which our race started ages ago. The American continent was rich in timber, in the soil fertility of its vast valleys and prairies, and rich beyond measure in the superabundant deposits of mineral wealth. The first settlers were few in number; they brought with them but few tools and little wealth that today we would call capital. It was the natural and proper thing for them to set to work to gain, with the least possible labor, the great natural wealth that the virgin continent treasured for them.

They killed the fur-bearing animals, felled the trees to export lumber, dug in the quickest way the mineral wealth of the land and started to grow such crops as would carry to market the greatest value from the fertility of the virgin prairies. Wheat was easily transported, and each bushel contained from twenty to thirty cents of soil value. Hence with wheat our prairies were taken under cultivation, and from the returns of the wheat crops cities and railroads and homes were paid for.

Only today, when the average yield per acre has gone down from forty to thirteen bushels are we beginning to see clearly that by this process we have been drawing heavily upon our soil capital.

While the population was small, labor was difficult to secure. Cities had to be built, roadways opened, railroads constructed, rivers bridged, and a continent brought under subjection. The process of the past four generations was possible only because our fathers economized their own labor and created, as fast as possible, the values they needed to barter off into the markets of the world for capital from the superabundant natural wealth that surrounded them.

Today, we are mining our iron, copper, lead and other metals more rapidly than any other country in the world. The pioneer farmers who worked the soils of the south with tobacco and of the east with wheat, can no longer move off to the west, when, having exhausted the fertility of our lands, they find farming no longer profitable. The hundred thousand vigorous Americans who went last year to Canada with energy, capital and American tools are a concrete evidence that we have reached the end of the course which we have been traveling.

The whole country has been startled by the warning of the farsighted men, and now the demand for conservation of our natural wealth is becoming more and more insistent. We have been made to realize that every child born brings a mouth that must be fed, a body that must be sheltered and clothed, but no increase in natural wealth. We must still learn that every child does bring two hands which can work, and which, when highly trained and backed by scientific knowledge, can create untold values. Stated otherwise, we must care for our increasing population, not by increased exploitation of our natural stores, but by providing abundant work for skilled labor.

AMERICAN FARM MUST BE FACTORY—NOT A MINE.

Our agriculture has been a process of mining. The farm must now furnish a field for the profitable employment of skilled labor, for the use of capital, and the application of the principles of scientific management, becoming thereby a workshop instead of a mine.

In order to sell the labor power of our people, we must encourage the development of all secondary industries. By "secondary industries" I mean those industries which take raw materials that are largely the product of crude machinery and unskilled labor, and add to them in a large measure labor and capital values.

The agricultural implement manufacturer purchases steel and iron at approximately one cent per pound, and by further refinement creates implements worth eight cents to twenty cents per pound. The automobile maker takes lumber and iron, worth from two cents to four cents per pound, and produces a car worth from thirty cents to one dollar per pound, while the same materials, worked up into cash registers, typewriters, etc., would be worth from \$3 to \$10 per pound, and in watches from \$50 to \$5,000 per pound.

CREATE VALUES FROM LABOR.

We began by cutting the maple tree into a cord of wood, worth from three to seven dollars, and each tree furnished material for one day's work. This same tree—if sawed into lumber—is worth twenty dollars and would furnish employment for one man for three or four days. If quarter-sawed and more carefully treated, it might be worth forty dollars and would furnish employment for more skilled and better paid workers and for a period of from ten to twelve days. And this same lumber, in a furniture factory would produce furniture worth from \$100 to \$500 and would furnish employment directly and indirectly equal to from six months to one year's work for one man.

The whole range of values in this series, from the seven dollars' worth of cord wood or \$500 worth of manufactured goods, depends upon the degree of refinement extended to identically the same raw material through the quality and quantity of labor employed upon it, the capital expended and the application of greater scientific knowledge to the processes of production.

The secondary industries that we must now begin to encourage are characterized by a wide variety of work. They have different standards, are not easily susceptible to organization on a large scale, and hence politically have never acted as a concerted and effective force. The National Association of Manufacturers has been held together largely by an exaggerated emphasis upon the struggle against trades unionism. This ideal of strife with labor is no longer sufficient, and many believe that

much more can be gained by co-operating with labor to build up the productive power of our people.

SECONDARY INDUSTRIES AND CONSERVATION.

Today, the interests of the secondary manufacturer coincide closely with the demands of the conservation movement, and with the best interest of the Nation. The secondary manufacturer needs a permanent supply of raw materials. It is to his interest to see that coal, lumber, iron, electric power generated from our waterfalls, and every other raw material of manufacture be permanently available at reasonable prices. Where undue monopoly of the power of such raw materials exists, the secondary manufacturer will be acting in accordance with his own enlightened interests if he helps to restrict and regulate by political action. Reckless exploitation, leading to exhaustion of any natural store, threatens the very existence of his business.

In order to produce in large quantities, the secondary manufacturer must sell into broad markets; must use freely and extensively the transportation systems of the country. He realizes that the development of railroading in the United States (which surpasses that of any other country in the world, and has knit together a population of a hundred millions with great buying and consuming power into one homogeneous market) is one of our great national assets. On the basis of this broad market, quantity manufacture can be developed as nowhere else in the world.

President WHITE—Before introducing the next speaker, I will read a letter from Dr. Charles A. Doremus, of New York, whom we expected to be here.

NEW YORK, September 30, 1912.

Mr. J. B. White, President of the Fourth National Conservation Congress:

Dear Sir—Much to my regret I am prevented from attending the sessions of the Congress, though appointed to represent, as a member of its Committee, the American Electrochemical Society.

One of the matters detaining me is work in connection with the American Museum of Safety, which is doing progressive work to conserve human life. There are now twenty-two such museums and their beneficial influence is being felt here and abroad. The large corporations have been enlisted in the work of accident prevention and allied topics and the recent congresses, the Eighth International Congress of Applied Chemistry and the International Congress of Hygiene and Demography, have awakened great public interest in all that pertains to the preservation of health and life.

May the Congress over which you have the distinguished honor to preside still further enlist our people to safeguard not only our material wealth but the people themselves.

I have the honor to be,

Yours very respectfully,

CHARLES A. DOREMUS.

President WHITE—I now have the pleasure of introducing to you Dr. J. N. Hurty, of Indianapolis, President of the American Public Health Association, and Indiana Health Commission, who will speak on “Conservation of the Human Race.”

Dr. HURTY—Mr. President, Ladies and Gentlemen:

High authority says we are only fifty per cent. efficient; that we live out less than one-half the natural duration of life, that we consume twice as much food as is needed to maintain efficient life, that we waste as much as we use, and that one-half of all human beings born either die before reaching maturity or fall into the defective, delinquent or dependent classes. In these facts we find reasons why we waste the major portion of all our resources and call it development. In these facts we find reasons for the existence of robber taxation and predatory business. For, a people who waste themselves, will, of course, waste their natural resources. Therefore, the first, the most important, the fundamental conservation, is the conservation of human efficiency. A people who cannot be brought to a realization of the fact that they lead only half lives, and, who realizing, will not end, will show the nations-to-come what fools the present mortals were.

LENGTH OF LIFE.

Length of life is a resultant of strength. “Honor thy father and thy mother that thy days may be long in the land the Lord thy God giveth thee.” It is an honor and it is a strength, for a nation to have a low sickness and a low death rate with their consequent lengthened average duration of life. In India, the average length of life is twenty-five years, in the United States, forty, in England, forty, in Germany, forty-three and in Sweden, forty-five. The natural duration is one hundred years. Metchnikoff, after thirty years of study of disease and death says, only a very few die natural deaths, most of mankind commit suicide. That is, most people do not know how, or will not, conserve their vitality, and thus results a greater or less period of disability and inefficiency with premature death. Nature does no fooling, she has her laws and they are enforced up to the handle.

VITAL ASSETS.

Comparison of vital and physical assets as measured by earning power, show that the vital are three to five times the physical. The facts show that there is as great room for improvement in our vital resources as in our lands, water, minerals and forests; and furthermore, this improvement must come first for through human life only is natural conservation possible. The dead past may bury the dead, but living and strong men, not the weakly and sickly, must do the work of Conservation.

ILLNESS.

From our vital statistics, which constitutes the bookkeeping of humanity, we learn that fully 100,000 people in Indiana are sick at all times, 25,000 of whom are consumptives. Not less than half of this is preventable, and three-fourths may be prevented by strong effort. Eighteen experts in various diseases as well as vital statisticians, have contributed data on the ratio of preventability of the ninety different causes of death into which mortality may be classified. From this data according to Fisher, it is found that fifteen years at least could be at once added to the average lifetime by practically applying the science of preventing disease. More than half of this additional life would come from the prevention of tuberculosis, typhoid fever and five other diseases, the prevention of which could be accomplished by purer air, purer water and purer milk. Let the business men, who are in the saddle and who run our affairs, thoroughly consider this. They surely know that disease and premature death are drags to business. Fifteen more years of life to each citizen means an enormous increase in the strength and happiness of the people, with consequent betterment to business.

Minor Ailments must be thoroughly considered in any steps toward the conservation of vitality. They are far more common and farther reaching than is generally realized. They are chiefly functional disorders such as of intestinal canal, heart, nerves, liver, kidneys, etc. These disorders are gateways to the more serious disorders. Those who neglect colds, or what seems to be colds, will prepare the tissues of the respiratory tract for pneumonia and consumption.

Benjamin Franklin, wise and practical, successful as merchant, scientist, and statesman, said—"The having of colds is a great drawback. I notice when I have one my efficiency is greatly decreased. Thought, judgment and understanding are clouded. Furthermore, I notice that colds follow excess in eating and drinking and the much breathing of bad air. They are quite unnecessary." The losses due to mistakes in business and in the general conduct of life on account of minor ailments cannot be estimated except perhaps as time lost. A study of the matter shows that the time lost cannot be less than four days annually to each supposedly well man. Applying this to the wage earners of Indiana, counting one wage earner to each five people, making 500,000 in all, and we have to pocket an annual loss of 2,000,000 days or 5,470 years. In dollars, counting the average wage at \$500 per annum, the loss amounts to \$2,735,000 annually. This is certainly a prodigious loss to suffer in Indiana because of minor ailments, all of which can practically be avoided by proper public and private hygiene.

Neurasthenia, so common in the United States, is one of the most serious and insidious introductions to grave disorders, which may be due

to depraved nutrition, to needless worry, or failure to have adequate recreation."

Patent Medicines. A source of drug habit, ill health, disease, inefficiency and race poisoning, militating against business is the horrible patent medicines. Medicines at their best, given under skilled medical direction are very dangerous things. (Applause.) The drug addicts, made so by a certain kind of practitioners, by self doctoring, and the taking of patent medicines, are numbered by hundreds of thousands. A large proportion of drunkards are started on their way by taking tonics. It is mostly the alcohol in tonics which produce the seeming improvement and which give temporary relief, but which invariably make the last state worse than the first. Alcohol, and all other drugs, are more dangerous than dynamite, and trade in them should be restricted more severely than trade in dynamite. (Applause.) The earth has been ransacked for drugs to cure. Everywhere we see emblazoned advertisements of medicines which the ad says will cure every disease from corns and ingrowing toenail to syphilis and gonorrhoea; and yet, sickness and disease grow apace with our civilization. The world has been fine-combed from the equator to the poles for a something with which to bring health and prolong life; and lo, and behold, like the *blue bird*, these blessings are in every household patiently waiting to be called. At present, we are in the patent-medicine stage of ignorance, from which we must emerge before real conservation of human life and energy can be realized. (Applause.)

SCHOOL HYGIENE.

In conserving vitality, the child must have physical defects removed as far as possible, then he must be brought up amidst healthful surroundings and itself trained in all that conserves health. This great State of Indiana has already taken steps in this direction. The 67th General Assembly ordained that the schoolhouses hereafter built shall be sanitary in all particulars. This means, that waste of money and waste of child strength and happiness, shall cease in this fair State so far as this one matter goes. The same assembly has given permission to school authorities to institute medical inspection of school children that they may be relieved of morbid physical conditions which cause pain, inefficiency, illness and early death. It was a marked forward step to grant this privilege but it was a mistake of the Legislature in favor of loss of vitality not to make this practical care of children compulsory. Physical strength is the fundamental requirement for the making of children into educated and moral citizens. There is now a world-wide movement led by Switzerland and heathen Japan to save children and make them strong. A Japanese physician traveling in this State said—"We have relatively fewer short graves in our cemeteries." The intelligence and business

sense of a community could be accurately measured by determining its relative number of short graves. Youth is the time to serve the Lord. We must train the body in youth as well as the mind or the opportunity to conserve vitality is largely lost. A far better business scheme than securing more factories would be for the business men to turn their attention to the conservation of human vitality. The returns would be immense, failure to score in such an effort is impossible.

Hygiene has been permitted to extinguish cholera and yellow fever, and by the grace of private benefaction it will soon banish hook-worm disease which now incapacitates 2,000,000 people in the South. And may God hasten the business men to permit hygiene to banish those twin leprosy, syphilis and gonorrhoea, which are important factors in the causation of insanity, crime, and pauperism, and which so fearfully wreck the lives of so many innocent women and children as well as wreck the lives of the guilty. (Applause.) Syphilis and gonorrhoea are responsible for the existence of a large proportion of defectives of various kinds which fill our institutions. Let hygiene drive these plagues away, and, Indiana, instead of building another insane hospital, for another million dollars, which she must shortly do, could donate one of the five now existent to educational use of some kind. (Applause.) I strongly advise Indiana to listen to the health cranks if she wishes to save health, time and money.

SAVING VITALITY.

“Strength, Endurance and Fatigue, are the three great elements to be considered in conserving life. The measure of strength is the force a muscle can exert once, the measure of endurance is the number of times it can repeat an exertion. Fatigue is caused by fatigue poisons, which must be removed from the body during rest, principally during sleep.

Anything, therefore, which reduces strength and lessens endurance and prevents removal of fatigue is inimical to vitality conservation.”

SCIENCE OF LIVING.

The science of living begins at the mouth. Barring the taking of drugs, as a man eats and digests his foods so he is. Owing to drug taking and errors in human feeding, disease is latent in man at all times. Only a few escape sickness and pain and die natural deaths. This is not as nature would have it. Josh Billings recovering from heart trouble caused by the excessive use of tobacco said—“Nature made us all right, we make fools of ourselves.” Other drugs which are of almost universal use and which affect heart, nerves or efficient elimination are coffee, tea, spices, cocaine, morphine, chloral and alcohol. (Applause.) All of these are drugs, and all are poisons, and all more or less disturb the vital functions, reducing vitality and efficiency.

Any departure from unstimulated nutrition works harm. Stimulated nutrition is unnatural, and perforce, is opposed to strength. Immoderate eating—feasting and gluttony—reduce vitality and induce disease with its consequent inefficiency. A very old adage says—“Most men dig their graves with their teeth.” The old time author of this was striving for the conservation of human vitality. Immoderate amounts of nitrogenous foods, exemplified in white of egg and lean meats, cause auto-intoxication. They do this by undergoing putrefaction in the digestive tract, thus making toxins, which in turn being absorbed into the body, cause the following train of ills which results in loss of vitality and efficiency. Some of the auto-intoxication or over-eating ills, are—biliousness, coated tongue, foul breath, clammy hands, clammy feet, dry lusterless hair, putty complexion, dulled hearing, dulled vision, dulled taste, dulled smell, early loss of memory, loss of continuous thought and attention, headaches, vertigo, dyspepsia, loss of strength, rheumatism, insomnia, fugative pains and aches, hysteria, nervousness, nightmare, irregular heart, shortness of breath, brittle nails, dry harsh skin, cancer and premature old age of the doddering and slobbering kind. (Applause.)

Until we learn and practically apply the science of living we cannot attain over 50 or 60 per cent. efficiency and must continue to live lives of sickness, pain and disease, and die before the natural duration of life has one-half expired; and if this does not hinder and delay the conservation of natural resources nothing will.

“*Over-fatigue*, is a cause of loss of vitality. The present working day from a physiological standpoint is too long. Over-work better expressed by the term over-fatigue, starts a vicious circle leading to the craving of means for deadening fatigue, thus inducing drug habits and drunkenness.”

“Experiments in reducing the length of the working day show a great improvement in the physical and mental efficiency of laborers and results in an increased output sufficient to pay the difference. However, the great justification of the shorter day is found in the interests of the race and nation, not the employer. Public safety requires, in order to avoid railway collisions and other accidents, the prevention of long hours; lack of sleep and undue fatigue is quite as great as the waste from serious illness. A typical succession of events is, first, fatigue, then “colds,” then tuberculosis, then death. In order to prevent in the beginning this increasing line of destructive agencies, undue fatigue must be prevented.”

HEREDITY.

Vitality largely rests upon inherited qualities. A child born of weak parents, those parents having received their weakness by inheritance, will

itself be weak in the same way. Idiots breed idiots. Whatever improvement the child may enjoy, must rest upon its inherited foundation. If a child inherits brown eyes they must stay brown, no amount of cultivation may change their color, but inherited weak sight may be improved to a greater or less degree. Two forces, therefore, control vitality, namely, conditions preceding birth and conditions during life. In other words, the foundations of vitality are wholly inherited, and may be cultivated to the degree the inherited foundations will permit.

A perfectly sound physical and mental inheritance is rare and is the greatest of all assets. The highest development of a nation will begin when the human law conforms to God's law of development and parenthood is denied to defectives. Prisons and asylums are now sufficiently numerous, as it is evidence of defectiveness of the masses to conduct our affairs so as to necessitate their increase. Indiana now has five great insane asylums, each representing about one million dollars, and there are enough insane in jails, poorhouses and in homes to fill another one. Our population increased 16 per cent. in the last decade and insanity increased 29 per cent. There is a business problem for you.

To go along in the future as in the past, permitting, even fostering the production of the hereditary insane, of the hereditary pauper and criminal, of the hereditary idiot and feeble-minded, and then building great palaces in parks to care for them, will mean we have not the common horse-sense necessary for the proper conduct of our affairs. (Applause.)

HYGIENE.

We must look to hygiene, the science of health, to conserve human vitality. The term includes every necessary force to prevent disease, to increase strength and endurance, and to prevent the production of the unfit.

The ponderous and oppressively costly courts have been grinding for centuries and crime increases. Punishment and fear of punishment restrain evil doing, but does not eradicate the tendency to evil. This and other defects we must, as far as possible breed out of the race, and science can find a valid answer for every objection which obstructionists can raise to this proposition. Fostering insanity, crime, pauperism and imbecility, is not evidence of understanding and of high ability.

The divisions of hygiene are: Federal, State, Municipal, Institutional, School, Domiciliary and Personal.

Hygiene not only makes for greater physical strength and endurance but it makes for greater moral strength. It is the essence of charity, kindness, patience and truth.

When, through hygiene, defectives, delinquents and dependents are no longer propagated, when simplicity and frugality of living are

achieved, voluntary celibacy and voluntary childlessness will become discreditable, and sickness, disease and premature death will disappear before temperance and sanctified homes.

President WHITE—This admirable paper causes me to say to every one here that they cannot afford to go away and not deposit a dollar with the Secretary for the book of the Proceedings of this Congress. The book of these admirable and practical addresses should be in every home, should be in the library. I hope that every one will leave their address, will register, and receive as soon as they are published a copy of the Proceedings. (Applause.)

It was Louis D. Brandeis who said a year or two ago that the railroads of this country could save a million dollars a day with practical economy and with good system. He got that idea from and quoted Mr. Harrington Emerson of New York City, who will now address this audience upon "The Rescue of the Fit."

Mr. EMERSON—Mr. President, Ladies and Gentlemen: There is a growing clash between employer and employe. The old order is passing away and the new order has not yet come in. The millions lost in strikes are forever wasted. This direct waste due to supposed conflict of interest is one of the great losses. The other is more serious. Not one man in ten is in the place in the world best fitted for him, not one place in ten is filled by the best man in the world for the job. When the job is not bossed by the right man and when the man is on the wrong job there is a waste whose magnitude is incalculable. It is to mitigate, palliate, obviate, these two great sources of waste that on a large scale a new plan is being put into operation. The theory that underlies it is founded on principles, not on empiricism or on tradition or on rule of thumb.

It is theory that has given us the best designs for steam turbines, gas engines, dynamos, aeroplanes—it is theory that gives us this plan of the *Employment Department*.

What is the theory?

All manufacturing costs fall under three divisions: Materials, Labor, Equipment Charges.

Materials means all materials, whether for manufacture or operation.

Labor means all personal service or personal charges, whether direct, indirect, supervising or managing.

Equipment charges are made up of taxes, insurance, depreciation and interest on investment.

Although these three classes of expense are so different there are some general economic laws which apply to all of them and it is quite certain that what we have learned to accept as to materials, may have some lessons applicable to personal service and to equipment charges. When

our building materials consisted of prairie sod the problem was simple, we picked out the best sod in sight, plowed it up, hauled it to one side and erected it into walls. When the task is to build an automobile the handling of materials is not so simple.

In automobile plants the engineering department designs what is wanted, then draws up specifications, precise and scientific specifications; steel that will test under tension or torsion so many thousand pounds, steel balls, that are so round, so hard, so even in size, bronze, that is so resistant, copper that is so pure, etc.

The purchasing department then calls for tenders or for bids. Samples or specimens are submitted for test and these go into the testing laboratory where they must come up to specifications. The purchasing agent says: How good a wire can you sell me for \$0.10 a pound? What will the price be on wire testing 200,000 pounds?

The materials having been tested and bought are put into the storehouse under a competent storekeeper. It is his business to see that they do not spoil, that they are not wasted or stolen. He issues only on requisition, the requisition specifying the proper quality and quantity. When the materials go into use they are continually inspected during the progress of the work.

There is therefore an inspection department. Engineers have learned that it is not the price of materials that counts but the quality. As quality goes up quantity goes down and price goes up but not as fast as quality. Although steel wire is dear and cast iron is cheap, we build bridges out of steel wire. Although we can buy carbon steel for \$0.14 a pound, we pay \$0.60 a pound for high speed alloy steel because it work faster and so much more powerfully that it would be cheap at \$800 a pound if we could not get it for less.

As to complex modern materials we need therefore an engineering department to design and specify, a testing department to test and analyze, a purchasing department to buy at the best price and on the best terms, an inspection department to watch results from day to day, hour to hour; a storekeeping department to hold and to conserve, to issue carefully and economically.

Modern personal service is more complex than modern materials. How can we afford to omit as to personal service any of the safeguards found necessary as to materials? These necessary safeguards we apply through a very highly organized employment department directed and managed by specialists of the higher class and a corps of assistants.

In the employment department all these methods so necessary as to materials, we apply also to personal service control, whether we are securing a factory superintendent or a shoveler of sand. First of all an organization is outlined. It is evident that to perform certain kinds of tasks there is only one best organization. Battleships are a modern

development, they have been slowly evolved. America started it when the Confederate Government sheathed the Merrimac with railroad rails and sank all the wooden ships. As the London Times editorially said, "The Merrimac made all the navies of the world obsolete." Great Britain, Germany, France, Italy, have helped develop battleships, but the organization controlling every battleship in the world, whether Japanese, Chinese, Russian, Turkish, Chilean or American, is substantially the same. An American officer could be transferred to a foreign navy and find himself at once. Naval organizations the world over are interchangeable. The ordinary manufacturing concern has no standardized organization, it has generally grown like Topsy. Positions are ill defined and generally worse manned. The first duty, therefore, of a modern employment department is to outline the organization, the one best organization for the business in hand.

Its second duty is to specify the essential and required qualities for each position.

There are three different ways of filling positions:

1. To have on one's hands some incubus, a king's son or a king's mistress or some political henchman, and to create a position for the incubus to fill, "duke of this" or "countess of that," or a fat contract on city work. In England this is called "finding a berth for a friend"—*a berth—a place in which to fall asleep.*

2. The second way, and the more usual one, is to see a real vacancy and to shove a friend into it, hoping he will make it a go. The man and the job stand as good a show of fitting each other as a man would of getting the right clothes by drawing a suit in a raffle. It was Roosevelt who saw a vacancy in the Presidency, grabbed Mr. Taft, shoved him into the place, and now declares he does not fit. Personal liking is not the proper basis for a Presidential preference.

3. The third way to fill a definite vacancy is to find the man fitted for the place, and, after test, put him into it, even as we find a suitable wire for a bridge and put it in.

If we have a locomotive of definite design and we need an exhaust nozzle, there is only one design of nozzle that will answer. So if in the organization there is a position to fill, the best man for that position must have certain qualities and not have others, not every man, not the convenient man in ten, probably not one man in ten thousand is the man for the place. The employment department seeks diligently for the right man, the man who combines experience with aptitude. If it had to choose it would prefer the man without experience but with all the aptitudes to the man of experience without aptitudes. The man with aptitudes can learn quickly, reliably and fast; the man without aptitudes can never be anything but a misfit. Therefore the employment depart-

ment having secured a number of prospects, carefully tests the most promising.

The old-fashioned plan is to ask a few questions, secure a few recommendations, take a look at the man, and if a hunch is felt that he will do, accept him. I know all about this plan, for I have tried it for twenty years, and in some years it has cost me \$50,000. The plan does not work. I received the best set of recommendations I ever saw about a sea captain, and when we entrusted him with a \$140,000 steamer he deliberately wrecked her in order to make some graft out of the repair bills.

That the man was a scoundrel was written in large type all over his face, but in those days I could not read plain print and I was better fitted, and that was *not at all*, to navigate the steamer than to select a captain.

When I taught in college I got an inkling of the right way. I taught German, and at the beginning of the year my classes were filled up with sixty students, and at the end of the year there were only twenty left. I worked on the theory that there was no profit to any one in making a bluff at studying German. It was either worth while or it was not. If worth while, learn German; if not worth while, don't waste time on it. So I weeded and weeded my German garden until only those were left who could really learn. They learned to know German as well as they knew English. The weeding process was hard on me and hard on the misfits, hard on the good students. I gave an immense amount of rough effort to no purpose in an absolutely useless attempt to make silk purses out of sows' ears. Then sows' ears might have made good mince meat, but the carving and slashing I gave them hurt them to no purpose. My time was taken up on rough work until the misfits and the good students failed to receive the specially skilled attention and help their progress required. After a couple of years of this I tried a new plan. It was evident that any students who did not know English, English grammar, English spelling, English pronunciation, were not fit to study German, so I examined all applicants as to English, but I gave those who failed a week's test, lest some genius should by chance be overlooked. I never found the genius. Under this plan I started out with a class of twenty-five instead of sixty. I gave my time to those who could profitably make use of it, and not to those who could not, and every one of the twenty-five learned German.

A man or woman can be tested in five minutes for fundamental aptitudes and traits of character as easily and reliably as I tested the prospective German pupils. It would take one too far to go into the whole subject of character analysis. A great composer like Mozart, Beethoven, Wagner, can originate music, but there are thousands who can learn to play it well. So with character analysis. It requires a

special and rare gift to uncover the lessons written in the coloring, in the texture, in the shape of head, in the expression of the face, of the body, of the hands, in the clothes, in the personal tricks of habit, to cross-check these tests by others as the answers to test questions, but this knowledge has been so formulated that all can learn. So instead of trying to play bumbly puppy by ourselves, of missing the accumulated researches that have been going on all over the world, of repeating all the mistakes that others have made, we do as the Japanese did when they adopted the British navy, the German army and the American schools as models. We are advised as to our employment department by a specialist of the highest skill in character analysis, in all problems relating to the handling of people. The tests are rapid but they are many and they interlock so far as to be conclusive. A man can lie with his eyes or with his lips or with his body, but no man is skillful enough to lie at the same time with eyes and lips and hands and body.

After men have been tested they are employed, not before, and they are only employed because they have the qualities that fit them for a particular place. They may be at the time only 30 p. c. men, they may be succeeding an 80 p. c. man, but the great fact is that the 30 p. c. man can and will become a 100 p. c. or a 110 p. c. man, while the 80 p. c. man is perhaps in reality an overstrained 70 p. c. man. Starting with the best of human material years are not lost gradually collecting it. Not only are the unfit excluded, but what is very much more important, the *fit are rescued*, they are given opportunity, they jump at once into the places they can fill instead of waiting for years.

What is the unnecessary cost to a business of a 30 p. c. man compared to a 100 p. c. man?

The hourly costs of a man are: His hourly wage, the hourly machine charge, the hourly overhead charge. These three items will easily average \$0.70 an hour in a machine shop. If the man works at full efficiency he gives us in a year 2,700 hours of standard work in 2,700 hours of actual time at a total cost of \$1,890. At 30 p. c. efficiency, it will take 9,000 actual hours, costing \$6,300 to deliver 2,700 hours of standard work. The added expense due to inefficiency is \$4,410 for a single worker.

Efficiency does not mean strenuousness. The fluttering rooster is strenuous, but he makes little progress; the eagle flies efficiently, covering miles of country, yet never moving a wing. The Chinese coolie on his river treadmill is so strenuous that he wears himself out in a few years. As a producer of power he costs \$1,300 a year for the horse-power hour you can buy from Niagara for twenty dollars. The chauffeur of an American automobile gliding along at forty miles an hour, carrying six passengers, is efficient, not strenuous.

It is evident that under this modern employment plan the rate of wages per hour ceases to be a critical question. The efficient man, like steel wire and high-speed steel, is always worth more than he would think of asking for his services.

The requisition calls for a man with certain qualities—it never calls for a man at \$0.20 or at \$0.30 or at any other rate per hour. Fixed rates per hour are obsolescent when one man turns out the work for \$6,300 and the other man turns it out for \$1,890. For \$1,890? No, he does not. We do not ask him to; we can not secure and hold any 100 p. c. man for the wage rate in the \$1,890. We pay the man more, we gladly pay him more, we pay him as much as we must to secure him, but he is cheap at almost any price.

The man who receives a salary of \$60,000 a year is expected to profit his company to the extent of \$6,000,000 a year; the man who works for a dollar a day is always a loss, a severe loss, and, therefore, we try to eliminate him by the substitution of a machine. The fight against a machine is to carry on a losing fight against the whole current of the age. To put the worker in a position for which his aptitudes qualify him is to double, treble his value, and everybody is best fitted for something. A group of children were playing automobile; one was the engine, another the chauffeur, others the passengers. A little tot far behind was hurrying along. What are you doing? I am playing automobile. What part are you? I am the smell. In a watch there is not a useless piece. In a perfected organization there is not a useless man; there cannot be an unqualified man without endangering the whole. As I write, 20,000 mill hands are rioting at Lawrence, Massachusetts, because somebody has blundered, because some position had been badly filled.

The wage question is ethical. The workman is worthy of his hire, but also man does not live by bread alone. The man scientifically selected is 100 per cent. efficient because he likes his work, is fitted for it and it likes him; it is no longer a drudgery, it is a pleasure. We are rescuing the fit for the work which by nature's right belongs to them and under this plan there are few unfit.

In years gone by when a beef was slaughtered much of the carcass was wasted—the horns, the bones, the hair, the hoofs, the blood, the offal went to waste. Now nothing is wasted; everything has its use, and the offal we return as fertilizer to the soil is of greater perennial use than the tenderloins and sirloins which find their way to the tables of the rich.

We have in the past treated men as if they were coal, a raw product only fit to burn, or as the German soldiers pathetically called themselves, in 1870, mere cannon fodder. But mere coal contains ammonia, beautiful dyes, strange and powerful medicines, as well as heat units.

Everybody is normally good for something, and if fitted to the right place is worth more than he now is.

At Seattle a boy of 17 was excluded from the high school because he could not learn their lists of English kings or American Presidents, but that boy went out and when I met him he had grabbed the evaporative power of the sun and was propelling a boat with it on the waters of Puget Sound. He was fit, more fit in a mechanical way than any other boy I ever knew.

It is to this Rescue of the Fit that I look forward for the great uplift of American industries, the great increase in happiness and the great elimination of strife.

It is being put to a practical test in a plant employing 200 men and it is working.

This is my message to you.

President WHITE—There is nothing further on the program for this afternoon, and we will therefore adjourn until 8:00 o'clock this evening, when Dr. Wallace and Judge Lindsey will speak in Tomlinson Hall.

SIXTH SESSION.

The Congress assembled at Tomlinson Hall, at 8:00 o'clock p. m., and was called to order by President White.

President WHITE—The delegates, visitors and citizens of this city have a rare treat in store tonight in the program that has been published, and I have a rare honor in introducing the speakers. It will be a red-letter day in my life, and I know it will be in yours.

I now want to make this audience acquainted with "Uncle Henry" Wallace. I would be glad if everyone could know "Uncle Henry" as I have been fortunate enough to know him. He has been an inspiration to every young man and every farmer and all who have known him in the State of Iowa for the past twenty-five or thirty years. He loves to sit down in his office, or study—and I have been there to see how he works—answering letters that the farmers from all over the country write him, and who look to "Wallace's Farmer" as a source of profit and information upon every subject that affects the home. He comes close to the home, close to the family, to the fireside, answering all their questions and telling them just how they should do this or that, and all in that fatherly, kindly, brotherly way, so that he is referred to by everyone who knows him as "Uncle Henry." He is going to talk to us tonight upon "Human Efficiency," and he will speak from a very practical standpoint, for he has had experience all along the line.

I now take pleasure in introducing to you Dr. Henry Wallace, of Des Moines, Iowa, former President of the National Conservation Congress. (Applause.)

Dr. WALLACE—Mr. President, and Members of the Congress: It might not be amiss, before entering into a discussion of the subject proper, to recall the different subjects which have from year to year engaged the attention of the Conservation Congress, and to show how the choice of the subject for each different Congress was the natural and logical result of the discussion of the preceding Congress.

The first Congress was called, and the Congress itself was organized, as a forum in which the leading men of the Nation could discuss the problems raised by the Conservation Commission, appointed by Theodore Roosevelt at the suggestion of Gifford Pinchot, then holding the position of Chief Forester in the Department of Agriculture. His position as Forester enabled him to see the terrific waste going on in the management of our forests, and the various means by which the government forests were passing into the hands of individuals, subsequently to be wasted for private gain. He saw clearly that unless our forests were conserved and managed as are the forests of all other civilized nations, soil erosion would render future forest growth impossible, would fill our rivers with silt, dry up the streams in summer and convert them into raging torrents in winter, depriving us of water for irrigation, and diminishing in value the water power, or white coal, on which future generations must largely depend for power and transportation.

A forum was greatly needed in which the questions raised by this fearless idealist—to whom the Conservation of our resources for future generations is both wife and child—could be openly and fearlessly discussed by leaders and in the hearing of the American people. When the First Conservation Congress was called to meet in Seattle in 1909, naturally the main topic for discussion was the Conservation of the forests and of the water powers, which were then fast passing into the hands of great corporations.

By this time the public conscience was aroused. The people of the United States began to see clearly that we dare not go on in the future, looting and wasting our natural resources as we had done in the past. They began to realize that the generations of the unborn had rights in the oil, the coal and other minerals in that portion of the public domain that we had not as yet recklessly thrown away, or allowed to be stolen from us under forms of or in defiance of law. So the Second Conservation Congress was called in St. Paul, in 1910, as a forum in which the leading men of the nation could thresh out the problem as to whether these resources to which the American people at present held title should be administered by a Congress chosen by the people and

speaking for the people, or whether they should be administered through an act of Congress by the several States in which the Government property happened to be located.

The historian of the future alone will be able to measure the beneficial results of the fierce conflict between those who would despoil these resources for private gain and those who would conserve them for future generations. We can, however, see some of the results in the change in the policy of our national administration, in the vigilant watch now maintained by the present Secretary of the Interior; by the success which crowned the efforts of Mr. Pinchot and others who kept constant watch over bills intended, by means of concealed jokers, to break down the fixed policy of the Government; and by the veto of the President of vicious bills which, notwithstanding the utmost vigilance, were enacted by the last Congress. This watch and guard over the heritage of the unborn could not have been maintained successfully, had it not been for the white light thrown upon the problem by the Second National Conservation Congress.

I was, unexpectedly to myself, chosen President of the Conservation Congress at the close of the St. Paul meeting; and with the consent and advice of my executive committee, in making out the program for the 1911 meeting in Kansas City, fixed the attention of the American people on the necessity for the Conservation of the fertility of the soil, and the development of a better social and family life among the tillers of the soil.

The time had come for the American people to understand that the rapid and regular advance in the cost of living was due mainly to the terrific waste of the fertility of the soil, that had been going on for more than a hundred years. It was time for the farmer to learn that he was not in a position to throw stones at the lumberman who had wasted our forests, or at the mine owner who is wasting one-third of the coal in the process of mining; that he, while a sharer in the cheapness of the products of forest and mine, had himself been mining the fertility of the soil, stored for his benefit through countless ages, and selling it at the bare cost of mining; and in doing so had built up cities the world over, which must cry for bread when the fertility of his soil became exhausted.

It is too early yet to measure the full results of this Kansas City Congress. This should be noted, however, that, whether the result of the discussions of this Congress or not, the people of the United States have shown an interest in agriculture and the maintenance of soil fertility which they had never shown before. Bankers, railroad officials, capitalists are beginning to see that unless the farmer receives encouragement and efficient aid, this nation will soon cease to be a factor in supplying other nations with food, and will gradually become a con-

suming instead of a producing country, so far as the products of the soil are concerned. We are beginning to see that unless a more satisfactory social life is established in the open country, the increasing disparity between rural and urban population must continue and the cost of living must go on increasing, and with it increasing discontent and social disturbance.

My successor and his executive committee, with their wide experience in practical affairs, saw clearly that if we are to restore fertility to our wasted soils, if we are to do anything worth while for the Conservation of our resources of any kind or character, there must be an increase in the efficiency of the individual. They therefore wisely chose the subject of "Vital Resources" as the main center around which discussion must revolve at the present Conservation Congress.

The subject of Vital Resources opens up a very wide field for investigation and discussion. Various subjects in the group have been discussed and others will be, by specialists who have given their particular subject years of conscientious and close study. So when only last week I was urged to make this address instead of discussing a minor phase of the subject, there was nothing left for me but a general discussion of the subject of Human Efficiency.

Man, after all, is the biggest thing on this planet. The farm people are always bigger than the farm. No matter how rich by nature the farm may be, it will lose fertility if the farmer is not big enough. The first-class farmer will take an inferior piece of land and in time bring it up to his own measure. If the farmer does not fit the farm, it will in time come up to or decline to his measure. The average production of the soil is the expression of nature's opinion of the fitness of the man who tills it for a term of years. The most severe condemnation of the American farmer is the fact that, with some of the richest soils in the world, he has so wasted its fertility that he is crying out for commercial fertilizers; while the "heathen Chinee" has farmed for at least forty centuries, and has maintained his soil fertility without the use of commercial fertilizers.

If any great business has attracted attention by its success, one always asks: Who's the man or men behind it? The greatness of this nation is measured not by its soil, its mines, its forests, its water powers, but by the efficiency of its people. This is true of all nations. The cynical Bismark, who always cast covetous eyes on Holland, is said once to have remarked that the way to redeem Ireland was to transport the Dutch to the Emerald Isle and transport the Irish to Holland; that the Dutch would make Ireland an earthly Paradise, while the Irish would not keep up the dikes except with the help of the Germans, who would in that case soon have a seaport.

The only way by which you can restore the wasted fertility of the

soil and the waste of our forests and develop properly our mineral resources; the only way in which we can as a nation take the place to which we are entitled—that of leader in the world's trade and commerce—is by increasing to the utmost limit human efficiency, physical, mental and moral. These three are ineradicably linked together, because they are integral parts of every human being. We can not develop fine human beings physically without the development of the intellect and the soul; nor can we develop either the intellectual or the moral to the limit without taking care of the body.

If we are to have the maximum of efficiency in the man, the child must be well born, must be free from incurable diseases, mental, moral or physical. To every generation of human beings is given by an allwise Ruler the power to foreordain the character and quality of the generation to come. The coming generation is as helpless in our hands as clay in the hands of the potter. By marriage parents decree the personality of their children. By "personality" I mean the inherent tendencies—physical, mental and moral—which, when developed wisely or unwisely, make or mar the character. In that little pink lump of humanity—the pride of the father and the joy of the mother—are bound up in various combinations the incidents, passions and capacities of the parents. It is this which gives its awful sacredness and tremendous possibilities to marriage.

The State by the extent to which it discourages and represses vice and crime, by the extent to which it prevents and controls disease, by the extent to which it encourages the marriage of the fit and prevents the marriage of the unfit, foreordains the character of the next generation. I know that I am approaching ground but little trodden, in which many fear to tread, and to tread on which is by many deemed sacrilege. But if we are to be a virile nation, strong in body, in intellect and in morals, the truth must be told fearlessly; and there is no more fitting place to tell it than where the people of this Congress are making a study of our vital resources.

To put the matter with brutal frankness: The State must soon determine whether the hardened criminal shall be allowed to take an active part in foreordaining the character of future generations; whether the manifest degenerate, whether that degeneracy be the result of being badly born or of vice or crime, shall be allowed to breed degenerates; whether those afflicted with incurable and transmissible disease shall be allowed to transmit them to a helpless posterity.

In order that the State may act wisely, it is time for a most thorough and searching investigation of existing conditions, material and moral, which lead to crime; the extent to which criminal tendencies are transmissible—criminal tendencies, mark you, for crime itself is not transmissible; what proportion of our crimes are due to intemperance.

and to what extent the unbalanced state of mind which makes self-control impossible, and leads to crime, is due to inheritance. It will no longer do to say as some do: that intemperance, by killing off the unbalanced and weakling, rids society of an encumbrance; nor that nameless diseases weed out of the race those unable to maintain self-control. While all this is in a certain sense true, it furnishes no argument for abating zeal in repressing these crimes against humanity. That terrible saying of Anne of Austria: "God does not pay at the end of every week, but at last He pays," finds striking illustration in the fate that sooner or later befalls the intemperate and the impure.

On one subject there is no need of any investigation. We must either adopt such measures as will insure as far as possible that the coming generation shall be well born, or we will compel our posterity to pay the price, as we are paying it now. We stand before the world today convicted of having more murders, more suicides and far more lynchings in proportion to our population, than any other civilized nation on the face of the globe; and also with having, speaking generally, by far the most corrupt city governments. Is it not time for us to investigate and see why we thus stand condemned in the eyes of the nations, and to what extent we are breeding crime, the crime that is our disgrace? For be assured that we must in all cases pay the price, not in cold cash alone, but in blasted lives and ruined homes and a lower degree of human efficiency. If we are to be a great nation, worthy of our blood inheritance and worthy of our material resources, our children must be well-born.

If we are to secure that measure of human efficiency that will enable us to make full use of our inheritance, whether of blood or material resources, we should see to it that the coming generation is not merely well born, but well fed. The farmer is wise in that he takes special care of the young things that come on his farm. He builds a lamb creep, that the young lamb may get feed denied its dam. He sorts his pigs into convenient sizes, and shuts them out of the feeding places until the feed is properly placed, and then lets them all in at once, so that they may all have equal opportunity. He does not allow the weanling colt to take its chance with the selfish and unprincipled horses in the stalk field. He protects his colts and gives them food "convenient" for them. If an unruly beast in his stock yard tyrannizes the young and robs them of their food, he does the sensible thing. He dehornes the unruly. He will tolerate no oppression about his farm. In this he is wise; wise, because he knows that if he fails to do this, the red flag of the sheriff will sooner or later stand above his door, and the farm will be sold to some man who will handle it more wisely.

The State has a similar responsibility for taking care of the young. Whatever may be their endowment by nature, that is, by birth, they

need the nurture which is necessary to bring out and develop fully the gifts of nature. The State should smite anything that stands in the way of the proper nurture or feeding of the young. If the State is to prosper, it must protect the weak against the encroachments of the strong; and of all classes, the children of the State need its protection most.

If organized capital provides so little pay for labor, that the laboring man can not properly feed his children, then the State should dehorn that organized oppressor, as the farmer dehorns the unruly bull or boss cow. No profits to the individual or the organization, even though they be members of the State, can compensate for the robbery of the children of the State. If the State on investigation finds that the money that should purchase food for the young goes into the till of the publican, then the State should smite the publican in its wrath—not the individual publican, who perhaps may feel that he is earning his bread in the only way for which he is fitted, but the system which makes it necessary for the prosperity of the producer of intoxicating liquors, to corrupt so many hundred of our youth for every thousand dollars of invested capital. (Applause.)

If we have a system existing, whether in the State or the Nation, which can thrive only on the debauchery of the young and on the robbery of the child, by taking that which should go for food to support it, then it is time that the State and the Nation should control it to a point where it can neither seduce the young or rob the child; and that point is suppression. We must do that or do worse, namely, pay the price. We are in fact paying that now. The individual who will not keep account of his expenses is in danger of bankruptcy, no matter how great his resources; and the State which refuses to count the cost of any institution or system which tends to debauch morals, and corrupt the young, is on the way to destruction. For there is no avoiding the payment of the cost, whether we keep account or not; and that cost is not merely the dollars and cents, but starved children, blasted lives, broken hearts, ruined homes, increase of poverty and an increase of criminality, which is beyond the possibility of mathematics to compete. The State can afford to tolerate nothing whatever that stands in the way of proper nurture of the young; nor can it safely endure anything which tends to drawf them physically, mentally or morally. (Applause.)

The State, however, will always succeed best by removing the causes that lead to improper nurture, or to the formation of vicious or criminal habits. The State can not endure poverty, grinding poverty, among any class of its people; nor can it endure having its children poorly housed. The slum is the enemy of the State and of every citizen of the State. The vice and crime of the slum reach out to the west end or the east end or the avenue, or wherever the wealthy and prosperous congre-

gate, thus saying to all men: We are brothers. The poverty-stricken may well say: If you will not give us our rights, if you grind our faces, we will not merely levy toll on your pocketbooks, but we will infect you with our vices.

If we are to have the highest efficiency in the next generation, the State (and by the State I mean the government, whether State or National) must see to it that infancy is protected from the abominations of soothing syrup, and "sleep-easy," that usurp the place of the catnip tea and other herbs which soothed infantile pains in the days of our grandmothers. It is useless to expect efficiency, if we pour into the innocent lips of unsuspecting childhood the habit-forming drugs which benumb the brain, stifle sensibility, and lay the foundation for incurable vices when the babe has grown to manhood. Let us get back to the ideals of the ancient psalmist, who, contemplating the future of the chosen people, uttered the prayer that "our sons shall be as plants grown up in their youth, and our daughters as cornerstones fashioned after the similitude of a palace." That is, a plant carefully cultivated, spreading freely, its roots drawing sustenance from the soil beneath, its leaves drawing sustenance from the air and sunshine, bracing itself against the storm; the daughters the cornerstones of the home, with all the adornment that we bestow on a palace fit for the abode of royalty. Let us go back to this ancient ideal, if we are to be a happy people, whose God is Jehovah.

If we are to maintain human efficiency, the State must lay a heavy hand on the venders of impure food. After what Dr. Wiley has told you, there is no need for me to enlarge on this cause of inefficiency. Suffice it to say, there was a time in the memory of some of the older men, when there was no pure food question. Our oatmeal, our cornmeal, our flour came from our own farms. There was no shorts in our buckwheat, no white earth in our flour. If our meats were tainted, it was due to our own negligence. In these latter days we have become by force of circumstances more completely "members one of another," drawing our food from all parts of the habitable earth; and hence the State must protect us from imposition. If we are to reap the benefits which come from the modern system of division of labor, we must not quibble about the expense involved in enforcing honesty in those who feed us.

If we are to have efficiency in the generation now entering upon the stage, or in the one to follow, we will need to make radical changes in our system of education. No matter what the natural endowment, it will be comparatively inefficient unless properly developed. Education does not consist of putting in but of drawing out. Culture is simply the proper development of the gifts of nature. All children are born with the capacity for doing, and doing well, some small part of

the work that needs to be done in this great world of ours. This capacity is usually indicated by a strong preference for that kind of work. The capacity for doing is largely a matter of inheritance, and education is simply the development of this capacity. No education which fails to develop what is in the child is worth having; but no matter what may be the natural endowment, the capacity to govern in State or Nation, or to build a road, or to plow a straight furrow, or polish a pin, every child must have put into his possession the tools by which he can secure that education which will fit him for his life work. He must know how to read, that he may be in touch with his fellowman. He must know how to write, that he may communicate his thoughts to other men. He must know how to reason, that he may put this and that together and draw conclusions. These lie at the foundation of all education.

Some education is acquired in mastering the "Three R's," namely, the power to observe—to see things—to tell what is seen and to draw conclusions; but the "Three R's" are, however, merely the tools by which we ourselves afterwards acquire an education. In spite of all the money we spend on rural education (in my State from 42 to 50 per cent. of all rural taxes), our children neither read well nor write well nor reason well. How can they when our rural schools average twelve pupils, most of them less than ten, and often five, three, or only two or one pupil, and are taught mainly by persons themselves but poorly educated, and who are teaching simply to acquire the experience necessary to secure a position in a city school. Neither the reading nor the writing nor the arithmetic of these schools has any connection with the farm nor any relation to farm life, nor is the teacher as a rule in sympathy with that life. Yet this is all the education that 90 per cent. of the farmborn will ever receive.

Little education this for the mighty task of feeding the world at prices that those not on farms can afford to pay. If the farm boy was so thoroughly drilled in reading that he could read to himself with understanding and read to others with expression, if he could express his thoughts so clearly and fully that the dullest could understand, if he could see things as they are, and tell accurately what he sees, he would in time without further teaching become a leader of men.

The farmborn, however, usually fares better than the townboy in the race of life. In growing up in the open country he learns what books can not teach—the know-how, so far as farm operations are concerned—and needs but to learn the reason why. The townborn, as a rule, has no opportunity to acquire the know-how by following the occupation of their parents; and hence much of his school life is spent in acquiring information which, apart from its educational value, is of no sort of use to him in after life. What the farmborn need, if they are

to be efficient in life, is an opportunity to learn in a secondary school in the open country the reason why. What the townborn need is secondary education which will fit them for the work they are to do. If our farmborn are to be efficient, they must have centralized schools taught by teachers who have selected teaching as their life work and are paid accordingly, and thus be able to acquire in the open country a secondary education that will enable them to see clearly the reason why they should plow, or sow or feed. If our townborn are to be efficient, they must have in addition to a thorough mastery of the "Three R's," which is the birthright of every child, such training as will fit them for their life work.

The misery of our system, whether in town or country, is that it assumes that the chief end of man is to figure in some one of the so-called "learned" professions. So the high school is keyed up to the standard of admission to the college and university. The grade school exists to qualify pupils for admission to the high school. Hence the surplus of doctors without patients, at a time when humanity is learning how to avoid needing a doctor; of lawyers when men are fast learning to keep out of law.

In short, the end and aim of all education in the future must needs be efficiency in the line of the chosen vocation. The great lack of our present system is the failure to give the child a complete and thorough mastery of the tools by which any education worth while must be acquired: the ability to read with understanding, to express itself, whether in speech or writing, so that all may understand; the ability to see what is to be seen and tell it in plain English, and to put this and that together and draw a just conclusion.

I need not say that no training for efficiency is complete that does not involve the ethical as well as the intellectual and material. This is a Christian nation, and the ethics of Christianity should be taught in every school as well as in every home. We may not, and should not teach the dogmas or doctrines of any sect or denomination. We must forever keep separate the Church and the State; but underlying all these creeds and denominations there is an ethical standard which all but the criminal or would-be criminal accept; and this should be taught, because it embraces our highest ideals of manhood and womanhood and citizenship.

The crimes of which we are rightly ashamed are due largely to the fact that the jealousy of the churches toward each other has heretofore prevented the teaching of ethics to the children in our schools. Without the practice of ethics, without the striving to realize moral ideals, there can be no moral efficiency, and without moral efficiency intellectual efficiency may become productive of evil instead of good. An educated brain without an educated conscience is a source of danger to the pub-

lic welfare. It is high time for the churches and all good people to get together and agree on ethical standards to be taught in every school, that will put moral as well as intellectual training in the coming generation.

I have touched merely the high places of the subject of human efficiency. I have endeavored to say that if the generation which is to follow us and carry on our work is to be efficient, the children must be well born and well fed, protected from the vampires that endeavor to suck their lifeblood, and must have an opportunity to develop their natural capacity by an education and training—physical, mental and moral—that will enable them to do the world's work with profit to themselves and their fellowman. (Applause.)

President WHITE—In Denver, Colorado, some twelve years ago, there was found a friend for children; there was found a judge who believed that in the child brought before him for some breach of law, he could see something divine, that he could see the soul, the germ of the future man, the germ of a future life—something to redeem. He believed he could see why Christ said, "Suffer the little children to come unto Me, and forbid them not, for of such is the Kingdom of Heaven." He had faith in the child, and when he found it necessary, in the way of discipline, to send them to the reform school, he placed faith in them; he told them to go out to the reform school, and he would be up to see how they were getting along after awhile. He developed character from the start, and it soon became noised around. In every paper, in every magazine, all over the world the name of Judge Ben B. Lindsey, of Denver, Colorado, was known. (Applause.)

I now have the pleasure to introduce to you Judge Lindsey, who will speak on the subject "Is the Child Worth Conserving?" (Prolonged applause.)

Judge LINDSEY—Mr. Chairman, Ladies and Gentlemen: I am sure I appreciate this very cordial and kind reception, because it shows your appreciation, not of the speaker, but of a cause—in which I have only had a small part—that has come close to the heart of the people of this Nation in the last decade or more, and well it is that the great National Conservation Congress should not overlook the welfare of the child.

I was delighted to note in the splendid address which we have just listened to by Dr. Wallace, that this important matter of the child, the youth, furnished its principal theme, because without childhood there is no manhood; without the conservation of childhood there is nothing else to conserve.

But my friends, I am in rather a difficult position tonight. I am reminded, indeed, of an experience I had with a boy about twelve

years ago in my court. It was before the days of the Detention Home School. One day I was down in the jail, and they told me they had a boy there that they thought belonged to me—that they could do nothing with him. So I went with one of the men down the long corridor to a cage, that would have been a disgrace to the king of the jungle, and there in a heap on the floor was a boy. I recognized him as a boy who had been missing from the truancy department for about a month. It seems that he had read in a paper that some man in New York had lost his boy—about the age of this boy—so he framed up a story and went to the police and told them he was the missing boy. There was a reward offered for the lost boy, and there was an argument between the lieutenant and one of the sergeants as to who saw him first—and in trying to straighten this out they discovered the fraud. I said to him, "Harry, what did you mean by this?" He replied, "Judge, dey spoiled the dandiest bum I ever thought of."

I asked him where he had been for the last month, and he said he had been living in a piano box. I went with him, and he showed me the piano box, and as we came up a dog, a faithful, friendly dog, jumped out and recognized the boy. While we stood there I heard some boys just around the corner of the alley, talking about someone. Some of them insisted that "he only gets full once a month," while some one said "he gets full once a week." For a moment, I forgot the law of the "gang" in regard to "snitchin'," and I said, "Harry, who are those boys talking about?" There had been a boy before me for intoxication, and I wanted to find out if this was the same one. So I said, "You slip around there and find out who it is they are talking about, and you'll save a lot of trouble for me—and for somebody else."

The boy hesitated a little, torn between loyalty to the judge and loyalty to the "gang," but finally he went. In a little while he came back, and looking into my face without the least change of expression, said: "Judge, dem fellas is talkin' about the moon; some says it gets full once a week, and some only once a month." Then, after a minute, he continued, "Judge, you don't always find out everything you want to."

Some time ago, I was informed by my friend, Mr. Shipp, that I was to read a report at this Congress, but I found when I arrived that they had me down for an entirely different subject. However, both my report and the subject assigned me concern that very important subject, "the child." Many things have transpired during the last year to give us hope and courage in the work for the child, and after all there is one thing that marks this century of ours, makes it distinct from all other centuries, and that is the fact that it is the century of the child. Indeed, it seems we are to realize the promise of holy writ, that a little child shall lead us. We are beginning to see, through the misfortunes of

the child, through their tears and sufferings, many of the *causes* that are not only responsible for the troubles of children but for the troubles of men. For, after all, there is no child problem that isn't a parent problem—a problem of the home. And when we get back to the problem of the home we are, of course, face to face with all the great social, economic, industrial and political problems. Even the political parties are at least beginning to understand that if they would meet with the approval of the people they must concern themselves more about the problems of humanity; that they must present real remedies which promise an immediate check for the terrible waste of life, of energy and of power, which is going on in this nation. That while it is important to conserve our material resources—the power of our waterfalls and the vendure of our forests—we must also conserve our human resources. After all, these great assets of the nation are very closely linked together. The strength and future well-being of the race itself must depend in a large measure upon the Conservation with which this organization has so well concerned itself during the past decade. It is only a natural and to be expected step in the evolution of its work that it should equally concern itself more directly with the human beings who will not be able to profit from its work unless their welfare is also conserved in other directions.

It has long been the opinion of specialists and social workers in this country that the national government itself was not doing all that it should do for the welfare of the children of the nation. Largely because of the failure of any government agency directly responsible for such work, the various methods of dealing with the many-sided problems of childhood were more or less in a state of chaos. The matter was first brought to the attention of Congress through a bill formulated and agreed to by the various child saving agencies of the State of Colorado, and introduced in Congress by Hon. John F. Shafroth, the present Governor of Colorado, in 1902, providing for a government bureau that should directly concern itself with the welfare of children. This effort was followed several years later by other child saving agencies in the introduction of what is now popularly known as "A bill for the establishment of a children's bureau." This bill was free from some of the objections of the earlier bill which included governmental protection for dumb animals, as well as a special bureau for the welfare of children. Great impetus was given to this final effort by former President Roosevelt, who called the White House conference on dependent children that met in Washington City on January 25 and 26, 1909, when a resolution was adopted recommending the enactment of the then pending measure.

The National Consumers' League in its Tenth Annual Report presented, perhaps, the ablest summary of all those presented concerning

the necessity for such a bureau. This summary pointed out many items of information that ought to be valuable concerning the children of the Nation—information that, as amazing as it may seem, was practically impossible to be had in this Nation of ours concerning its children:

1. How many blind children are there in the United States? Where are they? What provision for their education is made? How many of them are receiving training for self-support? What are the causes of their blindness? What steps are taken to prevent blindness?

2. How many mentally subnormal children are there in the United States, including idiots, imbeciles, and children sufficiently self-directing to profit by special classes in school? Where are these children? What provision is made for their education? What does it cost? How many of them are receiving training for self-support?

3. How many fatherless children are there in the United States? Of these, how many fathers are dead? How many are illegitimate? How many are deserters? In cases in which the father is dead, what killed him? It should be known how much orphanage is due to tuberculosis, how much to industrial accidents, etc. Such knowledge is needful for the removal of preventable causes of orphanage.

4. We know something about juvenile illiteracy once in 10 years. The subject should be followed up every year. It is not a matter of immigrant children, but of a permanent, sodden failure of the Republic to educate a half million children of native English-speaking citizens. Current details are now unattainable.

5. Experience in Chicago under the only effective law on this subject in this country indicates that grave crimes against children are far more common than is generally known. There is no official source of wider information upon which other States may base improved legislation or administration.

6. How many children are employed in manufacture? In commerce? In the telegraph and messenger service? How many children are working underground in mines? How many at the mine's mouth? Where are these children? What are the mine labor laws applicable to children? We need a complete annual directory of State officials whose duty it is to enforce child-labor laws. This for the purpose of stimulating to imitation those States which have no such officials, as well as for arousing public interest in the work of the existing officials.

7. We need current information as to juvenile courts, and they need to be standardized. For instance, no juvenile court keeps a record of the various occupations pursued by the child before its appearance in court beyond, in some cases, the actual occupation at the time of the offense committed. Certain occupations are known to be demoralizing to children, but the statistics which would prove this are not now kept. It is reasonable to hope that persistent, recurrent inquiries from the Federal children's bureau may induce local authorities to keep their records in such form as to make them valuable both to the children concerned and to children in parts of the country which have no similar institutions.

8. There is no accepted standard of truancy work. In some places truant officers report daily, in others weekly, in some monthly, in others never. Some truant officers do no work whatever in return for their salaries. There should be some standard of efficiency for work of this sort, but first we need to know the facts.

9. Finally, and by far the most important, we do not know how many children are born each year, or how many die, or why they die. We need statistics of nativity and mortality.

The American Federation of Labor, the labor unions, and, of course, practically all of the social workers of the Nation have united through every means in their power to create the sentiment that has finally resulted in a Federal children's bureau.

This, then, is the most significant and, at the same time, the most hopeful single item of accomplishment for the conservation of the childhood welfare of the Nation for the past year. Next in importance to the establishment of the bureau itself is the appointment by the President in the person of Miss Julia T. Lathrop as its chief. Her long and devoted service with Miss Jane Addams at Hull House in Chicago, her well-known interest and experience in the sociological work that has occupied so many years of her useful life have especially equipped her for this work. While, up to the time of the establishment of the children's bureau, we were rather lagging behind the European nations, the various national and international conferences held throughout Europe during the past year have been greatly stimulated by the example our Government has set in establishing this special work for the conservation of the Nation's best asset. It is hard, therefore, to estimate the far-reaching influence of this wise and generous step on the part of the National Government. It was my privilege, with others, to attend sessions of the congressional committees and speak in behalf of the National Children's Bureau, and my enthusiasm is just as great as it ever was for that important step, but I am not one of those who have believed that when we establish the bureau we have done all that we can do as a Nation to conserve the welfare of the children. No doubt the bureau will accomplish much through such an educational campaign as it may be able to conduct, and the gathering together of very important information upon subjects that at present are left largely to conjecture, and concerning which we shall still be left very much in the dark. But I wish to predict that its chief service in the end will be, as I hope it will be, to point out some of the needed changes in social, economic and industrial fabric that must be made if we are going to truly conserve the interests of the child. A program of social justice, definitely proposed and persistently carried out will in the end do much more for the welfare of the children of the Nation than all the bureaus that we can establish.

The agitation carried on principally by social workers, juvenile courts and probation officers, for the past ten years in behalf of what is popularly known as "Mothers' Pensions," has begun to bear fruit. As far back as 1899, a few of the States recognized the principle that it should share with certain homes the responsibility for the education of the child by not only providing free schools but also by providing aid for certain needy parents of children in order that the children could have the educational advantages afforded by the State. The demand for an extension of this recognition of the principle has met with response

during the past two years in the State of Missouri and the State of Illinois. While the Missouri law was the first definite mothers' pension law, so-called, to become effective, it differs from the Illinois law in that it is limited to certain large cities. A somewhat similar law in Illinois has now been in force for a little more than a year. It is much broader in scope. Generally speaking, these laws vest power in the juvenile courts, after proper hearing, to direct the authorities dispensing public revenues, to pay to the parents—generally the mother—of dependent children a sum sufficient for the mother to care for the children in her own home, where the conditions are such, of course, as to justify keeping the child in its own home. It is assumed that the judge will act with wisdom and discretion and not abuse the power vested in him for the protection of dependent children. As a rule, this confidence in the court is not misplaced. But I am strongly opposed to legislation of this kind that is not carefully hedged about with such safeguards as to avoid possible abuses under it. For it is the abuses of such laws that furnish ammunition to its foes. This is not an objection to the principle of the law or a criticism of those who are entitled to so much credit for its passage. Most any kind of a law to start with establishing the principle should be more than welcome. The safeguards needed must largely develop in the course of practice and experience under it, when they may be added by suitable amendments from time to time—not an uncommon history of most all legislation of this character.

In many States, as in Colorado, where we have on several occasions attempted to secure legislation of this kind, we have met with failure for several reasons. The need has not seemed to legislators to be as acute as in States with more congested populations, in large cities like New York and Chicago. And in many States the laws already on the statute books have been fairly sufficient for their needs. Not only in Colorado, but many other States, to my personal knowledge, in exceptional or proper cases, mothers have been pensioned by the county commissioners, or assisted under school laws to such an extent that the lack of a more definite law upon the subject has not been seriously felt. But any State, in which there is a city of over 100,000 population or a considerable number of small cities of over 25,000 population, if it would truly conserve the welfare of its children, should not hesitate to adopt definite and effective legislation of this character.

But signs of opposition to such legislation are by no means lacking. It has been denounced in some quarters as paternalistic—socialistic, and entirely beyond the province or within the power of the State. But the time has long since passed in this country when there should be any serious question of not only the power but the duty of the State when it comes to the protection of its children. I say "its children" because

the State is the supreme parent—the over-parent. From one viewpoint the State is superior to the natural parent. It says to the parent, “If you neglect your child you forfeit your right to its custody.” This is a just power to be wisely exercised. It is primarily for the welfare of the child. Because of the natural ties of love and affection that are supposed to exist between parent and child it is assumed by the State that the best place for the child is in its own home with its own father and mother. This is a wise balance for this rather exceptional power of the State. The State wisely recognizes that the home is the foundation of society, and since it is in the interest of the State to keep the child in the home, as one of the very best methods of preserving the home, the first duty of the agents of the State should be to bring about that result in every case possible. In fighting for the child the State is only fighting for its own preservation.

Another prime duty of the State is to compel the father to support the child and also to support the wife, not so much because it is the wife but because it is a woman who is the mother of a child, or may be the mother of a child. One great weakness in the nonsupport laws of the various States and, at the same time, a danger in the mothers’ pension acts of the various States is the lack of a practical system of operation and enforcement that will not permit the father to shirk—that will hold him to a strict accountability to his duty to the State, namely, to support the child. The child is the State and the State is the child. The man or woman, therefore, who does most for the child does most for the State. As a part of every nonsupport law and mothers’ compensation act should be provisions for workhouses where fathers who wilfully and without excuse refuse to perform their duty to the child should be committed.

Failing in the last Legislature in Colorado to get any legislation for the relief of needy mothers, our people have appealed to the people under their rights to initiative laws, for what we term a Mothers’ Compensation Law, rather than a Mothers’ Pension Act. We think that the difference is more than a mere haggling over terms.

The State maintains a standing army for its protection. Soldiers fighting its battles, or standing ready to fight its battles while performing that function, are paid—compensated. They receive money, food and clothing from the State. When the fight is over, when they have retired from service, in their old age they are pensioned.

In a different capacity, but none the less important and effective, do mothers of children serve the State. They do not face death on the field of battle, but they go down to the gates of death and bring back their children. The perils and hardships that soldiers endure in times of war are more than equalled by the struggles of hundreds of thousands of mothers fighting the enemies of the State that killing competi-

tion and the injustices of present economic conditions have raised up in its path. In fighting these enemies to save their children to the State these women are more serviceable soldiers of the State even than those sons they reared, who may have died on the field of battle.

The term "pension," therefore, is a misnomer. It is confusing. It interferes with a real understanding of what this fight is all about.

It might not be a bad idea to consider pensioning mothers, as we pension soldiers after the battle is fought, after they have gone through the valley of the shadow, after they have slaved, and toiled and suffered and reared their children to manhood and womanhood, to guarantee them a peaceful, happy old age by providing a "pension." But while they are engaged in the service of the State, in saving the State by saving the child, I insist, where it is necessary to enable them to do their part in the battle, they should be paid—they should be compensated.

I insist further that the compensation should no more be in the interest of the mother than it should be in the interest of the soldier, except as a means of preserving the home and the State, except as in the interest of public morals and for the prevention of poverty and crime—all of which is necessary to save the State.

Maternity is more than a prompting of nature. It is a patriotic duty to the State. As in the case of the patriot who enlists for the war, of course it should be voluntary and in accord with social and religious custom. But a wilful evasion of so plain a duty should be visited with the same contempt that meets the deserter from the ranks. As the profession of the soldier is no more the business of the individual without the part and duty of the State, neither is the perpetuation of the race wholly the business of the individual. And of course it is the duty of the State to see that those individuals responsible for the race should perform their duty. There must be laws recognizing the man as the breadwinner and the mother as the home maker. The man must be held strictly accountable to the State for the support of the woman he has chosen to be the mother of his children. And this must be primarily not so much in the interest of the woman as in the interest of the children she bears or is expected to bear. If the man fails in his duty he should be compelled to perform that duty where it is possible to compel him to do it. If that is not possible, then the State itself must assume the burden. If the man has wilfully shirked it must provide work-houses in which he can be made to perform the duty he has voluntarily undertaken.

But, at whatever expense or hazard, the State must see that the child is protected. This is impossible unless the mother is protected.

The State has no right to scold women for race suicide when the State itself is responsible for race suicide. The father would have just

as much right to scold his child for stealing when the neglect of the father was responsible for the thefts of the child. The State has just as important a part in this problem as the individual. The individual must do his duty, but the State must see that the conditions are such that it is possible for the individual to perform his part. If the struggle for bread makes maternity a tragedy instead of a blessing, it is the duty of the State to reverse the conditions and make maternity a blessing instead of a tragedy. (Applause.)

In conclusion, I want to utter a warning. In standing for the policy of the State to guarantee compensation to the mothers of children, the State becomes responsible in a measure for every child coming into the world. The next logical step will be for the State to demand a right to say who shall and who shall not be the fathers and mothers of its children. It follows that the Mothers' Compensation Act is only a part of a new code now in process of development in which the State shall become more and more responsible, not only for the children who are born into the world, but for the kind of children that are born into the world and the parentage of those children. It is all a part of a wise system of laws the purpose of which shall be as far as proper and possible to exclude the unfit from the rights of parenthood.

The revival of that interesting cult of eugenics now attracting so much attention, the demand for the teaching of sex hygiene and the agitation of kindred subjects now going on throughout the whole civilized world, is simply a response to the growing need and the growing demand that the State should become the over-parent of the race.

It is impossible in the time allowed for this discussion and the subjects that such a report should occupy to do more than discuss one or two of the recent activities in behalf of the Conservation of the child life of the Nation. Much excellent work has been done by other organizations, some of which, because of the limitations mentioned, it may be impossible to refer to. But I must especially commend the work of the Men and Religion Forward Movement and the excellent report of its Boys' Work Commission. After all, the work for the boy is necessarily in a large measure also a work for the girl. This report ably discusses the religious needs of the child; the message of Christianity to childhood; the essential principles of organized work with children in the church, the Sunday-school and local organizations, and the relation of these organizations to the home and the child and to social and sex hygiene.

Of similar importance is the laborious, able and excellent report on the safeguarding of adolescent youth, prepared for the International Sunday-school Association under the direction of Mr. Wilbur R. Crafts and his committee of assistants.

Dr. Wallace spoke of the need of moral education, and I heartily agree with him; but what are you going to do in the case of a bright boy who knows more about politics than he does about Sunday-school? I have a boy like this in my mind. He knew the ward boss, knew all about him—his authority over the dives and all that. But I thought he needed moral training, so he was induced to go to Sunday-school. I saw him afterwards and asked him what he learned in Sunday-school. "Aw," he said, "it's a place where all the little kids go and gives up a penny, but they don't git nothin' back." "But you learned something, didn't you?" I asked. "Yes," he said, "they learned me about the angels; they learned me they had wings like chickens, but they didn't learn me whether they laid eggs or not."

I agree with Dr. Wallace that we need to change our methods. Of course Dr. Wallace has had a different experience from mine. He has children. I have children—a thousand of them—but they belong to other folk.

There is no more important subject than the safeguarding of childhood and youth against the moral perils of the modern community. Under this head the important matter of regulating dance halls, skating rinks, moving picture shows and various places of amusement is becoming more and more one of the serious problems of community life.

The able reports of one or two vice commissions of the large cities, notably Chicago and Minneapolis, have added much to the literature and information valuable to those who are interested in conserving and protecting the moral welfare of the nation's youth.

Let me say here that I was in a city where they had such a vice commission, and one of the officials told me the number of women who had been forced into prostitution, or had been forced half-way there. I asked him the ages of these women, and he said practically they were all between eighteen and thirty-five, and on looking up the statistics we found that this number of women thus forced into this unholy life was 10 per cent. of all the women between eighteen and thirty-five in that city. It is a frightful thing, my friends, but if these things exist, if they are facts, we are false to our children and false to our country if we try to blind our eyes to these facts. It is our duty, and as Dr. Wallace has said, there is no place in this country where these things out to be more freely discussed than in a Congress like this.

The child welfare exhibit, beginning with that of Chicago and duplicated in a measure in other large cities, is one of the most notable contributions in recent times in the great work of conserving the welfare of childhood.

The wider use of the schools in its more careful regard for the physical welfare of children must also be added to the hopeful signs of the times. The terrific waste in money, energy and effort that is going on

in the cities because of the many boards controlling such activities as schools, playgrounds, social centers, public libraries, art galleries and public baths promises to be largely avoided by a consolidation of these activities under the control of one board with the schools as a great social center, to which is added its neighborhood dance hall, public baths, public library, public assembly hall, public playground and social center under one single authority, such as a board of education and recreation that promises to avoid the bickerings, difficulties, expense and waste that is the outcome from duplicated boards. Activities that are largely educational and concern the city's youth, now largely under a half-dozen boards or authorities, should be brought together under one general authority. An amendment to the Constitution of the State of Colorado proposing such a consolidation and the use of the school-houses as polling places and for the discussion of governmental, social and political questions during campaigns, is to be voted on at the November election.

And now, my friends, in conclusion I want to say that one of the prime duties of the Nation—its duty to the child—is to extend to the women the same rights as the men, that they may go to the polls and vote on these measures. (Applause.) This is not politics, Mr. President, it is a plain, economic proposition, because I believe the women of this country are awake to the needs of the children, especially those in the centers of population, and when they are given this right they will pass laws that are necessary to bring about right and justice for the women and children of this Nation. (Applause.) I would not have my position today but for the fact that women vote in Colorado. (Laughter.) Either the bosses, the machine or the gang would have got me long ago. Why? Because I went beyond the court into the swamp lands, not beyond the city, but within the city, and showed up the ghosts of poverty and crime and the relations between a certain type of lawless big boss and vice. And when the mother could see that the protection of her boy and her girl from vice depended upon clean politics and righteous laws, then, my friends, the change began to come, and it is coming in our State as in every other State in this Nation—then began a reign of truth and right and progress. (Applause.) And when the women of our city understood what machine rule meant, they rose in their might, with the ballot in their hands, and put an end to machine rule in that city.

I remember a little boy that belonged to one of our debating clubs on the west side, who was very much disturbed over the making of some new laws. He came to see me, and when I asked him what he wanted, he pulled a piece of paper out of his pocket, on which was written: "Resolved, That all kids over ten years of age shall have a right to vote for the juvenile judge." "And then," said little Benny, "when we

gets that law through the bosses will never get you, and we kids will get justice.”

But it was not necessary.

I remember we had a little fellow who was quite a fluent speaker, and finally one of the bosses began to get alarmed at the effect this boy's talk was having. The boss said to him, “You have a lot of mouth, but you have no vote.” Quick as a flash came the answer, “I haven't got a vote, but I would have you understand that in the State of Colorado my mother has a vote, and my sister has a vote, and she married a fellow and he has a vote, and they will see that he votes right.”

And the boy's prediction was more than verified, for when the votes were counted the majority was on the right side, and the people who were working to relieve poverty and the suffering of children had won by ten thousand majority.

So I feel we must have the women with us in this struggle for the rights of childhood in this Nation, and with that right guaranteed they will bring about sooner than any other agency some changes for good in this Nation. If we are to save the child we want to save the State, for the child is the State and the State is the child. Take care of the child and the State will take care of itself. (Great applause.)

Miss Adeline Denny (in the audience) moved that a rising vote of thanks be tendered Judge Lindsey, who is in favor of women as well as children. The motion was carried and the Chautauqua salute given.

President WHITE—The Congress now stands adjourned until 9:30 o'clock tomorrow morning.

SEVENTH SESSION.

The Congress convened in the Murat Theater, on the morning of October 3, 1912, and was called to order by President White, at 9:45 o'clock a. m.

President WHITE—We are a little late in gathering this morning. The meetings last night were rather strenuous. There were meetings in two different places, and the one I attended had seventeen or eighteen hundred in the audience, so we know we have a large attendance. The idea of having sectional meetings is a good one, because it enables discussions at greater length upon special subjects that concern different people interested. Day before yesterday, we had three meetings going on at the same time. Then we have an illustration of what is needed in the way of civic reform and good government over at the State House, and none of us should miss this. It is going on all the time. It appeals to the eye, and we can see at a glance so much that is needed in this battle for reform.

I have some announcements to make before I call upon the first speaker. I have a telegram from Mrs. G. H. Robertson of Jackson, Tenn., and one from Anna Caroline Benning of Columbus, Ga. These telegrams contain greetings, and also suggestions as to the next meeting place of the Congress. We are glad to have suggestions as to the next meeting place, but under the Constitution the Executive Committee takes up this matter for consideration, and they have three or four months to do it in.

JACKSON, TENN., October 2, 1912.

President National Conservation Congress, Claypool Hotel, Indianapolis.

Mothers and teachers of Tennessee interested in conservation of childhood beg the National Conservation Congress to hold its next meeting in Knoxville. This will mean much to Tennessee. We hope you will see that Knoxville is, all things considered, the place of all others for you.

From President Congress of Mothers,

MRS. G. H. ROBERTSON.

COLUMBUS, GA., October 2, 1912.

Mr. J. B. White, President Fourth National Conservation Congress, Indianapolis, Indiana.

Please greet the officers and members of the Fourth National Conservation Congress for me and tell them that illness prevents my attendance, and say for me the disappointment is great, for my heart is in the work.

ANNA CAROLINE BENNING.

President WHITE—We also have a report from Col. M. H. Crump of Bowling Green, Ky., which will now be read:

REPORT OF THE COMMITTEE ON ESTABLISHMENT OF A NATIONAL PARK TO
INCLUDE MAMMOTH CAVE.

Immediately on notification of appointment by President J. B. White, the committee (Dr. Henry S. Drinker, Hon. William P. Borland, Mr. Gifford Pinchot and Col. M. H. Crump, with Dr. W J McGee as Chairman) organized by correspondence and proceeded to work through both individual and collective action. Largely at the instance of Col. Crump, Hon. Robert Y. Thomas, Jr., a Representative from Kentucky, introduced a bill (H. R. 1666) providing for the establishment of a National Park to include Mammoth Cave, and this was duly referred to the House Committee on Military Affairs. Before this body your committee appeared at formal hearings on February 1, February 5 and May 3. Early in February a similar bill was introduced in the Senate by Hon. William O. Bradley and referred to the Senate Committee on Public Lands; before this body also your committee (through Col. Crump and the Chairman) appeared at a formal hearing on February 6. Both before and after these hearings members of the committee personally presented the matter before members of both branches of the Federal

Congress; Dr. Drinker by correspondence, since he was out of the country until too late to attend the early hearings.

Your committee have to report, with regret, that while the requisite early steps looking toward the desired legislation were taken, the bills have not yet been reported from the Congressional Committees and probably will not be during the present session. Accordingly, we recommend that this be considered a report of progress; that the National Conservation Congress be requested through its Resolutions Committee to once more urge on the Federal Congress the eminent desirability of creating a National Park to include the Mammoth Cave, and that an appropriate committee be created through the National Conservation Congress of 1912 to continue action in the premises.

Respectfully submitted,

W J MCGEE, Chairman.

MALCOLM H. CRUMP.

President WHITE—This report will be turned over to the new President.

It is now my pleasure to introduce to this audience a gentleman from the Pacific Coast who has long been an active worker in the cause of Conservation, especially in the conservation of forests. He is well known to all on the Pacific Coast and to every man in the Central and Eastern States. He is President of the National Lumber Manufacturers' Association, and he will treat the subject of Conservation from "The Lumberman's Viewpoint." Major E. G. Griggs, of Tacoma, Washington. (Applause.)

Major GRIGGS—Gentlemen, Members of the Convention: I want to voice the sentiment of the lumbermen of the country particularly in approving the action taken by this Congress in allowing us to have our own conferences in reference to the interests in which we are vitally concerned, together with the general meeting. I think that has been one of the best features of this Congress.

The objects of the National Conservation Congress are so clearly exploited in the Second Article of our Constitution that I believe a repetition of them is clearly in order that we may keep them uppermost in our minds:

"(1) To provide a forum for discussion of the resources of the United States as the foundation for the prosperity of the people, (2) to furnish definite information concerning the resources and their utilization, and (3) to afford an agency through which the people of the country may frame policies and principles affecting the wise and practical development, conservation and utilization of the resources to be put into effect by their representatives in State and Federal government."

I have attended all of these Congresses and have been wonderfully impressed with the zeal and interest manifested in these proceedings. The vital questions considered are touching the popular chord and its effect is vibrating the length and breadth of the land.

Some are drawn here by one interest and some by another, but all recognize the wisdom and need of arousing our people to a consideration of the resources of our country and their proper utilization. In the cauldron of our national development, mix a little philanthropy, patriotism and politics and you can stir up the most phlegmatic of our citizens.

To my mind, the great results we wish to secure in this Conservation effort can only be realized by directing the attention of the millions who do not attend these annual meetings to the importance in our State and national life of the subject-matter we have under consideration.

The vast majority of the American people wish to see general prosperity and proper utilization of the resources of the country, regardless of the political ambitions of any individual or party. Conservation will only be realized when it takes such a strong hold of the people that any man or set of men will sink to political oblivion if they do not promote its cause.

Three years ago we were somewhat startled by the announcement, I think from the originators of this movement, that the electric companies had combined to control the water powers of the country. Today I come from a State where a stupendous amalgamation of capital has recently combined the hydro-electric plants of the Puget Sound basin. Not that this is detrimental to our development, but that the acquiring of these perpetual rights and control of natural resources should be well considered by the people and subject forever to their supervision.

The cupidity of capital will only be curbed by the assurance to the long-time investor that the Government is behind the investment and the people will not forever back the investment unless they are in on the deal.

Our country is comparatively new and we need to encourage capital and labor in every way to develop the latent resources, but we want to make better trades than we have made in the past if we wish to hold the respect of either.

The old saying that "Uncle Sam is rich enough to give us all a farm" sounded siren-like to all, and was necessary to encourage the settler, but there is a limit to even Uncle Sam's patrimony—and irrigation costs money. No doubt the State of Washington, which I represent, has profited as much as any other by the liberal policy of the Government, but there forest reserves have been declared and in lieu of worthless timber tracts scrip has been issued to bona fide settlers or original grantees, and for this same scrip some of the choice timber lands of the country have been exchanged. I conclude that "David Harum" is discounted in a trade.

The lumber manufacturers of the country have in recent years been in the limelight of trust investigators, and to what purpose? If to foster the political ambitions of some demagogue, I am sure it will fail. There may be organizations back of labor and capital which come under the ban of the law, but when such general conclusions are drawn, as in the Missouri Ouster Case, that the National Lumber Manufacturers' Association is an unlawful combination in restraint of trade, as President of that association I "deny the allegation and defy the allegator."

There is too much of loose talk in censuring the efforts of associations generally. The very theories you as Conservationists are advancing are uppermost in the minds of association workers. And the greatest development in forest Conservation and fire protection has its origin and support from these associations. We have something to conserve and are not mere theorists. With rising values of timber and utilization of lower grades of lumber, the product of the entire tree will be saved.

This is where the shoe pinches. It is going to cost more money to conserve. The low grades of lumber, slabs, and waste from a mill must bring enough money when sold to pay for the labor expended in saving them. Then, and then only, will they be saved.

Trees can only be reproduced on soil suitable for that purpose and for no other. The timber crop is the process of years of growth, and annual taxes, perpetual fire risk and the desire to use the land for more frequent crops are the deterrent features of reforestation. We only need to look abroad, where common lumber brings the price of mahogany in this country, to realize that an article to be saved and reproduced must have commercial value.

Your great centers of population in the East and Middle West are today beginning to realize that happiness, health and long life of the people will be your greatest commercial asset. The country is becoming aroused to the needs of forest, lake, stream and fresh air to build up American citizenship. We in the West, like the pioneers who have worked their way across the American continent, do not appreciate our own resources until we realize the vast sums being appropriated in your dense centers of population to reinstate in a measure the surroundings in which we revel.

Population, transportation and ability to pay are all determining factors in our national development. It takes something more than philanthropy to meet a payroll or pay the grocer, and too little heed is given the trials and privations of our pioneer life in some of our theories.

We lumbermen of the West Coast, where transportation charge alone equals more than the original cost of our lumber to you, are sometimes rebuffed in our efforts to conserve, where of necessity the waste is large.

We are not slow in the West and South in developing the use of wooden block paving, in establishing creosote plants to prolong the life of

our product, but in our recent attempts to get the consumer to use odd and short lengths to prevent a waste in our mills of 2 per cent. of our planing mill product, we are balked in our efforts and forced to the burners with a lot of trimmings.

I have just read the following from an address delivered by Joseph B. Knapp, assistant district forester in the United States Service, which bears out my contention :

“Coast lumbermen a few years ago unitedly endeavored to introduce the use of flooring, ceiling, finish and other planing mill products in multiples of one foot from three feet upward. At this time the United States Forest Service made an investigation of the waste due to manufacturing planing mill products in multiples of two feet. We found this waste to be over two per cent. of the material run through planing mills in Oregon and Washington, or the equivalent of the yearly growth of wood on approximately 30,000 acres of good timberland. The consuming trade refused to accept odd lengths and after a conscientious attempt on the part of lumber manufacturers, it was found necessary to discontinue the manufacture of odd lengths over ten feet. It is therefore seen that the useless waste in the manufacture of lumber can not always be attributed to the lack of a desire on the part of the lumber manufacturer to introduce economical practices. It remains for the ultimate consumer of our timber products to determine in what form these products shall be supplied to him, and therefore conservative lumbering and close manufacture are dependent as much upon the layman as upon the manufacturer.”

Our British Columbia neighbors are keenly alive to their timber interests and their forest service is alive to the situation. Mr. Benedict, assistant forester of British Columbia, in a recent address stated that in British Columbia, on a very conservative estimate, after eliminating waste land, rocky mountain slopes and peaks, they had 65,000,000 acres capable of producing merchantable timber and valueless for any other purpose.

“The productiveness of this land in timber will vary from 1,000 hard feet per acre per year in particularly favorable localities on the coast to 25 or 50 board feet per acre per year on the mountains of the interior,” he says, “but I am confident that the average yield will amount to 100 board feet at least. This gives an annual production of 6,500,000,000 feet.

“Allowing for a temporary overproduction of lumber brought on by the desire of the holders of timber limits to realize on their investment as quickly as possible, it will be seen that the stand of mature timber will last from fifty to seventy-five years. At the end of seventy-five years, when this mature timber is cut, the present stand of second growth

timber will have matured so that the annual production can be maintained perpetually at 6,500,000,000 feet. All this provided the present stand of mature timber is preserved from destruction by fire and likewise that the second growth is able to escape fire and grow to maturity.

“The stake then for which the forest protection force is working is an annual crop of 6,500,000,000 feet of timber, worth to the Government, say, \$6,000,000, and to the community \$100,000,000. To win the stake fire must be kept out of the area of 100,000,000 acres, or a block of forest 400 miles square. The problem, both on account of the immense area, the variety of causes of fire, the absence of means of transportation and communication, and the present sparseness of population, is a most difficult one to solve. The safe harvesting of the annual yield will require, besides the expenditure of large sums of money, the good will of every citizen in the Province. However, everything favors the satisfactory working out of the problem.”

I quote the above to prove that we are not alone in our efforts to conserve and provide for the future of our country.

Our associated efforts are being extended continually along the lines of economy in manufacture, in the matter of standard grades and sizes, inspection and insurance. Where is the commodity that can be intelligently transported and marketed without a thorough knowledge of both production and consumption? I now claim, and always have claimed, that associated efforts to disseminate this information and collectively endorse projects financially and otherwise to promote the study of forestry and lumbering are the highest types of Conservation of the Nation's resources.

In the great State of Washington, which is now furnishing more lumber than any other State in the Union, and where the lumber production is the chief industry of the State, we are vitally concerned in our legislative work, and concerning our Workman's Compensation Act I wish to bring to this particular Congress a special message. I believe this act emphasizes the benefits of co-operative effort in conserving human life and in protecting the bread-winner, upon whom depends the life and happiness of so large a population.

With an industry affecting throughout the United States over 45,000 sawmills and 800,000 employes, regardless of families dependent on them, you will agree with me that we are all vitally interested in workmen's compensation.

In a recent Bulletin of the National Lumber Manufacturers' Association, Mr. Bronson wrote as follows:

“Thirteen States have adopted workmen's compensation acts, and all have become effective since September 1, 1910. All but one of these laws are optional, the exception being the Washington law, which is com-

pulsory, and which, according to the brief experience had, seems to be the most satisfactory both to employers and employes, saving the employer all expense for industrial insurance, and saving both employer and employe all court costs and giving to the employe the full compensation provided by the law without any deduction for lawyers or fees.

“The thirteen States which have adopted compensation acts are California, Illinois, Kansas, Massachusetts, Michigan, Nevada, New Hampshire, New Jersey, New York, Ohio, Rhode Island, Washington and Wisconsin. In all of these States the common-law defenses are in whole or part wiped out where the employer does not come under the compensation act.”

The law in the State of Washington has now been in operation one year. To those of us who have operated under it, it has already proved what its advocates claimed the most advanced piece of legislation enacted—and we have woman’s suffrage, too.

It is surprising what an effect it has had in clearing the court docket of damage suits and in paying to the injured at a time when the money is needed all the award without the intervention of a third party. With a carefully selected commission of three, responsible to the Governor, and non-partisan in character, we have launched a statute that, regardless of any improvements which may be determined or defects disclosed, has improved the industrial atmosphere both for employe and employer.

The State appropriates a fund of \$150,000 to administer the act for two years. The risks are classified and rates assessed, and quarterly payments called for as required.

The statistical records being made and knowledge gained by the Commission in administering this act will be invaluable and it has already brought to the attention of loggers, lumbermen and all manufacturers the loss of life and limb incidental to the business, the benefits of factory inspection as a further prevention and the fixing of responsibility as to accidents.

I secured from the Commission the attached reports, which I shall not read in detail, but which show detailed comparisons and some interesting figures. (See reports, A, B and C, appended to this paper.)

Our commissioners have been called on many times to address conventions and congresses regarding the law, and I can best state their views by quoting from an address of Commissioner Pratt at our recent Logging Congress, and from a statement issued by Commissioner Wallace. Commissioner Pratt says in part:

“The Workman’s Compensation Act has been in operation now for nine months, and those of you who are actively in business in the State of Washington are more or less familiar with its results.

“In the first place, it is compulsory alike on the employer and employe. The employer has to pay into the accident fund a sum of money based upon a percentage of his payrolls, and the employe must accept the awards of the Commission allowed for work accidents in lieu of his right to sue at common law, subject, of course, to a right of appeal on the amount awarded.

“All the extra hazardous industries of the State are divided into forty-seven classes, each class with a fund of its own, and the accidents arising in that class shall be a drain only upon that fund. As the payments for work accidents deplete the fund in each class it provides for monthly assessments to be made to recoup each class. The payments out of these funds are only for work accidents, all the cost of the administration of the law being paid out of the general taxes of the State. For the first twenty-two months of its operation an appropriation of \$150,000 was made.

“It is unlawful for the employer to deduct any portion of the premium paid into the accident fund out of the wages of the employe. It provides for penalizing any establishment which from poor or careless management is unduly hazardous by raising its rate. If an employer, besides employing men in extra hazardous employment, employs men in non-hazardous employment, the premium shall be paid only the payrolls of the extra hazardous work, but the employer and the non-hazardous employe may elect to come under the act and both shall receive the benefits of the act.

“As each class must pay for only such accidents arising in that class, and as assessments are made only as the funds of that class are depleted, there are but two things that govern the cost of this insurance: the amount of the awards and the number and seriousness of the accidents.

“As I have said, the classes that the loggers and lumbermen are most interested in are seven, ten and twenty-nine.

“The rate for class seven is 5 per cent.; for classes ten, 2½ per cent., and twenty-nine is 2½ per cent. All operations in which those present are interested in these last two classes take the same rate. Class ten is by far the largest class we have, and as it covers several distinct operations it has been divided into four different subdivisions or groups.

“10.1 covers logging and logging operations of all kinds.

“10.2 covers sawmills and lumber yards, etc.

“10.3 covers shingle mills and operations connected with a shingle plant.

“10.4 covers mast and spar manufacture, stump pulling, land clearing, etc.

“We have had the following table compiled of comparative risks of wood-working industries:

| Class Number. | Av. Number of Men Employed. | Number of Time Awards. | Number of Workdays Lost. | Workdays Lost per 1,000 Men. | Number of Dis- memberment Awards. | Dismember- ment Awards per 1,000 Men. | Number of Deaths. | Deaths per 1,000 Men. |
|---------------|-----------------------------|------------------------|--------------------------|------------------------------|-----------------------------------|---------------------------------------|-------------------|-----------------------|
| 7. | 4,120 | 172 | 5,862 | 1,402 | 17 | 4.1 | 7 | 1.69 |
| 10.1. . . . | 12,801 | 440 | 14,926 | 1,166 | 35 | 2.7 | 22 | 1.72 |
| 10.2. . . . | 17,770 | 763 | 14,941 | 841 | 51 | 2.9 | 7 | 0.39 |
| 10.3. . . . | 5,565 | 221 | 5,766 | 1,036 | 56 | 10.1 | 0 | 0.00 |
| 10.4. . . . | 381 | 50 | 1,144 | 3,003 | 5 | 13.1 | 1 | 2.60 |
| 29. | 3,787 | 156 | 3,368 | 888 | 24 | 6.3 | 0 | 0.00 |
| | <u>44,424</u> | <u>1,802</u> | <u>46,007</u> | <u>1,035</u> | <u>188</u> | <u>4.2</u> | <u>37</u> | <u>0.83</u> |

"This table is not as nice a one as I should have liked to show this Congress of Loggers. It shows where the great harm is being done in class ten and it shows which is the greater risk and what part of the class should be charged a higher rate than the other part. Furthermore, not only are we keeping a strict account with each class, and division of a class, but we are keeping a strict account with each individual operator and in the end will publish an account of just how many accidents each firm or corporation has had, just how much has been paid out for them in awards or pensions, for injuries to their workingmen.

"Now, what are we going to do to prevent this loss of life and limb? In the first place, there has been a Labor Commission since 1905 and the mills and factories have been subject to inspection and have been forced to put on safeguards. The loggers have steadfastly refused to allow any inspection laws covering logging to be put on the statute book of the State. Logging is a hazardous life at the very best and calls for strong, dare-devil men, and men who are willing to take chances. Danger is always present and men become so used to it that they get careless. This, however, is no excuse for needless loss of life and limb.

"Once more I want to urge upon the lumbermen of all classes the necessity of more rigid inspection; to have some one about the plant whose sole duty is to see to it that every machine is safe-guarded the best that possibly can be, and that safe-guards are kept in place. It will be money in your pockets if you want to put it on such a mercenary level as that.

"Also I want to urge that a movement be put on foot that our colleges and universities establish chairs of logging and safe-guarding engineering, so that our young men, just fresh from school, shall have a better knowledge to start with on these subjects than did their fathers. Many and many a man-killing machine is used just because some one has not invented a better one.

"The report of the expense of the Commission shows that the total amount expended to July 1 out of an appropriation of \$150,000 was \$87,062.14, and that the proportion of expenses to the amount of business done is 11 per cent., a showing so much below what it costs casualty companies merely to solicit their business as to be notable.

“The president of one of the casualty companies, while I was in New York, showed me their experience, which showed that the cost to them for the last year was 51 per cent. of the premium. As you see, our cost is about 11 per cent. Of course, we do not have to solicit, nor do we have so large a force in the field for adjustment.

“The Commission is keeping well inside of its appropriation, as the allowable average expenses for twenty-two months would be \$6,818.18, while the actual average has been \$6,620.16.

“Other details of the financial report are as follows:

| | | |
|------------------------------------|--------------|--------------|
| Total receipts, accident fund..... | | \$699,508 72 |
| Total expense | | 86,062 14 |
| | | <hr/> |
| Total fund | | \$785,570 86 |
| Cash in fund, 36 per cent..... | \$281,993 32 | |
| Reserve fund, 20.5 per cent..... | 161,154 49 | |
| Claims paid, 32.5 per cent..... | 256,360 91 | |
| Expense, 11 per cent..... | 86,062 14 | |
| | <hr/> | |
| 100 per cent..... | | \$785,570 86 |

“We are executing the law, backed by the State of Washington, and there is less quibble in settlements made by our Commission than there would be by an adjustment made by a casualty company. Neither do we have to pay any attorney’s fees, as the Attorney-General’s office has to attend to all this part of the work for us.

“Since the first of October, there has not been a case filed in any court in the State for damages done to any workman who came under this act.

“This has been a great relief to our courts, and in time will be felt in reduced taxes. The cheapening of our court costs and the removal of all personal liability suits should work a reduction of costs to the general taxpayer.

“One of the features of the old common-law system was the ambulance-chasing lawyer, whom we all know. This gentleman is practically out of business as a result of the Workman’s Compensation Act, but is undertaking to find some activity in the industry of appeals. Out of over 6,000 claims passed upon, only twelve appeals have been filed, one of them from the Imperial Powder Company, to interpret the law, one to determine the scope of the interstate commerce law, one filed by an insane claimant, and several that are in the process of adjustment and dissolution.

“One appealed case has been tried in court and the court sustained the Commissioner’s finding as far as temporary total disability was concerned, but found the claimant entitled to compensation for permanent partial disability, remanding the case to the Commission for additional compensation, which was promptly awarded. Had the Commissioner

been in possession of the facts, the award for permanent partial disability would have been made without appeal.”

Commissioner Wallace makes the following pertinent statement :

“The Washington State insurance system has succeeded beyond the best hopes of its friends and sponsors. In this act, one of the youngest States is giving the older commonwealths another example of a wise and progressive law. The State’s control over public utility corporations, giving the suffrage to women, eight-hour laws for underground miners and women wage-earners, full crew law for railways, and other laws enacted during the past four years in the interest of labor deserve full praise and should not be forgotten in the triumph of our compensation act.

“The compensation act has thus ushered in an era of publicity regarding the appalling maiming, dismembering and killing of workmen in the mines, mills and workshops of our State. The great question just now becomes not what we can give to pay for pain and suffering and even death, but how can we best safe-guard those who toil. This will be real progress ; compensation must ever be mere apology.

“Concerned as we have been as to how the little home flock could be kept together when the bread-winner was stricken down in his endeavor to make an honest living, and thinking in terms of dollars and cents how much it will take to keep the wolf from the door during these times of industrial disaster, we may have overlooked the fact (or was it because we were not familiar with it?) that, according to the best authorities who have made accident prevention a scientific study for a number of years, 75 to 90 per cent. of the accidents that occur are preventable.

“Our law has been widely commended and is in reality the best compensation law in the United States today. It has been rarely condemned, save by those who profited by the old legal system. It has shown the great waste of human energy, manhood and womanhood—wastes which reflect discredit upon this young and virile commonwealth—and as these things begin to be understood by the people they will insistently ask, what can we do, not only to preserve the mineral, the timber, and the water-power resources of our State, but what can we do to conserve our greatest asset—human life?”

I am confident this Congress will endorse the sentiments expressed and I only wish to add the employer and employe, State official and private citizen, voice the same sentiments and desire to give them widest publicity.

REPORT A.

INDUSTRIAL INSURANCE COMMISSION OF WASHINGTON.

Statement of Condition of Accident Fund, September 1, 1912.

| CLASS. | Total Amount Claims. | | Estimated Reserve on Approved Claims. | Balance in Fund. | Deaths Requiring | | Occupation. |
|--------|----------------------|--------------|---------------------------------------|------------------|------------------|-------------|---------------------------------|
| | Paid In. | Paid. | | | Pension. | No Pension. | |
| 1 | \$19,350 71 | \$6,400 60 | | \$12,950 11 | | 6 | Sewers. |
| 2 | 17,839 53 | 3,860 85 | \$3,481 60 | 10,497 08 | 1 | | Bridge and tower. |
| 3 | 6,343 73 | 1,653 90 | | 4,689 83 | | | Pile driving. |
| 4 | 1,996 85 | 463 80 | | 1,533 05 | | | House wrecking. |
| 5 | 70,194 23 | 18,207 10 | 20,008 25 | 31,978 88 | 6 | 2 | General construction. |
| 6 | 52,990 61 | 9,178 86 | 2,063 95 | 41,747 80 | 3 | 5 | Power line installation. |
| 7 | 84,249 20 | 28,886 99 | 17,863 22 | 37,498 99 | 8 | 4 | Railroads. |
| 8 | 30,745 73 | 7,982 15 | 1,180 07 | 21,583 51 | 1 | 2 | Street grading. |
| 9 | 6,340 35 | 2,173 30 | | 4,167 05 | | | Ship building. |
| 10 | 266,461 72 | 167,741 35 | 95,777 56 | 2,942 81 | 33 | 29 | Lumbering, milling, etc. |
| 12 | 6,432 63 | 1,642 25 | | 4,790 38 | | | Dredging. |
| 13 | 16,371 87 | 2,775 43 | 7,574 72 | 6,021 72 | 4 | | Electric systems. |
| 14 | 26,817 34 | 8,120 36 | 1,266 00 | 19,450 58 | 1 | 1 | Street railway. |
| 15 | 4,275 45 | 1,284 21 | 754 52 | 2,236 72 | 1 | | Telephone and telegraph. |
| 16 | 82,110 27 | 33,794 11 | 28,020 37 | 20,295 79 | 11 | 6 | Coal mining. |
| 17 | 14,800 60 | 4,786 55 | 2,352 55 | 7,661 50 | 1 | 3 | Quarries. |
| 18 | 6,368 70 | 4,808 75 | | 1,559 95 | | | Smelters. |
| 19 | 7,008 59 | 717 36 | 2,903 83 | 3,477 40 | 1 | | Gas works. |
| 20 | 1,202 20 | 405 00 | | 797 20 | | | Steam boats. |
| 21 | 8,319 89 | 4,576 43 | | 3,743 46 | | | Grain elevators. |
| 22 | 7,656 94 | 2,370 60 | | 5,286 34 | | | Laundries. |
| 23 | 4,152 43 | 543 40 | 2,805 92 | 803 11 | 2 | | Water works. |
| 24 | 8,084 75 | 5,826 45 | | 2,258 30 | | 1 | Paper mills. |
| 25 | 1,489 06 | 402 65 | | 1,086 41 | | | Garbage works. |
| 29 | 27,134 69 | 16,760 72 | | 10,373 97 | | | Wood working. |
| 30 | 789 83 | | | 789 83 | | | Asphalt manufacturing. |
| 31 | 7,051 68 | 1,580 73 | 842 08 | 4,028 87 | 1 | 1 | Cement manufacturing. |
| 33 | 11,289 16 | 1,536 30 | | 9,752 86 | | | Fish canneries. |
| 34 | 28,349 76 | 15,404 90 | 3,156 32 | 9,788 54 | 1 | | Steel manufacturing, foundries. |
| 35 | 6,216 34 | 1,395 05 | | 4,821 29 | | 1 | Brick manufacturing. |
| 37 | 9,857 48 | 1,828 73 | 3,295 17 | 4,733 58 | 1 | 1 | Breweries. |
| 38 | 3,812 52 | 1,114 95 | | 2,697 57 | | | Textile manufacturing. |
| 39 | 2,627 55 | 415 49 | | 2,212 06 | | | Food stuffs. |
| 40 | 2,149 77 | 203 55 | | 1,946 22 | | | Creameries. |
| 41 | 6,516 49 | 1,297 80 | | 5,218 69 | | | Printing. |
| 42 | 9,885 96 | 5,485 86 | 3,888 34 | 511 76 | 1 | | Long-horing. |
| 43 | 4,584 50 | 2,494 25 | | 2,090 25 | | | Packing houses. |
| 44 | 1,412 96 | 680 25 | | 732 71 | | | Ice manufacturing. |
| 45 | 445 14 | | | 445 14 | | | Theatre stage employes. |
| 46 | 463 27 | 1,908 95 | | 1,445 68 | 7 | 1 | Powder works. |
| 47 | 632 44 | 39 75 | | 592 69 | | | Croosoting works. |
| 48 | 1,006 16 | 83 95 | | 916 21 | | | Non-hazardous elective. |
| | \$875,913 08 | \$368,833 68 | \$197,234 47 | \$309,844 93 | 84 | 63 | |

F. W. HINSDALE, Chief Auditor.

REPORT B.

INDUSTRIAL INSURANCE COMMISSION OF WASHINGTON.

Statement of Expense Account for the Month of August, 1912.

| | |
|-----------------------|------------|
| Mileage— | |
| Commissioners | \$50 00 |
| Auditors | 98 23 |
| Railroad Fare— | |
| Commissioners | 20 35 |
| Auditors | 195 88 |
| Hotel-- | |
| Commissioners | 97 10 |
| Auditors | 447 90 |
| Incidental Expenses— | |
| Auditors | 9 15 |
| Salaries— | |
| Commissioners | 900 00 |
| Auditors | 2,260 29 |
| Physicians | 406 50 |
| Office | 2,067 06 |
| Miscellaneous— | |
| Stationery | 256 81 |
| Postage | 322 61 |
| Telephone | 66 30 |
| Telegraph | 8 24 |
| Office supplies | 208 97 |
| General expense | 60 20 |
| Rent | 110 00 |
| Total | \$7,585 59 |

F. W. HINSDALE, Chief Auditor.

REPORT C.

Olympia, Washington, August 31, 1912.

Industrial Insurance Commission, Olympia, Washington.

Gentlemen—Herewith statement of claims handled by this Department during the month of August, 1912. Also, the number handled during the period from October 1, 1911 to August 31, 1912.

Claims Received.

| | Month of August. | Total to Date. | |
|---------------------------------|------------------|----------------|--------|
| Accidents reported | 1,374 | 10,586 | |
| Files incomplete | | 1,471 | |
| | | | 9,115 |
| Files complete | 1,455 | | |
| Monthly payments continued..... | 262 | 1,972 | |
| Claims reopened | 8 | 129 | |
| | 1,725 | | 2,101 |
| | | | 11,216 |

Claims Disposed of.

| | Month of August. | Total to Date. | |
|---------------------------------|------------------|----------------|--------|
| Finals | 1,097 | 5,255 | |
| Monthly | 262 | 1,972 | |
| Fatal | 36 | 214 | |
| Total permanent disability..... | | 2 | |
| Rejections | 78 | 324 | |
| Suspensions | 46 | 281 | |
| No. claims | 198 | 1,420 | |
| Total disposed of..... | 1,717 | | 9,468 |
| Claims in the work..... | | | 1,748 |
| Total | | | 11,216 |

Respectfully submitted,

J. F. GILLIES (Signed),
Claim Agent.

President WHITE—This is certainly a very important paper. I want to say here that tomorrow, in Kansas City, Mo., a committee from the organized labor interests, and a committee from the manufacturers will meet to discuss a proposition to prepare a bill for presentation to the next Missouri Legislature that shall be fair alike to employer and employe, in regard to compensation for injuries. It has worked well in Washington, it is humane, and it does shut off the dishonest, shyster lawyer who means to get three-fourths or more of the award for the injury, and gives it all to the person who is injured, without any attorney's fees. (Applause.)

I will take just a moment at this time to appoint the Nominating Committee:

George E. Condra, Chairman; E. T. Allen, H. A. Barker, Mrs. Marion A. Crocker, E. G. Griggs, Mrs. Elmer E. Kendall, Henry Wallace, and N. P. Wheeler.

This committee has the duty of considering and nominating the officers for the next Congress. They will have a couple of days for the work.

At the first day's session, there was a report on the program from the National Congress of Mothers, which was to have been presented by Mrs. Orville T. Bright, of Chicago. Through an unfortunate misunderstanding, which was not the fault of Mrs. Bright, she was not here on the first day. We are glad to have the report at this time. I now take great pleasure in introducing Mrs. Bright. (Applause.)

Mrs. BRIGHT—The one object for the conservation of all the material resources of a Nation is for the use, comfort and benefit of the homes of the people.

It would be of little importance what became of forests, lands, waters, minerals or food were there no men, women and children to use and enjoy them.

Therefore, at the very heart of this Conservation work should be the two departments covering homes and child life.

It has been a source of encouragement to see that men who are leaders in many great developments of our land, have given definite place to the study of the conservation of the home.

There is need for it if America is to be the greatest of all the nations, for with its wonderful natural resources it can only be as great as the quality and character of its people.

Great minds are needed to think and plan with wisdom and unselfishness for the America that is to be, for the protection of homes that are to shelter and nurture the men and women who a few years hence will take our places.

The United States has its Departments of State and War and Navy. It has not yet seen that the greatest questions it has to meet are the protection and care of the American people and American homes.

The U. S. Department of Agriculture is educating the farmer to make the most out of his land. It gives him information concerning the soils, the rotation of crops, the protection against the many enemies of plant life, the care and feeding of stock and poultry. It protects the forests and the fisheries. All these things for the service of man have received the guardianship of the Government.

Homes are just as important as farms, and there is just as great need of proper consideration for their elevation and protection as there is that of farms and stock and forests.

The protection of infant life is of more value, even in a pecuniary way, than the protection of the cotton crop, yet three hundred thousand

babies die annually whose lives might be saved if the United States gave the same careful, intelligent information to the mothers as it does to the farmers.

The annual sacrifice of three hundred thousand American citizens from preventable causes is a waste far too great not to receive governmental consideration. Time need not be wasted on compiling statistics. There is need for prompt and decisive action to prevent this needless sacrifice; it means that each year the possibility for at least one hundred thousand homes of American citizens is cut off. That means a serious loss to this Nation and one for which immigration can not compensate.

The wonderful advance in agriculture can be paralleled in human culture if the same methods are used. The trains that go through the country for agricultural demonstrations should carry instruction to both men and women on home-making and child nurture. The list of valuable educational pamphlets published and sent free of postage should include instruction in child hygiene and sanitation.

There is today a need for a Home Department in the National and State Governments that is equipped to study the home problems of America and meet them as only can be done by thorough study and knowledge of conditions, their causes and remedies. The sacrifice of infant life is a small part of the waste that undermines the homes.

Juvenile crime, its causes and treatment are of more vital moment than the boll weevil or the chestnut blight, for the possible good citizen transformed into one who is a menace and expense to society is a great waste.

There are countless organizations which give material and charitable relief. There are few which give the help that will enable the average home properly to guide and train the boys and girls who are wayward, or will help parents to learn efficient methods of child nurture. The home has the greatest power over human life and human character. Too long has it been left to chance and ignorant experiment to make it efficient in its work, stable and permanent.

The home is founded by the marriage of a man and a woman. It is a matter of grave concern to the Nation when divorce breaks up one in every twelve homes, and leaves the children bereft, not only of a normal home but deprived of a true conception of what marriage and parenthood should be. The conservation of the home requires that serious study and work be done to change this condition in America. It can not be done by legislation alone, though one of the greatest needs today for the protection of the home is Federal law governing marriage, divorce and polygamy.

It is a serious menace to the home when forty-four States may make as many different laws as they choose on a subject which is the foundation of the Nation's future.

That a man may be legally married in one State, and that such marriage is illegal in a State adjoining, that divorce is easy in some States and difficult in others, that polygamy is permitted to continue in some States, and that freedom to spread the cult is allowed, have all been undermining influences in the God-given standards of marriage, home and parenthood.

The Government has found it necessary to assume jurisdiction over interstate commerce, railroads and express companies. It is of even more vital importance that it should have jurisdiction over marriage, divorce and their violations. In addition to this, there is need for definite plain teaching of youth in regard to the true high ideal of marriage, of parenthood, and the making of a home. This would prevent a large proportion of the divorces. A standard should be set in regard to the home, and boys and girls should get that as part of their education.

Ignorance of hygiene is responsible for the drawbacks and failures of many homes. It is inexcusable that any boy or girl should be permitted to reach manhood and womanhood without a clear knowledge of personal hygiene, sanitation, and food values. This knowledge is essential to good home-making and good parenthood, and is equally necessary for men and women.

Congestion in cities should not be permitted. In the seaport cities many immigrants from other lands have not the means to go farther, and if they had the means, do not know enough about the country to place themselves where their qualifications would fit best. The cry against immigration is one with which I can not sympathize. The Americanizing of the immigrant should be placed in other hands than the politician's, who uses him en masse for a manipulated vote.

The special education of immigrant men and women would be an important service to good home-making and the ability to train the children to be useful citizens.

The proper distribution of immigrants by careful information as to opportunities for work and the earning of a home is greatly needed. The proper assimilation of our immigrant population is still in its infancy, but is of vital moment, for they also are the future citizens of America.

The city home of the American citizen should not be left to the will of builders whose only thought is to build houses for sale. Many apartments are built today without the amount of light, sun or ventilation necessary to health. Some cities and towns are realizing the need for regulating this.

The Conservation of the home demands that every State should have requirements as to building homes. The problem of a comfortable home for the family with a moderate income is a serious one today. Few cities or towns are giving the thought necessary to make a city of good homes for the average family at prices possible for them to pay.

The country home is equally in need of study and help. The opportunities for social life and educational advantages equal to those given to the city home should be supplied. That means larger appropriations for schools, the employment of the best teachers, the consolidated school, the use of the schools and churches as centers of educational and social life, the making of good roads between home and school and church and market place.

The Government Department of the Home should take all these things into consideration. It should bring to the overworked farmer's wife better household facilities and more help. The greatest drawback to country life today is the overworked wife, who can not get needed help and who goes beyond her strength in cooking and doing housework for farm help as well as her own family.

No one who knows of the terrible results of hook worm in the South resulting from the unsanitary, poverty-stricken hovels, where physical weakness had for years sapped the vitality and energy of men, women and children, can gainsay the fact that Government study of the causes and the remedy has done a service of inestimable value to thousands of homes. Seven years' life among those people proved that many of them were in quality equal to the best American stock, but that disease had brought upon them the unjust stigma of laziness with resulting poverty.

The Government could study and publish the results of its investigation, but Dr. Stiles had to get contributions from individuals to do the educational and medical work necessary to uproot this disease. That is not as it should be. The power to help should go with the power to investigate, for the condition was of much wider interest than to the individuals directly affected.

The National Congress of Mothers and Parent-Teacher Associations have made the subject of the home, of parental education and of child welfare its special study and work for seventeen years. It has worked steadily to build up a united system of parent-teacher associations in connection with every school, to bring about the coöperation of home and school in child nurture.

It has required that these associations should be for child study so that parents might have guidance and help in their problems. It has instituted study courses and provided educational material for the parents. It has headquarters in Washington and has valuable coöperation from Government departments. It should be the Homes Department of the National Conservation Congress because its work is well established, covering every State and reaching to other Nations. It is the only national organization whose membership is composed of parents and teachers and whose educational leaders include the greatest specialists in child nurture and child welfare in home, school, church and state.

I would suggest to the National Conservation Congress that it make the National Congress of Mothers and Parent-Teacher Associations the Homes Department, because in that way it will have consecutive work of high standard, and will bring a strength which could be secured in no other way. Coöperation without duplication brings results.

The National Congress of Mothers offers its coöperation in every phase of conservation for which the Conservation Congress was organized. It also asks coöperation of the Conservation Congress in its international work for home, parenthood and child nurture.

It invites this Congress to be always represented at its annual conferences and at the Third International Congress on Child Welfare in Washington, D. C., in May, 1914.

Life, health, character, all depend on the home and its efficiency. To equip every home for efficiency in its special work is the greatest need in Conservation.

President WHITE—That is surely a fine paper, in a holy cause.

The topic of the next section of the program is "Conservation of Human Life." The subject, "Saving Miners' Lives," will be discussed by Dr. Joseph A. Holmes, of Washington, D. C., Director of the National Bureau of Mines. (Applause.)

Dr. HOLMES—Mr. President, Ladies and Gentlemen: Those of you who have endeavored, even in part, during the past month to attend the Congresses in session in the United States, have found the time all too short to make that possible for you to do. These Congresses have covered all subjects. There is a feeling of unrest, a feeling that we have not done in the past the things which we ought to have done, and that it is high time we were trying to find out what are the best things to do. For some two hundred years in the development of this country we have allowed the individual very largely to take care of himself. We started out with the government theory that each man is entitled to "life, liberty and the pursuit of happiness," and the individual was left to himself to accomplish the purpose he had in view. The country developed rapidly through that system, and we built up a great Nation. but we have in the meantime neglected the public welfare. We are in a state of unrest today in regard to the future, feeling that it is time we were doing what we are trying to do—look after the question of the public welfare.

We have had, furthermore, a period of most rapid progress. When you, Mr. President, and others of us here, go back today to the schools where we went years ago, we hardly know the place. Buildings have changed, new ones have been built, and the teachers of today are different from those we were accustomed to. We see the great system of transportation built by the railroad men of today; we see the means of

communication, some fifteen million miles of telegraph and telephone lines, enabling the people to talk with one another. Yet even that is not speedy enough, so we are using the wireless. And so along all lines of industry, we have developed at a tremendous rate. But it has been a one-sided development, and now we have come to look particularly at the other side—the public welfare, and we are trying to find out what is best, from the experience of all countries, so that the American people may do the best that can be done for the welfare of this country.

It has therefore come about, in connection with this one-sided development, that we have lost sight of that great subject which we have for consideration today—the conservation of human life. We have been too busy to think about it. We have jumped on and off street cars and railway trains; we have slipped on our waxed floors; we have met with all sorts of serious accidents in our fast automobiles and flying machines; yet we ask, “Why are these miners so careless as to kill themselves, and these railroad employes?” And we are just as bad as they are. So let us not talk about careless railway employes, or careless miners, but stop to think what we can do to help the entire situation. Let us ask ourselves the question, “Am I my brother’s keeper?” and there is but one answer, and that is in the affirmative.

I want to call attention to the fact that we have in this country two great foundations of industry. We have always considered agriculture as the great foundation industry of the country, but we have another—mining. The savage did not need any mines. He only wants a limited amount of material for clothing, and a large amount of material in the way of something to eat. He does not need the great modern appliances which we have today. When we drew up the Constitution of this country we did not think the mining industry of much importance, and it was not possible to anticipate the great complex social fabric which we have in the United States today. A man said to me the other day that he thought if Thomas Jefferson could see the things that we are asking of this great Federal Government, he would not know what to do. My own judgment is that he would advocate the doing by this Federal Government of all the things that this great American people demand that it do today. (Applause.) The trouble is that while we were making this tremendous progress, all of the people were not keeping pace, and perhaps it is well that this is true, because if there was nobody to hold back we would not only progress too rapidly, but progress in too many one-sided ways.

We recognize, furthermore, that while agriculture has made tremendous strides, and in large measure because of the investigations conducted under the Federal Government, other branches of industry have made rapid strides, but they have been forced to one-sided development in order to keep pace. It needs, then, the great coöperating

influence of some great force like the Federal Government to help keep the industries from becoming one-sided.

The mining industry touches us on every hand, and today in a great hall like this, where you can find materials from every part of the world, you will find they came from the mine, or were manufactured through the agency of the products of the mine. We can not do anything on a large scale today without the aid of this great mining industry. During last March, the English people awakened to a realization of that fact. They did not consider mining as one of the great fundamental industries, but the stopping of the coal mines for four weeks stopped all the industries of the British, and they came to the conclusion that the very life of the nation was in danger by the cessation of coal mining.

Mining and Conservation should be linked very closely together. Men realize the fact that with agriculture, the resources increase year by year. We increase the fertility of the soil by taking the nitrogen from the air, and from that we get the crops, so that the wealth of the country based on agriculture is easily predicated. The mining industry is just the reverse. We started in this country with greater mineral resources than we will ever have again. Furthermore, in agriculture we have the healthiest vocation known, while mining is the most dangerous industry in the world.

Now, this mining industry has increased so rapidly that we have not been able to take care of many of the difficulties that have arisen, nor do we have a realization of how rapid that increase has been. We have increased in forty years from less than a ton to every man, woman and child, to, in the last year, six tons. Forty years ago a pound of iron, as compared with thirteen today for every man, woman and child. And so it has been with the great industries—they are increasing so much more rapidly than the population that it is hard to tell what has become of this increase, and one of the questions is, can this increase continue? Some of our great statesmen in Washington who have been fighting this Conservation movement, say it can not continue. The fact that the mining industry has nearly doubled every ten years, they say can not continue. But no man today would say that this country will not continue to grow, and as it grows this great mining industry will increase also. We are just entering upon our development. We are just beginning to export the products of our mines, so when we ask the question whether this great Nation will continue to grow, and this industry will increase, there is but one answer, and that is in the affirmative. We ask another question—are these resources inexhaustible? And there is but one answer, and that is in the negative, because we are now beginning to see the end of some of these resources. Shall we curtail the development of an industry like this and not supply the needs of the people? Our politicians ask this and expect us to answer in the affirma-

tive, but no conservationist answers it that way. We say, no, the needs increase and we must meet the needs.

What can we do to perpetuate the welfare of the country? There are but two things we can do, and they are fairly easy to do. Use more and more efficiently all the resources, and prevent unnecessary waste. Now, in connection with this wasteful use of our resources, you say, after all, is there any great waste? What can we do to stop it? Only a few years ago the State of Indiana thought its natural gas was gone, so it passed laws forbidding the waste of natural gas; the Supreme Court of the United States confirmed such an act in regard to coal—after the coal was gone. One of the Supreme Judges said that a man who owns a coal mine had a legal right to destroy it if he wished to. But in the State of New York one of the associate justices overruled the Supreme Justice, and in every case the Supreme Court of the United States, as well as the Supreme Court of the several States, have shown a desire to keep pace with the progress of this country in interpreting the Constitution of the United States for the permanent future welfare of the people of this country. (Applause.) There are a good many signs of improvement, not only in what the Federal and State Governments are doing, but in what private individuals are doing.

Only yesterday, I went through the great plant at Gary, and I found the United States Steel Corporation was using two million horse-power developed from gases from its own operations, which only a few years ago was allowed to go to waste, and that power is not only operating all the machinery of that company, but is supplying the power for other industries in the immediate vicinity. I found that the slag coming from the furnaces, which in many great manufacturing sections of the country we see piled up in great, unsightly masses, is all being converted into cement, and that cement is being used by the people of this country. And so we find an interesting situation—that the steel being manufactured by that plant is likely soon to be a by-product, and not the main product for which the plant is operated.

And so it is when we watch the great industries of this country. Under this great spirit of Conservation individuals are meeting the Federal Government and State more than half way, and they are finding what is the greatest basis of permanent success—that it pays to conserve our resources. And when that great company does any mining for ore in the lake country, instead of burying the materials which they cannot use today, they are laying that material to one side, so that just as soon as it becomes useful it will be immediately available for preparation for that purpose.

Out of five hundred million tons of coal mined last year, we wasted, by leaving it underground, no less than two hundred million tons. Meanwhile, if we could have exported that coal to Central or South

America and brought back from these countries raw materials which we could use in manufacture, it would be something worth doing; but to waste it entirely is nothing more than a discredit to this nation. But what are we going to do about it? The coal operator cannot change the situation, because he is doing the best he can at the price he gets; the miner cannot change the situation, because he is doing the best he can at the price he is paid. It is not simply a question for chemists and engineers—it is a problem for statesmen, and the statesman is the man who must remedy the economic conditions.

To come to the main subject of the Conservation of life, the greatest loss of life we have in mines is in the coal mining industry. I want to say in connection with this, that a careful study of the situation for the past several years has led me to believe that the coal operator in the United States is just as humane and just as anxious to conserve the life of his men as the coal operator in any other known country. (Applause.) Furthermore, that while it is true that of the miners, less than half read the English language and 75 per cent. are non-English speaking and know little or nothing about the laws regulating the principles and purposes of a great country like this, yet they are no more careless in mining because of that fact than are the miners from England and Wales who come here after long experience in mining and knowing perfectly our language and customs. These men are up against a condition that they cannot remedy, and while I do not say that they are doing the best they can under the circumstances, I think they are more and more coming to do the best they can, and I believe we will have more and more effort on the part of both miners and operators to do what is right. We have developed so rapidly in the past hundred years that we have not stopped to think of human life, and we cannot expect these reforms to take place without any effort on our part. There is recognition on the part of both miners and operators, that I am my brother's keeper, and it is a most encouraging sign.

There are these two great reforms in connection with the mines of this country—safeguarding the lives of miners and improvement of conditions under which they labor, and the stopping of waste of our essential resources. The Federal Government is trying to get at the actual information, they are trying to conduct investigations in an impartial manner, and they want to bring about a condition acceptable to both miner and operator. We have suspicion on the part of the operator of the miner; and suspicion on the part of the miner of the operator; and suspicion on the part of other parties in reference to both. What we want to do is to have a condition in this country so that the miner and operator, coöperating with each other, can work together and bring about these great reforms that are needed.

This general welfare clause of the Constitution, which was regarded

as an agreement with the devil. is today our great saving clause for getting things done by the Federal Government. The Federal Government, Mr. President, has waked up long ago to what it ought to do for agriculture, and in the next few years it will conduct investigations far more extensive than today—it will submit remedies brought together from the experience of all mining countries of the world, and it will lead in this great movement for a general improvement of conditions. But after all, what may be done by the Federal Government will depend upon what is done by the Federal Congress. There is where we must do our work, to make them appreciate the difficulties of a great industry like this, and the correctness of this clause.

I want to say a word in behalf of these miners. As I said before, more than half of them cannot read the English language. Under the rules and regulations we have permitted these men to come into the United States, and when they come it is interesting to see how they appreciate becoming an American citizen. I talked to a Lithuanian who had only been in this country a few months, and I said, "Are you not very lonely?" and he said, "Yes, but I am an American." (Applause.)

These men are here, and we have done mighty little for them. We cannot wonder that they segregate in their rooms at night, after working in the mines all day, and read Socialistic literature which comes from their country. We do mighty little to encourage them to learn the English language; we do mighty little to encourage them to enter into the spirit of true America; we have neglected them all too long—and then we complain that they are not American citizens. I appeal to you as citizens of the United States and of the State of Indiana, to see that everything that is possible is done to make good citizens of these men. Get legislation under which they can work, and the safety problem will take care of itself. (Continued applause.)

President WHITE—The next subject for consideration is "The Prevention of Railroad Accidents," by Mr. Thomas H. Johnson, consulting engineer of the Pennsylvania Lines, West. I take pleasure in introducing Mr. Johnson. (Applause.)

Mr. JOHNSON—In approaching this subject it will be well to get our viewpoint adjusted to a true perspective and just proportion. Accidents on railways which result in death or injury to persons, are all reported to State and National officials, and when the statistics for the year are compiled and published the total figures are startling, and suggest that the transportation business of the country is conducted at a fearful sacrifice of life and limb. It should be remembered, however, that in no other line of the Nation's activities are similar complete statistics available.

The only data at hand to show the relation between the numbers killed and injured on railways, and those occurring in other lines of action, are found in a pamphlet issued by the city of Chicago, entitled "Report of the General Superintendent of Police," from which the following table is taken:

CHICAGO, ILLINOIS.

Accidents Reported by the Police Department, Year 1911.

| | Fatal. | Non-fatal. | Total. |
|--|--------|------------|--------|
| Steam Railway Accidents..... | 187 | 554 | 741 |
| Street and Elevated Railway Accidents..... | 106 | 3,646 | 3,752 |
| Accidents Caused by Teams and Vehicles..... | 135 | 2,812 | 2,947 |
| Accidents Caused by Falling from Windows, Scaffolds, Porches, etc. | 149 | 2,680 | 2,829 |
| Bitten by Dogs..... | 4 | 1,281 | 1,285 |
| Injuries by Personal Violence..... | 177 | 2,729 | 2,906 |
| Overcome by Gas, Smoke or Heat..... | 189 | 653 | 842 |
| Scalded or Burned..... | 81 | 216 | 197 |
| Various Other Causes..... | 193 | 1,945 | 2,138 |
| Total | 1,221 | 16,516 | 17,737 |

From this it will be noted that of 1,221 fatal accidents in 1911, only 187 occurred on steam railways, and of 16,516 nonfatal, only 554 are charged against them. Comparing the total accidents, it will be seen that five times as many persons were killed and injured on street railways as on steam railways, four times as many by teams and vehicles, four times as many by falls from windows, scaffolds, etc., and again four times as many by personal violence. Even the dogs come in for having done 73 per cent. more damage than the steam railways. Taking the last two items together, it appears that Chicago's vicious dogs and more vicious men are nearly six times as destructive of life and limb as are the railways.

While the foregoing figures are for the city of Chicago only, they are indicative of the fact that throughout the country the number of accidents on railways is a mere fraction of those occurring elsewhere, and this fact has been recognized by the accident insurance companies when they issue policies calling for double compensation if the accident occurs while traveling in steam or trolley cars.

If the grand total of accidents on railways appears so startling when presented in concrete figures, what would it be if equally complete figures could be had for the other types of accidents classified in the Chicago report?

And now having cleared the atmosphere in that respect, we will proceed to consider the railway accidents on their own merits.

The Interstate Commerce Commission issues a series of quarterly bulletins of railway accidents. They also issue an annual report of gen-

eral railway statistics, in which a summary of statistics of railway accidents was included prior to 1910, but which has since been admitted as an unnecessary duplication. The statistics of the annual report have been compiled on a somewhat different basis from those of the bulletins, and the two sets of figures cannot always be reconciled. In compiling the following tables the annual reports prior to 1910 have been followed as being the final word of the Commission.

It should be noted that the statistics of railway accidents are divided into two general classes:

First. Accidents due to the movement of trains, engines or cars, which may properly be called "transportation accidents."

Second. Accidents not connected with train or car movements, such as happen to shopmen, warehousemen, trackmen handling material, etc., such as are equally occurring in other industries, and which are more properly classed as "industrial accidents."

This discussion will be chiefly devoted to the first class, as being distinctively "railway accidents."

PROGRESS IN THE PAST.

The loss of life from railway accidents began with the day of the opening of the first railway in England, in September, 1825, on which occasion a prominent citizen, a member of Parliament, was knocked down and fatally injured, sending a thrill of horror not only through the great throng of spectators, but also throughout the civilized world. That unfortunate accident was not due to any defect in track or equipment, nor to any fault in the operation of the train. It was due to the victim's failure to appreciate the danger attending the then new and novel mode of transportation, and inadvertently putting himself in a position of danger. It was the forerunner and prototype of many thousands of others which have since occurred through carelessness and sheer recklessness of the victims, and which the railway companies are powerless to prevent.

But as railways multiplied other accidents occurred, which were due to defects of one kind or another in track and equipment, or to inadequate rules governing train movements, and the duties of the several employes. Each accident has been carefully studied as to its cause, and, so far as possible, remedies have been applied. Thus the immense system of transportation as it exists today has been a gradual development from crude beginnings. The light iron rails inadequately secured at the joints have been replaced with heavy steel rails with effective joint fastenings. Train movements have been safeguarded by a well-digested system of rules, uniform on all railroads; by standard forms of train orders with all ambiguities of language eliminated, and by block signals, inter-

locking and automatic couplers, air brakes and other safety devices. Stoves and oil lamps, with their menace of fire, have given way to steam heating and electric lighting. The inflammable wooden cars are being replaced with steel equipment. In fact, there has been a steady progress from the beginning in the effort to reduce the danger to life and limb.

But accidents continue to happen, partly because the rapid growth of traffic and the demand for greater speed are creating new conditions, partly because materials have hidden defects and the human machine is not infallible, and partly because discipline has been largely subverted through the attitude of the brotherhoods of employes.

In order to show in a general way what has been accomplished, the average figures for the five-year period from 1889 to 1893, inclusive, have been compared with the corresponding figures for the years 1907 to 1911, inclusive, with the following results:

Ratio of passengers carried to one killed has increased 35.5 per cent.

Ratio of employes to one killed has increased 54.7 per cent.

This shows a very decided gain in the twenty-two years covered by the record.

The number injured cannot be compared in the same way, for the reason that in the later years the reports include large numbers of minor injuries of a more or less trivial nature, which were not included in the earlier reports, but which the Interstate Commerce Commission now requires to be reported, thus swelling the number injured out of all proportion to the earlier reports. Under the present rules, if a passenger lets a window sash bruise his finger, and it is brought to the attention of any of the train crew, it must be reported, and enters into the final statistics with as much weight as the loss of an arm or a leg.

CAUSE AND PREVENTION.

In the Accident Bulletin for June, 1910, pages 10 and 11, there are given detailed statistics of twenty-six "prominent train accidents" with the causes of each. They embrace thirteen collisions and thirteen derailments, resulting in sixty-two killed, 306 injured, and a property loss of \$261,584. The causes assigned may be grouped under fifteen heads, as follows:

Excessive speed, 5; ran by meeting point, 2; failed to flag, 5; disobeying orders, 1; misunderstanding orders, 1; failure to receive orders, 1; conflicting orders, 1; signal light out and engineman failed to stop, 1; broken rail, 2; explosion of boiler, 1; spreading of rails, 1; washout, 1; trestle failed, 1; insufficient ballast, 1; defective temporary junction of new and old rails, 1. Total, 26.

These fifteen assigned causes may be summarized thus:

Failure of persons, 18; failure of boiler, 1; failure of track and structures, 7. Total, 26.

Of the seven failures of track and structures, the two cases of "broken rails" and one "washout" may be considered unavoidable. The remaining four cases in that group, viz., "spreading of rails," "trestle failed," "insufficient ballast" and "defective temporary junction of old and new rails" were preventable, and could have occurred only from neglect of those charged with their care and maintenance.

The one case of "explosion of boiler" may have been due to defective material, or to negligence of the engineman.

We find, therefore, that in this group of accidents, twenty-two were preventable, three unavoidable and one doubtful.

Of the unavoidable, the "washout" may be dismissed as being beyond the control of human agencies, but the "broken rail" calls for further consideration.

Rail failures are generally due to chemical or physical defects, not entirely under control of the manufacturer, and not discoverable by inspection of the finished rails. Under the present practice the manufacture of rails is watched at the mill by the railway company's inspectors. Specimens from each heat or melt are tested under a weight of 2,000 pounds falling fifteen feet to twenty feet. If the test piece breaks the steel is regarded as too brittle, and the rails from that heat are rejected. If it does not break, but the deflection exceeds the prescribed limit, the steel is too soft, and those rails are accepted as seconds, to be used only in yards and side tracks. All test pieces which do not break under the foregoing drop test are then broken and examined for internal defects. If defects are found, further tests are made, and the heat rejected in whole or in part, on the extent of unsoundness disclosed.

But herein lies a difficulty. Internal defects can only be found by breaking the rail. A rail broken is past usefulness. Hence that form of inspection cannot be applied to every rail; and as we can only test a limited portion of each heat, some defective rails must inevitably be passed and get into track. Complete statistics of all rail failures on a large proportion of the railways of the United States have been collected by the American Railway Engineering Association for several years past. These reports have been collected and classified as to the several causes, the results being printed in the publications of the Association. They show that the rails which fail annually are less than one-eighth of one per cent. of the rails laid. This indicates fairly successful inspection, and would be quite satisfactory were it not that a single failure may result in such horrible consequences.

Five years ago (1907) as the result of several conferences between a committee of the American Railway Association and the rail manufacturers, a systematic study of the subject was undertaken, with a view to

ascertaining the cause, and if possible, the prevention of rail failures. This research work was placed in charge of the Rail Committee of the American Railway Engineering Association, who engaged the services of a competent expert, who devotes his whole time to the work, furnishing freely of their materials and facilities at the mills. The line of investigation includes studies of the effects of variations in composition; in time in the bath; in time in the ladle; in manner and rate of pouring; in size of ingot; in rate of reduction at each pass; in temperature of the metal when rolled; in the effect of different alloys, etc. The field of investigation is broad and complicated. Much progress has been made, but much remains to be done. It is hoped, however, that success will ultimately be reached, and the rail failures in service be reduced to the lowest possible minimum. Certainly the railway engineers and the manufacturers are making every effort to accomplish that result.

Of late the adoption of some form of automatic stop has been suggested, and more or less urgently advocated. But let us consider: Referring again to the list of causes of the twenty-six accidents, such a device would have been called into play only in one case, that of running by a signal when the light was out. It could have had no influence on any one of the other twenty-five cases. Furthermore, it has been the experience the world over that emergency devices, resting in "innocuous desuetude" for long intervals of time, usually fail to work when the emergency arises. It may be said that it should be some one's duty to see that the apparatus is kept in working order. Very true. But therein is a reversion to ultimate dependence on the human factor with its attendant weakness and frailties.

The foregoing list of accidents embrace only a few of the more prominent "collisions" and "derailments." But there are other forms of accident, as shown in the following statistical tables copied from the Interstate Commerce Commission Annual Report for 1909:

ACCIDENTS RESULTING FROM THE MOVEMENT OF TRAINS, LOCOMOTIVES, OR CARS.

Interstate Commerce Commission Annual Report, 1909.

| KIND OF ACCIDENT. | Employees. | | | | | | | |
|---|--------------|---------------|--|------------|--------------|------------|-----------|------------|
| | Trainmen. | | Switch Tend-ers, Crossing Tend-ers and Watchmen. | | Station Men. | | Shopmen. | |
| | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. |
| Coupling or uncoupling. | 137 | 2,271 | 4 | 35 | 2 | 2 | 1 | 17 |
| Collision. | 205 | 1,973 | 1 | 10 | | 1 | 1 | 23 |
| Deraillments. | 184 | 1,186 | | 10 | | 2 | 1 | 6 |
| Parting of trains. | 7 | 233 | | 2 | | 1 | | |
| Locomotives or cars breaking down. | 0 | 159 | | 2 | | | | 6 |
| Falling from trains, locomotives, or cars. | 295 | 4,433 | 1 | 56 | | 30 | 2 | 65 |
| Jumping on or off trains locomotives or cars. | 84 | 4,135 | 6 | 64 | | 24 | 4 | 59 |
| Struck by trains, locomotives or cars. | 243 | 577 | 72 | 79 | 21 | 25 | 41 | 89 |
| Overhead obstructions. | 47 | 775 | | 6 | | | | 4 |
| Other causes. | 133 | 13,376 | 9 | 243 | 2 | 121 | 14 | 465 |
| Total. | 1,344 | 29,118 | 93 | 507 | 25 | 206 | 64 | 734 |

| KIND OF ACCIDENT. | Employees (Continued). | | | | | | | |
|---|------------------------|--------------|---------------------|-----------|-----------------|--------------|--------------|---------------|
| | Trackmen. | | Telegraph Employes. | | Other Employes. | | Total. | |
| | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. |
| Coupling or uncoupling. | | 7 | | | 11 | 50 | 155 | 2,382 |
| Collisions. | 18 | 132 | | 7 | 27 | 163 | 252 | 2,309 |
| Deraillments. | 13 | 64 | | | 10 | 117 | 208 | 1,385 |
| Parting of trains. | 1 | 2 | | | 1 | 12 | 9 | 250 |
| Locomotives or cars breaking down. | 2 | 10 | | | 1 | 1 | 12 | 178 |
| Falling from trains, locomotives or cars. | 13 | 159 | | 7 | 36 | 233 | 347 | 4,983 |
| Jumping on or off trains locomotives or cars. | 16 | 130 | | 13 | 22 | 261 | 132 | 4,686 |
| Struck by trains, locomotives or cars. | 353 | 412 | 8 | 12 | 187 | 345 | 925 | 1,539 |
| Overhead obstructions. | | 4 | | | 5 | 20 | 52 | 819 |
| Other causes. | 25 | 882 | | 34 | 83 | 1,340 | 266 | 16,461 |
| Total. | 441 | 1,802 | 8 | 73 | 383 | 2,542 | 2,358 | 34,982 |

| KIND OF ACCIDENT. | Passengers. | | Other Persons. | | | | | |
|---|-------------|--------------|----------------|--------------|------------------|--------------|--------------|--------------|
| | Killed. | Injured. | Trespassing. | | Not Trespassing. | | Total. | |
| | | | Killed. | Injured. | Killed. | Injured. | Killed. | Injured. |
| Collisions. | 69 | 2,379 | 13 | 49 | 25 | 447 | 38 | 496 |
| Deraillments. | 17 | 2,426 | 32 | 69 | 6 | 287 | 38 | 356 |
| Parting of trains. | | 47 | 3 | 3 | | 13 | 3 | 16 |
| Locomotives or cars breaking down. | | 2 | | 1 | 1 | 4 | 1 | 5 |
| Falling from trains, locomotives or cars. | 37 | 425 | 413 | 732 | 13 | 72 | 426 | 804 |
| Jumping on or off trains locomotives or cars. | 81 | 1,503 | 445 | 1,688 | 11 | 120 | 456 | 1,808 |
| Struck by trains, locomotives or cars: | | | | | | | | |
| At highway crossings. | 2 | 3 | 112 | 211 | 621 | 1,619 | 733 | 1,830 |
| At stations. | 30 | 67 | 365 | 334 | 66 | 183 | 431 | 517 |
| At other points along track. | 1 | 12 | 3,371 | 2,037 | 79 | 143 | 3,450 | 2,180 |
| Other causes. | 12 | 2,715 | 190 | 635 | 47 | 1,030 | 237 | 1,665 |
| Total. | 249 | 9,579 | 4,944 | 5,759 | 869 | 3,918 | 5,813 | 9,677 |

Referring to the column of totals under the head of "Employes" you will note the large number of killed and injured in coupling or uncoupling cars; this in spite of the fact that all the equipment is fitted with automatic couplers, intended to prevent just those accidents.

The next two items, "Collisions" and "Derailments," are also large, both as to employes, passengers and others, and we have already seen that in the former list eighteen out of twenty-six were due to "failure of persons." Referring again to that list it will be further seen that sixteen of the eighteen were due to failure of the persons in charge of the trains, which justifies us in assuming that a similarly large proportion of these totals are due to like causes.

Please note also the large numbers, running through all these classes of persons, opposite the items "Falling from trains, locomotives or cars" and "Jumping on or off trains, locomotives or cars." These may all be charged to the carelessness of the victims.

So, also, those "Struck by trains, locomotives or cars" nearly all of these are chargeable to the fault of the parties themselves.

"Other causes" are also prolific in casualties, but the data at hand does not disclose the extent to which they are chargeable to carelessness of victims or others, to preventable or to unavoidable causes.

Your attention is also directed to the very large numbers of killed and injured while "trespassing" on the railway property. Some of these belong to the great army of tramps infesting the country, but the largest part are people of the communities along the lines, who persist in using the tracks as a public thoroughfare. In most of the States there are laws on the statute books which are adequate to prevent this if duly enforced, but it seems impossible to get such enforcement. On the lines with which the writer is connected, efforts have been made in the past to break up this practice, but without success. Parties arrested by the railway company's police and taken before the local magistrate have been released without punishment or only assessed a nominal sum to secure to the magistrate his fees. A rigid enforcement of these laws, and similar action as to jumping on or off locomotives and cars in motion (as is done in Europe) would eliminate approximately one-half the total killed and one-fourth the injured.

Here is a field in which the railways alone are helpless, but where much can be accomplished by legal enforcement, supported by strong popular approval. Without the latter, little aid can be expected from the average country justice or city magistrate.

INDUSTRIAL ACCIDENTS.

The first man to publicly call attention to the need of organized effort in this direction was Mr. R. C. Richards of the Chicago and Northwestern

Railway, in his booklet "Railway Accidents, Their Cause and Prevention," published in 1906. The seed thus sown has taken deep root, for at the present time nearly every leading railway in the country has an organized safety committee, whose duty it is to make regular periodic inspections to see that work places and tools are in safe condition; that yards, tracks, stations, buildings and grounds are clean and properly lighted; that shop machinery is protected by safeguards over gearing and other exposed moving parts, and that men are taking proper precautions for the protection of themselves and others. They report upon conditions which they feel can be improved, investigate accidents with a view to preventing repetition, and recommend improved methods of work to reduce risk of accident.

The Northwestern, after the first sixteen months, showed a decrease of 23.7 per cent. in deaths, and 29.8 per cent. in injuries, compared with the previous period of the same length. On the Pennsylvania Railroad the result of the first eleven months was a decrease of 63 per cent. in the combined number of deaths and serious injuries. These results are most gratifying, and demonstrate the usefulness of such close inspection and watchfulness.

IN CONCLUSION.

Accidents due to washouts, and to hidden defects in material are in the main unavoidable, though the former may sometimes be avoided by increased care and watchfulness during and after storms, and it is hoped that the latter may be materially reduced through the investigations now in progress in steel making.

Accidents due to imperfectly maintained track can be avoided by better maintenance, or by reducing speed to correspond to the conditions of the track. Speed and track conditions are interdependent factors.

Accidents due to jumping on or off trains in motion, and to trespassing, can be and should be eliminated by a rigid enforcement of existing laws, or the passage of new ones, if those on the statute books are found to be inadequate. As already stated, this would save one-half the annual deaths and a large proportion of the injured.

Substantially all of the casualties in coupling and uncoupling cars are due to carelessness of the men themselves, and the same may be said of most of those due to falling from or being struck by trains, locomotives or cars. It is difficult to suggest a remedy for this, or to formulate a course of procedure to reform the men in this respect. Recent and prospective legislation affecting the employers' liability will not be conducive to increased carefulness, but will rather tend to foster carelessness.

Train accidents due to error, negligence or incompetence should be corrected by proper discipline. But the administration of discipline is

restrained and obstructed by the brotherhoods, whose officers claim the right to be present at all investigations, and the discipline ordered must meet their approval. They contest suspension and dismissals by appeals to higher officers who have no personal knowledge of the men, and use every means at their command, even to threatening a strike, to prevent the order from being carried out, often with success, all of which is subversive of discipline.

It is not a comforting thought that, when you, 'here assembled, disperse to your homes, some of you may place your lives in the hands of a man who is retained in the service through intimidation, rather than fitness and merit.

There can be no remedy for this while unprincipled demagogues and politicians, catering for votes, continue to appeal to class prejudice, and while the sympathies of the people, public officials and arbitrators seem to be arrayed against the railways.

President WHITE—We have now something else very interesting, and the next speaker will only keep you fifteen minutes. I now take pleasure in introducing Mr. A. B. Farquhar, of York, Pa., who will speak on "Vital Statistics and the Conservation of Human Life a National Concern." He knows his subject; he knows it by experience; he has been through it; and he has met the classes, met the conditions he speaks of. He has a message to give you that is well worth hearing.

MR. FARQUHAR—Mr. Chairman, Ladies and Gentlemen: Yes, I have been interested in this subject for perhaps seventy years of the seventy-five years of my life. I am very much interested in the work done in Pennsylvania. I shall refer to that, as is proper in a man sent as a delegate to this Congress by the Governor, and I believe it is a good example to other communities.

Vital statistics are usually assumed to cover only the number of births and deaths occurring in a given territory within a given time, a subject not attractive to the general reader, but this address will be devoted more particularly to the objects for which and the agencies by which such statistics are assembled, which is far more important and interesting, especially as it includes the social questions they resolve for us. "It is sometimes said figures rule the world; but this at least is true, that they show how it is ruled." To this saying of a wise man may be added that they also show how it might be or should be ruled: they best illustrate "philosophy teaching by example," because most precise and definite in form of presentation. They are of most use when applied to the most important interests of mankind, and have no higher function than in bearing their part in safeguarding the nation's health.

For its vital statistics the Federal Census Bureau has always had to depend on data collected by local agencies, and of the imperfection of

those agencies, and especially the large territory for which there were none—no attempt to keep the official record of births and deaths, it has loudly complained. Notwithstanding the commendable efforts that have been made throughout the country to supply deficiencies by State legislation, so much remains yet to be done that a census report, as late as 1907, showed less than half the population of the country, and only a third of the States in number, within the registration area. But the movement has been forward, and it is gratifying to note that the most significant step in advance was made by Pennsylvania, in a law creating a state department of health and fixing its duties in 1905. Until then that commonwealth was said to have "the poorest registration of any of the Eastern States," though its first law for the purpose had been passed fifty-four years earlier; but "it had in 1906, the first year of the operation of the new law, an effective registration of births and deaths practically as complete as that of any registration State in the country, and far superior to the majority." The best point about the law of 1905, and its most significant difference from that of 1851, is that it is executed. Obedience is no longer optional, but compulsory. Authority under it is centralized in the hands of the Governor, Attorney-General and Commissioner of Health, and practically for most purposes in those of the Commissioner.

The total appropriations for work under this department since 1905 have been \$9,286,080. The number employed by its various divisions is 3,625. Of this number there are 1,170, nearly one-third of the total force, who are local registrars in the vital statistics service.

With what is so large a force to occupy itself? The 1,170 registrars receive all birth and death certificates and issue all burial permits (to which registration is a prerequisite), and the bureau has also charge of marriage certificates, filed with it by the clerks of county courts. The medical inspection division establish quarantine under direction of the county inspectors, see to placarding houses and disinfecting them after cases of communicable disease, guard against the sale of milk from premises where any such diseases are found, and represent the department in coöperation with local health boards. Supervision of the medical inspection of schools forms also an important part of the duty of these officers, some 300,000 children having been examined during the past school year. At the free tuberculosis dispensaries, with which the department has provided the large centers of population, the indigent receive free medical advice and necessary supplies. The commissioner has supervision, by the act creating the health department, of all systems of public water supply and of public or private sewage disposal. Detailed plans must be filed with the department, and no new construction can be done until the Governor, the Attorney-General and the Commissioner have approved the plans. The biological products division distributes, through 656 stations

in all parts of the commonwealth, free antitoxin to the poor. The stations are located as impartially as practicable.

What has been accomplished by all this equipment, discharging all these functions, cannot be completely told; a few figures may be given, with a result here and there, and the rest left to estimate of probability. For example, the statement that 6,724 patients were admitted to the Mont Alto Sanatorium in the four years 1907-1911 certainly indicates the magnitude of the problem, and the importance of giving it the best attention we can. It is perhaps a little more significant that 58,004 patients have been treated in the department's tuberculosis dispensaries since they were organized. The activity of the sanitary engineering division is clearly shown in its recorded count that up to June, 1912, 40,447 private sources of stream pollution had been abated on notice from the department. One hundred and eleven modern sewage-disposal plants have been built or are in process of building, 306 municipal and private sewer systems are under construction in accordance with plans approved by the health department. Ninety-seven modern water filtration plants have been or soon will be constructed under State approval. It is worth while to connect with this fact another even more gratifying: the death rate from typhoid fever in Pennsylvania, which was, in 1906, 565 per million inhabitants, had fallen to 206 per million in 1911. As a final instance, the death rate from diphtheria, a little over 42 per cent. in untreated cases, has been reduced in the average of the 35,111 cases treated with antitoxin between 1905 and December, 1911, to 8.07 per cent., or less than one-fifth. Further, a certain district having been set apart for the trial of 5,000 units, instead of the usual 3,000, as an initial dose of diphtheria antitoxin, the death rate in that district has now shown a reduction to 4.22 per cent.

This story is not told for the mere satisfaction of praising our Keystone State or its faithful and capable public officers, though for that, too, it affords opportunity. Its function is to point a moral, to indicate a course of treatment of the subjects of vital statistics and public health, which, as Pennsylvania's experience leads me to believe, may well be applied to a wider field than Pennsylvania. It is not by accident that the association of statistics of births and deaths and marriages, with a State office for the promotion of public health, has come into favor at the same time in so many parts of the country. The force of example is something, to be sure, as is also the circumstance that a physician is usually at hand, when a birth or death occurs, that he is apt to know what there is to tell about the occurrence, that he is apt to know how to report, and that the State health office is one to which a physician might naturally address himself. But more important than these considerations is the value of birth and death records in the conservation of the people's health. From the greater or lesser number they show the favorable or

adverse effects of accompanying conditions can be judged, and a conclusion reached as to how such conditions should be regulated. Nor could any condition be more important to regulate than those affecting health. The people's health is its most precious asset. Dr. Wiley says he "would rather be a strong, vigorous man without a dollar than a sickly millionaire," and thus indicates the pecuniary value of health to an individual. Multiplying that value by the number of the population, the amount becomes fairly appalling.

We have a department of agriculture expending vast sums—nearly fifty millions in the last decade—in improving the soil, improving the growth of vegetation, improving the health of animals, and no department to do anything to improve human health. We spend \$700,000,000 a year for past and imagined future wars, and pay no attention to the 700,000 calculated above—a larger number dying every year, unnecessarily from disease, than bullets have slain since the continent was discovered. As we are reminded by Dr. Dixon, our Pennsylvania health commissioner, we are spending millions a year for the protection of our forests and water supply and other natural resources, but it is no credit to our intelligence that while guarding these material interests we allow man himself, without whom all else is worthless, to remain unguarded.

Yet it is a mistake to say that we do and have done nothing; what has been done is greatly to the credit of mankind, only it has not been enough. Jenner's discovery and his application of it has left no excuse for smallpox anywhere. The president of the board of health in Mexico assured me that compulsory vaccination had freed his city of smallpox; and the Japanese health authorities, since their enforcement of compulsory vaccination, have ceased altogether to look upon the presence of smallpox as a source of danger. It is no longer a scourge in the Philippines and Cuba. Similiar to the work of Lister in antiseptic surgery is that of Pasteur and Koch in various germ-diseases, of King and Carroll and Lazier in mosquito-transmission of infection. With the elimination of the *Stegomyia* mosquito, yellow fever is no longer dreaded; Havana and the gulf ports are as safe as anywhere; and the construction of the Panama Canal has become possible—as, but for the discoveries by Carroll and Lazier (or their rediscovery of Dr. King's discovery) it never could have been.

From the brilliant successes attained in the directions just indicated, we seem to see that the most important thing for us is to know; we are to find our safety in knowledge. When we know that malaria is inoculated by the bite of the mosquito *Anopheles*, and yellow fever by the mosquito *Stegomyia*, that typhoid fever is fed to us, in a large proportion of cases, from the feet of the house-fly, that the fearful bubonic plague is inoculated by the bite of a flea infesting the rat, we have already traveled more than half way to deliverance. We can drive off the mosquito,

or, by oiling the puddles, prevent her from hatching; we can "swat the fly," or abate the manure-heaps and other filth from which it draws its unblest being; and, if we can not catch the flea, we can make war upon its host, the rat. If, as is computed, within the last 2,000 years 2,000,000,000 people have fallen victims to the bubonic plague, it is enough to justify wholesale enlistments in a grand rat-hunt.

Half a century ago people were afraid of night air, and closed their windows at night. It is hard to guess how many lives might have been saved by opening those windows. We are told that the average duration of human life has doubled in the last 200 years. Whatever gain there has been is due, more than anything else, to more knowledge.

The case of pure air as against contaminated air is but one way of putting the general case of cleanness against foulness. Bad air has the same vices that attach to dirt in other forms; one of the uses of more knowledge is to be able to detect dirt in all forms, however concealed or disguised; and another is to discover the best means of sweeping it away. Our ancestors used to drink water from pools and wells that were sinks of organic filth, to worship in churches built over an array of corpses in all stages of putrefaction, to wear the same suit of leather clothes, day and night, till they fell apart or the wearer outgrew them—all because they knew no better. They had no conception of the disgust with which such habits were to be regarded by a more educated posterity. Now the golden rule of health is "Wash you—make you clean!" It is not enough to make, or even to keep, the children's faces clean; we must look no less to the cleanness of the lung passages, of the alimentary canal—yes, of mind and heart also.

Morally and esthetically, there is nothing in relation to which the duty to be clean is more stringent than the reproductive function. The source of the greatest work in all God's creation, the human race, ought more than all else to be pure; and the necessary condition of our endowing the earth in coming ages with a better human race than it now has, or has ever had, is that we provide that coming race with the best kind of parentage. The quality of the next generation is determined by the quality of this generation; it will be in most respects as we make it, clean if brought forth in purity, foul if engendered in foulness. And the truth so strikingly evident in the moral and esthetical view is even more clear in the view we are here taking, that of the race's health. To sexual impurity, by the testimony of the best physicians—the illustrious Dr. Osler for instance—more physical degeneration is due than to any other one cause. Dr. Prince A. Morrow, president of the Society of Sanitary and Moral Prophylaxis, estimates the number constantly ill from syphilis in this country—although that number has of late been considerably reduced—as still no less than 2,000,000. The syphilitic poison is com-

municated by inoculation—a contagion that has no danger for us so long as held at a respectful distance; and the essential point in guarding against it is to preserve that distance. Like the venom of the rattlesnake it is best known in a knowledge of its lurking places. It was first recognized in Europe, some time in the fifteenth century; and it came from the Orient, not of its own initiative, but because Europeans went after it and fetched it. Similarly now, a man does not have it unless he goes after it. There is nothing in the whole range of human disorders that shows more emphatically than this, the feebleness and inadequacy of the best possible cure as compared with prevention. Knowledge seems all that is needed for complete prevention; any young man, having more than the resolution and self-control of an infant or an idiot, ought to require nothing more than an elementary acquaintance with a few facts that should be at the command of every instructor of youth, to insure his leaving the syphilis and gonorrhoea factory permanently alone. If their baleful function were made clearly known to those who most need to know it, the entrance door to every such temple of moral and physical ruin would carry to the eyes the sign that greeted those of Dante: “All hope abandon, ye who enter here”—a prospect whose unrelieved blackness looks even darker when contrasted with the brilliant glory of the hope relinquished. It is a law of our human constitution that the richest, deepest, keenest joys that life has for us are those that come from the contrast of two sexes. Even when that contrast is hostile, there seems to be some pleasure in it; but immeasurably more when it is an incident of ardent attraction. Byron in one of his earlier poems thus puts it:

“Devotion wafts the mind above,
But Heaven itself descends in love;
A feeling from the Godhead caught,
To wean from self each sordid thought;
A ray of Him who formed the whole;
A glory circling round the soul!”

It is too well known that the poet's own loves, in after years, were not always of this ideal quality; but no one ever better set forth the exalted possibilities of the sex-sentiment, to which the continuance of life on earth is due. But the worst, we are often reminded, is the corruption of the best, and it is another possibility of the same sentiment that it may urge a man to blast his whole future by incurring an incurable disease, and—sadder yet—too often to involve others, tender and innocent lives, in his own condemnation. If more knowledge can ward off such a grisly fate, it is surely inhuman cruelty not to supply that knowledge, however disagreeable the duty may appear. When clearly seen as a duty it will be no longer disagreeable.

While making this call for more knowledge of vital truths primarily on account of the young men, since it is in the vast majority of cases the man who tempts, the man to whom the outcast woman owes her fall, it would be the wildest folly to stop with one-half of the rising generation. The future of the race is too dependent on its mothers to excuse or permit the neglect of any preparation of them for motherhood, which health in its fullest sense may demand.

Most of the great questions of health in its widest sense, of health as a public concern, resolve themselves into resisting the entrance of this or that species of bacterial germs into the body. The essential distinction between Mother Earth, that bringeth forth flowers and fruits, and grass for our herds, and dirt or filth, the especial opprobrium of the hygienist, is that the latter carries germs of bacteria. Cleanness, in the hygienic sense, is freedom from pathogenic germs; and when the doctors tell us that the marked improvement in health conditions recently observable in Germany and Switzerland, and pre-eminently in Sweden, is due to their exceptional attention to cleanliness, they use the term with particular reference to the provoking causes of preventable sickness. Not only is the death rate from the acute diseases in those lands rapidly falling off, but diseases of the chronic class are beginning to yield to the inculcation of better habits among the people.

We are by no means without instances in this country, of death rates reduced by preventive methods, as shown for young children in our largest cities after the introduction of pasteurized milk. Deaths have been thus spared for that peculiarly helpless class of sufferers, to the extent of fully 50 per cent. in some districts—in large measure through the well-directed activity of one public-spirited New York merchant. But we have much to do in other lines, and we have only begun to free ourselves of the typhoid fever incubus. As late as fourteen years ago there were 11,000 cases of that infection in the camp at Chattanooga, with 800 deaths. In the entire Spanish war the deaths of our soldiers from diseases, it was calculated, were thirteen times as many as from wounds in battle—the diseases mostly, like the Chattanooga typhoid, of the preventable kinds.

Loss of life by preventable accidents, on railways, in factories and mines, is too closely associated with that by diseases to be here omitted, though entitled to much fuller treatment than we can here afford. The deathroll from this cause is still disgracefully large in this country, far surpassing any country of Europe; but there are signs already of diminution. For instance, one steel factory, reporting 43 accidental deaths among 6,000 employes in 1906, showed only 12 fatalities in a payroll of 7,000 in 1909, safeguards having been introduced in the meantime. This instance is very good, so far as it goes, but we need to make much more progress in the same direction.

What we want is systematic effort, by some powerful consolidated agency, to promote the conservation of human life. We have no need to find fault with any of the organizations now engaged in furthering that end, several of which are doing good work. We may gratefully acknowledge the aid of the various medical societies, "regular" and "irregular"—though we take the liberty of wishing that they might fight the common enemy a little more and each other a little less. We may also welcome the assistance of the life insurance companies, notably the Equitable and the Metropolitan, whose managers clearly realize how their interests are involved. Whatever lengthens the average term of human life is a factor operating to increase their dividends and to reduce the cost of insurance to their policyholders. It is worth while to note, at this point, that the majority of life insurance officers are strong advocates of the formation of a national bureau or department of health.

Still more do we owe to the activities of State and municipal boards of health, which do more good because they have more power. Where properly supported they have done a great work, at obstructing the spread of epidemics by quarantines and other methods of isolation, at curing pollution of water supply, at instituting improved sewer systems, at bettering the general food supply by inspection of markets. You have just heard a condensed account of the activities of one of our best State health departments, that of Pennsylvania. You will infer from what that department has done in seven years what might be done by a national bureau or department, with powers and field of operation extending over the entire country.

The movement for a bureau or department of health, national in its scope, has been most actively advanced in Washington by Hon. Robert L. Owen, Senator from Oklahoma. His bills call for a department, and he gives strong reasons for the view that such an organization would, while that of a bureau would not, suffice for the national governmental activities in behalf of the public health. President Taft strongly urges a "Bureau of Public Health," and plainly intimates a preference for the bureau plan. The "Committee of One Hundred on National Health," formed by the Association for Advancement of Science, in 1906, with Prof. Irving Fisher as its president, originally contemplated a department whose head should be a member of the President's cabinet, but it has in its recent publications adopted the alternative phrase "bureau or department," which course is here followed, because there is manifestly nothing to gain by keeping up a contest on the point. The memorial prepared by the committee of one hundred proposes for a national department of health certain functions, as follows:

1. Administration—Including the national quarantine work, and whatever regulation of interstate commerce might affect human health, such as meat inspection and enforcing the food and drug act.

2. Co-operation—The work of assisting State, county and city health agencies, after some such fashion as the National Department of Agriculture co-operates with State agricultural colleges and institutions.

3. Research and Investigation—The work of obtaining needed scientific information concerning the cause and prevention of diseases that now shorten or impair human life; this would include a study of accidents, of poisonous manufacturing trades, of hygienic conditions in schools, etc., just as yellow fever was studied in Cuba, as the hookworm is now to be studied under private endowment, as the work of the Pasteur Institute was conducted under French government support.

4. Education—The work of supplying to the country scientifically established data on matters pertaining to health, such work as is done by the "publication division" in most of our governmental departments; thus rendering available for practical use the work of research and investigation. The countries in which is found the most rapid reduction of the death rate are just those (Sweden for example) in which the spread of a knowledge of hygiene is widest.

Of these functions the mere statement is a most powerful argument for the bureau or department suggested. It only remains to remove a few misunderstandings. One objection, for example, is powerful in many minds—that such a centralized office must necessarily be the organ of a particular medical school, and must so give that school—the one denominated "regular," for example—an unfair advantage, unsuited to a government of liberty and equality. To this it may be frankly replied, that the primary objects of the new office being the four just stated (administration, co-operation, investigation, education), it would aim to collect and diffuse the greatest attainable amount of accurate knowledge on the subject of health; and that if it found a larger quantity of better knowledge in one school than in another, it would be false to its trust if it did not spread that knowledge accordingly. Personally, the writer finds it hard to believe that it could treat a school that taught the unreality of disease, or the surpassing value for all kinds of disorders, of drugs, of a narrow range of characteristics, on an exact equality with schools that deal with facts as they find them; but he heartily agrees that the citizen ought to enjoy the liberty of choosing his own medical advisers, so far as he does not endanger life or health by so choosing.

There are other objections to organized national work for health, many of them from a so-called National League for Medical Freedom, the most active workers in which have been shown to be interested in one or another kind of proprietary medicine, backed by some "mental healers," and by associations of druggists who object to the "pure food and drugs act" of 1906. Several homœopathical State societies have repudiated that "league for freedom," and have emphatically attested their approval of the proposed bureau or department of health; this, notwith-

standing their well-understood grievances against "regular" practitioners. Some of the best informed among the osteopaths and the Christian Scientists are pronouncing similarly; and so, if the disavowals keep on, the League of Medical Freedom may soon be left with only those who seek freedom to dope their victims with drugs that enslave; stupefy them—infant and adult—with opium and thinly disguised alcohol, and generally to reverse the progress of a century. But, since it is estimated that \$75,000,000 a year are expended by our fellow-citizens for patent medicines, it is easy enough to see how they must regard a national department which is to improve the sanitary conditions of the country, show people how to care for health, stop the sale of poisonous nostrums and impure foods, and end the career of opium under the name of "soothing syrup." Their profits would be gone, and of course they disapprove and protest.

Altogether, the cause of a national bureau or department of health is commended, both by those who favor and those who oppose it. It could not ask better advocates than the distinguished men who heartily favor it, on the congressional or the collegiate stage; nor more suitable adversaries than those constituting the League for Medical Freedom.

President WHITE—This is a most valuable paper, and it will be printed, together with the other papers and addresses of this convention. Every one should avail themselves of the opportunity to subscribe for this book, which costs one dollar.

I will now introduce to you the gentleman who kindly gave his hour to Mr. Farquhar. He is Mr. Reginald Pelham Bolton, of New York City, who will speak to you on "The Prevention of Elevator Accidents."

Mr. BOLTON—The preservation of human life and the protection of our fellow-creatures from physical injury, claim prior consideration over conservation of mere materials.

Any form of danger which results in the destruction of life, and exhibits a tendency toward increased developments, invites our systematic investigation. Ameliorative measures, if undertaken in advance of the growth of an evil, are of double value. To one phase of the subject, of the conservation of life, I desire to direct your attention.

The increase of fatalities and injuries resulting from the extensive use of passenger elevators has become sufficiently marked to deserve careful attention by those who are concerned with the benefit of our fellow-citizens. Complete statistics as to the number of accidental occurrences in and about elevators of all classes throughout the country are not available, but an estimate based upon such official returns as relate to labor alone, indicate that the annual total is now probably in excess of seven thousand, of which probably three-fourths are of a preventable character.

From small beginnings, the roll of such accidents reported by the New York Department of Labor, which it is conceded do not cover all such occurrences, rose in 1909 to a total for five years of 1,600 injured persons, of whom 198 were killed and about 298 permanently disabled.

The Wainwright-Phillips Commission of the New York State Legislature reported in 1911 a list of injuries and deaths, in the three years 1907 to 1910, affecting 1,108 persons, of whom 106 were killed and 241 were more or less seriously and permanently crippled. In addition, no less than 200 persons fell down hoistways, of whom 43 were killed outright and 19 permanently injured.

These occurrences took place only on elevators in industrial establishments, and are only those which have been officially reported.

The Industrial Commission of the State of Wisconsin reported for the ten months, September, 1911, to June, 1912, thirty-nine accidents in and upon elevators, and fifteen more due to falls down elevator shafts; all occurring in establishments of various industries. Accidents occurring in transportation were 195, so that the relation of elevator accidents and falls was 28 per cent. of transportation.

That such accidents are duplicated outside the limits of observation of labor departments is indicated by an examination of the reports of the New York county coroners, which show about one hundred deaths annually from elevator accidents in the county of New York only. In the year 1911, in the Borough of Manhattan, there were reported sixty-eight fatalities in connection with elevators, about two hundred permanent injuries, and probably about three hundred more may be estimated as having sustained lesser injuries.

The fact that accidental occurrences in or about elevators are thus found to be deplorably numerous and increasing is not to be taken as a reflection upon the general security of elevator travel. Their number is relatively small in comparison with the vast number of persons utilizing these appliances. One express schedule elevator handles about 700,000 persons per annum. Further, by far the larger number of mishaps are not due to failure or fault of the elevator itself, but occur in and about the entrances of, or in the hoistways of such apparatus, from persons falling through unguarded openings into elevator shafts, and of course a number are due to the recklessness and incompetence of employes and operators.

It remains the fact, however, that a large part of these occurrences are unnecessary, just as was found to be the case with many of the forms of danger to life and injury to limb which attended the operation of freight and passenger trains prior to the adoption of certain of the safety appliances and methods which have been brought into general use on railroads, as a result of the concentration of public attention upon the subject, and legislative action based thereon. Similar attention and

action with the compilation of statistics upon the subject will undoubtedly result in diminishing the number of fatal and injurious occurrences connected with elevator operation.

Some loss of human life and injury to the person may to some extent be regarded as an unfortunately inevitable accompaniment of all forms of motive apparatus, and the complex conditions of modern existence have not only increased this liability by demands for more rapid movement of all forms of mechanical transportation, but the vast increase in the usage of appliances has introduced new elements of danger.

In no class of transportation are the effects of haste and crowding more apparent and dangerous than in the modern means of vertical transportation, use of which is now made by all classes of people. Liability towards accidental occurrences in elevators, therefore, affects the whole public, and it is needless to dilate upon the general concern in, and economic loss resulting from deaths or injury of any member of the community. It may be conservatively estimated that the economic value of the mere services of persons killed in and about elevators, based upon life expectancy, and the loss of time of those injured, would annually exceed the cost of equipment of all passenger and freight elevators with modernized safety appliances.

There are some features connected with elevator accidents which call for consideration and rectification. These have grown up around the development of the appliance in a manner somewhat peculiar to it. The elevator is a transportation apparatus which is for the most part privately operated and owned. Unlike the railroad, it is not regarded by the law as the apparatus of a common carrier. Unlike the road carriage or car, it is not operated upon the public highways. Unlike the machinery of a factory, it is not utilized exclusively by employes.

Its development and use have been, perhaps, too restricted to require the attention of such legislation as has been rather freely applied to the other classes of appliances engaged in transporting human beings.

It has therefore come about that the legal status of the elevator is in a very indefinite condition, its public regulation is generally local and therefore at best erratic, and the liability for the security of its occupants is as varied as the legal practice and rulings of different States.

The results are unfortunate to all concerned except perhaps that part of the legal profession which concerns itself with the prosecution of claims for injuries. Only two States, Pennsylvania and Rhode Island, have adopted legislative provisions, of limited character, relating to elevators. The former State provided so long ago as 1895 a requirement for automatic locking devices on all passenger elevators, thus being the pioneer in this direction. The State of Rhode Island by its general law, Chapter 129, requires all elevators "to be equipped with safety appli-

ances to prevent the starting of the elevator car in either direction while any door opening into the elevator is open.”

The State of Wisconsin, by its Industrial Commission law, Chapter 485, of 1911, placed in the hands of that body general power to require safeguards “in all places of employment,” but it does not appear that the powers of the act extend to every class of building in which elevators may or can be employed. Other efforts have been made to effect legislation in the same direction, but have so far failed of enactment.

A bill was introduced in the House of Representatives December 12, 1910, by Mr. W. Bennet, requiring all elevators in the District of Columbia to be provided with gate and car interlocking devices, which bill did not become law. A bill was introduced in 1911 into the Assembly of the State of New York amending the labor law in the direction recommended by the Wainwright-Phillips Commission, and empowering the Commissioner of Labor to require automatic door-locking and car interlocking on all passenger elevators in factories. Senate Bill 911 and Assembly Bill 329 of 1911 were designed to require in general terms the use of “such safety devices as will prevent accidents to persons getting on or off elevator cars and from falling through open doors into the elevator shafts.”

The attention of the American Museum of Safety has been directed for some years towards the accomplishment of some amelioration of existing conditions, and that humane organization made a strong effort to arouse public interest in these measures and to secure their enactment, but without success.

The subject has received some sporadic attention by several public associations, including the National Civic Federation, the American Association for Labor Legislation and the New York Association for Labor Legislation, but without effective results.

With the foregoing exceptions, the obligations of an owner of a building, as regards the security of an elevating appliance, are practically limited to a compliance with the then existing local regulations to the purchase of a device commensurate with the existing state of the art, of a design made by a reputable concern, and to the employment of reasonable care in upkeep and operation.

No legal obligation appears to lie upon an owner to alter or modify the appliance in conformity with greater knowledge of the art, or to add to it greater means of security. Until some unfortunate occurrence has taken place, an owner of property naturally feels unwilling to embark on such expenditures. The present system of liability insurance rather tends to such a situation, as an owner has no inducement in the form of reduced premiums, to expend money upon desirable safeguards. If the liability corporations should concede a substantial reduction of premiums, in connection with appliances dealing with a certain proportion

of the risks attending elevator operation, much could be accomplished without the aid of special legislation.

While the law-making powers do not hesitate to direct such measures to be taken with and upon the property of common carriers, they seem to regard the operation of a practically public conveyance within private property as a privileged possession and hesitate to enter the castle of the owner and involve him in enforced expenditures upon a privately operated appliance.

Yet an elevator, whether used for the purpose of the carriage of goods, of tenants, of employes, or of visitors to a building, is a common carrier earning a profit, even if indirectly, for it is as much a source of revenue as is the machinery of a factory around which many enforced safeguards have, by legislation, been thrown.

If, therefore, the owner of a building installs elevators for the convenient carriage of tenants and visitors within his property, he does so because the apparatus enhances the value of that property, and that enhancement is largely due to the public use of the appliance, in which use the unknowing users have some right to legislative protection from results of ignorance or incompetence, of neglect or parsimony.

It has taken a long time for this view of the matter to become even partially recognized, even in the city of New York, in which the use of elevators has multiplied beyond all conception of what seemed probable twenty-five years ago. The number of passenger elevators in the Borough of Manhattan alone, now exceeds nine thousand, and these increase annually by about five hundred new machines. The estimated number of freight elevators, none of which under present circumstances are subject to official inspection, is not less than ten thousand.

The regulations regarding elevators in Manhattan, commencing with feeble beginnings, have advanced under the careful direction of the present Superintendent of Buildings of Manhattan, Rudolph P. Miller, C. E., into the field of interference with private control, and the department is compiling further regulations which will go a long way towards the protection of the public in safeguarding the elevating apparatus they are compelled to use. The Manhattan regulations, while in themselves excellent, are directly applicable to passenger elevators only with such freight elevators as are within the same shaft enclosure as a passenger elevator. They require the operator to be of reliable and industrious habits, not less than eighteen years of age, with at least one month's experience in his duties.

A number of known elements of unsafe character are prohibited and some constructive features of value are insisted upon. No provision is, however, made for automatic interlocking of gates and car movement, nor are projections in the shaft prohibited. Some good, detailed regulations and suggestions have been issued by the Wisconsin Labor Commis-

sion, but these and other State and local regulations could be substantially increased in value, by a thorough technical investigation and settlement.

Some improvement of deficiencies in apparatus existing prior to these rules has been effected by requiring safeguards to be applied upon any alteration or large repair work being sanctioned. This course has brought about the addition of speed safety appliances in a number of old installations where this elementary security was absent.

Later regulations will, in similar manner, require carefully conducted tests of all machines whether new, altered or repaired. Many minor matters of security are or will be thus provided for, yet the limited powers of a bureau can but at best halt in dealing with the entire problem. And when the regulations of Manhattan are made, as they should be, the best possible, it is regrettable that in another city or even in another borough of the same city, the same desirable conditions will not apply.

Yet the security of an elevator requires the same measures of attention, in one State as in another, as much in the merest hamlet as in the great metropolis.

The use of elevators is now widespread through all States, and in all classes of buildings, affecting the convenience and security of all classes of persons; and calling for the establishment of well considered and equalized regulation in every part of the country.

It speaks volumes for the sense of responsibility of our leading manufacturers of elevators, that among all the tens of thousands of machines turned out by such concerns as the Otis Elevator Company and their competitors, accidents due to the physical breakage of the machinery of elevators should be in number only what they are, when they include the failures of machines built in days when the industry was small and the art far less understood than it is at present.

When we reflect upon the fact that the passengers carried in elevators in the city of New York far exceed in number those carried on all the surface and subway lines, we may the more appreciate the point to which I desire specially to direct your attention, namely, the desirability in the public interest of State regulation, and as far as possible, uniform regulation, of the security and operation of elevators. The local regulations may be left to care for details of installation but the State authority is necessary to require elevators to be not only modern but progressively modernized appliances; that no antiquated and essentially dangerous apparatus shall be continued in use, and that necessary safeguards and properly qualified operators shall accompany their operation.

The State may further require that in excessively tall buildings, where the elevators constitute the only practical means of egress in

emergency, there shall be a proper sufficiency of such appliances capable of removing the occupants within a reasonably safe period of time.

The limitations of the carrying capacity of an elevator are now well understood, and the safety of operatives in high loft buildings and of tenants in loftier "tower" office buildings, demands that the parsimony of owners and the ignorance of architects should not be allowed to restrict the exit of occupants of such buildings. A second elevator, in the Triangle fire disaster, would not only have saved its capacity in human occupants, but would have averted the fatal overcrowding of the single car which rendered it practically of no avail.

Many loft buildings of twelve stories and some even exceeding twenty stories are in existence in which the elevator accommodation is utterly inadequate for the removal of occupants of upper floors in a reasonable time, in case of emergency. The effectiveness of exterior "fire escapes" and of crooked interior stairways, especially for great heights, is now known to be strictly within certain limitations, and elevators have on many occasions demonstrated their value in the saving of life in panic and fire.

Office buildings are constructed thirty and more stories in height, without fire escapes and with winding stairways which are useless in emergency, and with such limited elevator capacity as would not remove the tenants in less than thirty minutes.

A most important and desirable subject for general action is afforded by provisions for safeguarding elevator gates and doorways. In and about these orifices, as previously observed, a large proportion of unnecessary accidents and fatalities occur. The unlatched door, the open gate, the absence of inner gates, the projecting sill, and the slippery tread, are fruitful causes of deplorable injuries and have caused the unnecessary loss of many precious lives. The proportion which this class of occurrence bears to the total is evidently large. An analysis of a list of four thousand accidental occurrences shows the following proportions:

| | Per cent. |
|--|-----------|
| Getting on or off cars..... | 58 |
| Falling through unguarded openings..... | 20 |
| Fractures and fall of cars, only..... | 17 |
| Mechanics making repairs in shafts, etc..... | 4 |
| Unexplained | 1 |

A number of devices have been developed during recent years, which have overcome objections to their use in the past, whereby the gates of elevators must be securely locked and fastened before the car can be moved. Six of such devices are approved for use in the State of Pennsylvania. It would seem that so simple a feature eliminating the essential danger surrounding the operation of a car moving vertically between

floors in a shaft would long ago have been demanded by every form of authority.

With other engineers, I was at one time opposed to the use of such appliances on the ground of their uncertainty. But the growing volume of fatalities directly attributable to the lack of such safeguards, together with radical improvement in their construction, now demand the opposite conclusion.

There has been particular objection in some large cities to the application of devices for locking the gates, on the ground that the speed of operation on rapid schedule service would be retarded and inconvenience and overcrowding would result. In order to satisfy myself upon this point, I made this year a series of comparative trials of elevators equipped with one such appliance, the Clarke automatic safety devices, and found that no such loss of time in service actually resulted. On the contrary, a trial of the elevators in the Atlantic Mutual Insurance Company's Building, 49 Wall street, New York City, and in the Hotel Imperial, showed that the operators made better time with the device in service, as they were compelled to make more exact landings and thus avoided much of the time frequently wasted in reversals of the car movement.

Under the present circumstances, therefore, it seems that the proper time has arrived for action in this respect, and that the example set by the States of Pennsylvania and Rhode Island may be embodied in careful legislative requirements in other States, which would, at some expense, it is true, to private owners, safeguard the public from those peculiarly present dangers which have taken such unnecessary toll of human life and limb, in the ghastly entanglement between the gate or doorway and the moving car, or the dreadful fall through the opened gate.

It would be very desirable, if, in the investigation of this subject, and the preparation of legislation to deal with it, competent technical and legal ability were employed, as the subject is of a technical character. Some of the legislation already in existence has been worded in so ill-considered a manner, as to give the impression that it was phrased in order to prevent the recovery of damages by injured persons.

The expression of your interest in this matter will tend to strengthen the hands of those who are seeking at present, by the limited means available, to enforce good methods of installation, proper safeguards and proper operation. It will also aid our great manufacturers, who lead the world in the design and construction of these truly American appliances, in securing the proper surroundings and proper care they are constantly urging for the appliances they construct, and will aid humanity by averting some unnecessary wastage of the health and lives of our fellow-creatures.

Following Mr. Bolton's paper he presented the following resolution :

Whereas, The number of accidents and fatalities attending the operation of elevators is increasing, many of which are of a preventable character ;

Resolved, That the National Conservation Congress recommends to the Legislatures of all States an official investigation of this subject, and the enactment of such provisions as have been adopted by the States of Pennsylvania and Rhode Island.

President WHITE—This is important, and if there is no objection it will be handed to the Resolutions Committee.

Mr. FREDERICK KELSEY (Orange, N. J.)—I would like to offer this resolution :

Whereas, Under the laws of the District of Columbia and some of the States, fictitious and fraudulent overcapitalization of corporations is permitted ; and

Whereas, Under the operation of these promoter-made laws enormous and widespread losses to innocent persons all over the country and throughout the civilized world have resulted ;

Resolved, That this Congress earnestly favors the amendment of these laws and calls upon the President and the United States Congress to enact such legislation, affecting the incorporation and control of corporations as will bring the creation and conduct of these creatures of the State back to the moorings of common honesty.

I would like to say that, like most of the previous speakers, I have given this subject very careful attention. I was chairman of a committee, a civic and economic committee of our State, which committee spent eight months in considering this subject, and I want to say that you cannot appreciate the widespread loss, the injury, the injustice of improper concentration of wealth that has been the direct outgrowth of these laws in our own State and other States of the Union.

President WHITE—The resolution will be referred to the Resolutions Committee.

The Congress now stands adjourned until 2:30 o'clock this afternoon.

EIGHTH SESSION.

The Congress assembled at the Coliseum, at the State Fair Grounds, Indianapolis, on the afternoon of October 3, 1912, and was called to order by President White.

President WHITE—This Conservation Congress was to have been addressed today by the Governors of two of the States. I am very sorry to announce that Governor Hadley, of Missouri, is unable to attend.

This Congress is greatly honored today. The city of Indianapolis is greatly honored today. The State of Indiana is greatly honored, and

I personally am greatly honored. I feel honored in having the privilege of presiding over a meeting at which our distinguished guest is to speak.

He who causes two blades of grass to grow where only one grew before is a public benefactor. He who with one talent helps one child, one boy, to rise to manhood and usefulness, is a great and useful citizen. He who is fortunate enough to possess ten talents and who is an inspiration to thousands of the youth of the land, who has planted in their minds and in their hopes the desire to become great and useful in this world, to become great and good, efficient citizens—he is the greatest of all.

He is the Governor of a great State, and has inspired the citizens of mature age to a better government for the people and led them on to a greater field of usefulness. We feel perfectly safe in trusting him. To whatever position duty may call, whatever fortune may trust him with, the people will be safe under his guidance. (Applause.)

I feel unworthy to present to this audience one who has been the leader in so many good works, one who has been a practical conservator of human effort, but I take pleasure in introducing to you as the speaker of this day one who has come here to get closer in touch with the Conservationists of the United States, to gather from this audience an inspiration as to the great force of Conservation which is to lead the world—the Hon. Woodrow Wilson, Governor of New Jersey. (Great applause.)

ADDRESS BY THE HON. WOODROW WILSON, GOVERNOR OF NEW JERSEY.

Mr. Chairman and Fellow-Citizens: It is with genuine pleasure that I find myself in this place, facing a company of men and women who are devoting themselves to so disinterested a cause as that to which this Congress is consecrated.

Your chairman has stated in exactly the terms of my own thought, the errand upon which I have come. It would seem presumption upon my part to instruct this Congress, or to attempt to instruct it in the means of Conservation. I have come here, as he has said, to share in the inspiration of the occasion, to gather into my own thought an impression of the men and women who are working for these great objects in the United States. When I was on my way out here, and was thinking of this occasion, I prepared my talk on the conservation of our natural resources. When I arrived at the station, I was told to change the subject, that was not what the Congress was, this year, devoting its particular attention to, but to the conservation of the vital energy of the people of the United States. I had thought that I would have to apologize to you for wandering off, before I had finished my address, into that very topic, because it seems to me that the more broadly we view the field of obligation, the more clearly it will appear to us that our duty

is only done in respect to the laying of the foundation, when we have conserved the natural resources of America, for those natural resources are of no consequence unless there is a free and virile people to use them.

We are in the midst of a political campaign, and most of the audiences that I have faced have been political audiences. I want to say very frankly to you, that it is a comfort to me to face another kind, because, in a campaign, we take politics, as it were, to the people, but on this occasion the people of the United States are bringing to us the great forces of their thought.

A congress like this means something more vital, in some aspects, than any of the ordered efforts of political parties; for here are represented the men and women from every quarter of the Union, come together to speak that great volunteer voice of America, which is the atmosphere of politics, which creates the environment of the public man, which is the independent conscience of a great people asserting itself and instructing those who serve it, what their lines of best service are.

All voluntary effort distinguishes a free people from a people that is not free. An effort, an organization, that comes about whether the politician wants it or not, is the kind of effort and organization which shows that the people are ready to govern themselves and to assert their own opinions, whether the men in the public eye now consent to be their servants or not. (Applause.)

I have often made this boast about America, that, truly as we love our own institutions, proud as we are of the political history of America, if you could imagine yourself absolutely forgetting the documents upon which our constitutional history rests, over night, in the morning, we could make a new Constitution; we would not lose our self-possession, we would not lose our long training in self-control, we would not lose our instinct and genius for self-government. Strip us of one government, and we would make a new America in which we would shine as much as we did in the old. (Applause.) If that be not true, then it is not America, for America consists in the independent and originative power of the thought of the people. And so, when men and women from every part of the country gather in a great congress like this, to speak, not of matters of interest so much as of matters of duty, you realize in a gathering like this the vitality of the heart as well as of the mind of America, and men of every sort must give heed to the utterances of gatherings of this kind.

I know that there are some persons who come to these gatherings representing only themselves. I know that a gathering of men interested in a special cause is a great magnet to the crank. I know that all sorts of people, with special notions of their own, come sometimes to exploit them; but, after all, we ought to be very tolerant even of them, because some of the finest notions in the world have lived for a little while very

lonely in the brain of a single man, or a single woman, and it is only by the tolerance of preaching that they get their currency, and finally get their imperial triumph by conquering the minds of the world, so that it is these voluntary contributions of thought, these irresistible currents of national life that are the most vital part of every people's history. That is the reason I say it is a comfort to face an audience that I am not trying to persuade in regard to anything, but with which I am trying to get in sympathy, in order to share the great force which they represent.

It would be almost like assuring you that I was a thoughtful and rational being to say that I am in profound sympathy with the whole work of this great Congress, and that I am in particular sympathy, in keenest sympathy with that part which affects the conservation of the vital energy of the people of the United States. (Great applause.)

We have prided ourselves, ladies and gentlemen, upon our inventive genius; we have prided ourselves upon the ability to devise machines that can almost dispense with the intelligence of man. We have become a great manufacturing people because of this genius, because of our ability to draw together not only the tangible machinery of great enterprises but also the intellectual machinery of great enterprises, and we have been so proud of the mere multiplication of the resources of the Nation, so proud of its wealth, so proud of the ingenious methods by which we have increased its wealth, that we have been sometimes almost in danger of forgetting what the real root of the whole matter is.

I say, without intending to indict anybody, that it has too often happened that men have felt themselves obliged to dismiss superintendents who overtaxed a delicate piece of machinery, who have not gone further and felt obliged to dismiss a superintendent who overtaxed that most delicate of all pieces of machinery, the human body and the human brain. (Applause.)

If you drive your men and women too hard, your machinery will presently have to go on the scrap heap. If you sap the vital energy of your people, then there will be no energy in any part of the life you live, or in any enterprise that you may undertake. The energy of your people is not merely a physical energy. I am glad to say that the great State of New Jersey, which I have the honor to represent, has been very forward among her sister States in attempting to safeguard the lives and the health of those who work in her factories, and in all the undertakings which are in danger of impairing the health. I am glad to say that our Legislature has been to a very considerable extent, though not so far as it ought to be, thoughtful of the health of the children, thoughtful of the strength of women, thoughtful of the men and women together who have to breathe noxious gases, who are exposed to certain kinds of dust bred in certain manufactories, which dust carries conges-

tion and danger to the lungs and to the whole system—we have been thoughtful of these things, but after all, we stand in exactly the same relation to our bodies that the nation stands to her forests and her rivers and her mines.

I have no use for my body unless I have a free and happy soul to be a tenant of it. We have no happy use for this continent unless we have a free and hopeful and energetic people to use it. I know that I have sometimes spoken of how foreigners laugh at Americans because they boast of the size of America, as if they had made it, and we are twitted with a pride in something that we did not create. We did not stretch all this great body of earth and pile it into beautiful mountains and variegate it with forests from ocean to ocean, and they say, "Why should you be so proud of what God created? You were not partners in the creation?"

But it seems to me that it is perfectly open for us to reply, "Any nation is as big as the thing that it accomplishes, and we have reason to be proud of the size of America, because we have occupied and dominated it." (Applause.)

But we have come to a point where occupation and domination will not suffice to win us credit with the nations of the earth or our own respect. It was fine to have the cohesive and orderly power to plant commonwealths from one side of this great continent to another. It was pretty fine, and it strikes the imagination to remember the time when the ring of the ax in the forest and the crack of the rifle meant not merely the falling of a tree or the death of some living thing, but it meant the voice of the vanguard of civilization, making spaces for homes, destroying the wild life that would endanger human life, or destroying the life which it was necessary to destroy in order to sustain human life; and that the mere muscle, the mere quickness of eye, the mere indomitable physical courage of those pioneers that crossed this continent ahead of us, was evidence of the virility of the race, and was evidence also of its capacity to rule, to rule and to make conquest of the things that it needed to use. But now we have come to a point where everything has to be justified by its spiritual consequences, and the difficult part of the task is that which is immediately ahead of us.

Until the census of 1890, every census bureau could prepare maps for us, on which the frontiers of settlement in America were drawn, and until that time there had always been an interspace between the frontier of the movement westward and the little strip of coast upon the Pacific, which had been occupied, as it were, prematurely and out of order.

But, in 1890, it was impossible to draw a frontier in the United States, it was impossible to show any places where the spaces had not, at any rate, been sparsely filled, sparsely occupied by the populations that lived under the flag of the Union. It was about that time, by the

way, or eight years later, that we were so eager for a frontier that we established a new frontier in the Philippines, in order, as Mr. Kipling would say, "to satisfy the feet of our young men."

But the United States, ever since 1890, has been through with the business of beginning and now has the enormously more difficult task before it of finishing.

It is very easy, I am told, though I have never tried it, roughly to sketch in a picture, that all the students in art schools can make the rough sketch reasonably well, but they almost all, except those who have passed a certain point, spoil the picture in the finishing. All the difficulties, all the niceties of art, you have in the last touches, not in the first, and all the difficulties and niceties of civilization lie in the last touches, not in the first.

Anybody with courage and fortitude and resourcefulness can set up a frontier, but we have discovered, to our cost, that not many of us can set up a successful city government. (Applause.) Almost all the best governed cities in the world are on the other side of the water; almost all of the worst governed cities in the civilized world are in America. And the thing that is most taxing our political genius is making a decent finish, where we made such a distinguished beginning. We show it. You can feel it under you as you traverse a city; you can feel it in the pavements. They are provisional, most of them, or have not been laid at all and in jolting in the streets that are not the main thoroughfares of an American city, you feel the jolt of unfinished America. We have not had time, or we have let the contract to the wrong man. (Great applause.)

But, whatever be the cause, we have not completed the job in a way that ought to be satisfactory to our pride. You know that we are waiting for the development of an American literature, so I am told. Now, literature can not be done with the flat hand; you can not write an immoral sentence by taking a handful of words out of the dictionary and scattering them over the page. They have to be wrought together with the vital blood of the imagination, in order to speak to any other reader except those of the day itself. And, as in all forms of art, whether literary, or musical, or sculptural, there is this final test: can you finish what you begin? I believe, therefore, that the problem of this Congress is just this problem of putting the last touches on the human enterprise which we undertook in America.

We did not undertake anything new in America in respect of our industry. You will not find anything in the way of industry in America which can not be matched elsewhere in the world. If the happiness of our people and the welfare of our people does not exceed the happiness and welfare of other people, then, as Americans, we have failed; because we promised the world, not a new abundance of wealth, not an

unprecedented scale of physical development, but a free and happy people. (Applause.)

That is the final pledge which we shall have to redeem, and if we do not redeem it, then we must admit an invalidity to the title deeds of America.

America was set up and opened her doors, in order that all mankind might come and find what it was to release their energies in a way that would bring them comfort and happiness and peace of mind. And we have to see to it that they get happiness and comfort and peace of mind; and we have to lend the effort, not only of great volunteer associations like this, but the efforts of our State governments and national government, to this highest of all enterprises, to see that the people are taken care of, not taken care of in the sense that those are taken care of who can not take care of themselves, because the best way to teach a boy to swim is to throw him into the water, and too much inflated apparatus around him will only prevent his learning to swim, because the great thing is not to go to the bottom and many of the devices by which we now learn to swim make it unnecessary to swim, because you can stay on top just the same, and I, for my part, do not believe that human vitality is assisted by making it unnecessary for it to assert itself. On the contrary, I believe that it is quickened only when it is put under such stimulation as to feel the whip, whether of interest or of necessity, to quicken it. But the last crux of the whole matter comes here: I am not interested in exerting myself unless the exertion, when it is over, brings me satisfaction.

If I have to work in such conditions that, every night, I fall into my bed absolutely exhausted, and with the lamp of hope almost at its last dying flicker, then I don't care whether I get up in the morning or not; and when I get up in the morning, I do not go blithely to my work. I do not go to my work like a man who relishes the tasks of life. I go there because I must go, or starve, and there is always the goad at my stomach, the goad at my heart, because those dependent on me will suffer if I do not go to my work and the only way I can go to my work with satisfaction is to feel that, wherever I turn, I am dealing with my fellow-men, with fellow-human beings. So that we must take the heartlessness out of industry before we can put the heart into the men who are engaged in the industry. (Applause.)

The employer has got to feel that he is dealing with flesh and blood like his own and with his fellow-man, or else his employes will not be in sympathy with him and will not be in sympathy with the work, and a man who is not in sympathy with his work will not produce the things that are worth using.

All the stories we tell to our children about work are told of such men as Stradivarius, who lingered in the making of a violin as a lover

would linger with his lady; who hated to take his fingers from the beloved wood which was yielding its music to his magic touch. In all poetry and song since, Stradivarius has been to us the type of the human genius and heart that is put into the work that is done without attention and zest.

We point to some of the exquisitely completed work of the stone carvers of the Middle Ages, the little hidden pieces tucked away unseen in the great cathedrals, where the work is just as loving in its detail and completeness as it is upon the altar itself, and we say this is the efflorescence of the human spirit expressed in work. The man knew that nobody, except perhaps an occasional adventurer coming to repair that cathedral, would ever see that work, but he wrought it for the sake of his own heart and in the sight of God. And that, we instinctively accept as the type of the spiritual side of work.

Now, imagine, ladies and gentlemen, imagine as merchants and manufacturers and bankers, what would happen to the industrial supremacy of the United States if all her workmen worked in that spirit. Would there be goods anywhere in the world that could for one moment match the goods made in America? Would not the American label be the label of spiritual distinction? And how are you going to bring that about? You are going to bring it about by such work as this Congress is interested in and the work which will ensue, because the things which you are discussing now are merely the passageways to things that are better.

Just so soon as you make it a matter of conscience with your legislatures to see to it that human life is conserved wherever modern processes touch it, just as soon as you make it the duty of society to release the human spirit occasionally on playgrounds, to surround it with beauty, to give it, even in the cities, a touch of nature, and the freedom of the open sky, just as soon as you realize and have all of society realize that play—enjoyment—is part of the building up of the human spirit. and that the load must sometimes be lifted, or else it will be a breaking load, just as soon as you realize that every time you touch the imagination of your people and quicken their thought and encourage their hope and spread abroad among them the sense of human fellowship and of mutual helpfulness, you are elevating all the levels of the national life, and then you will begin to see that your factories are doing better work, because, sooner or later, this atmospheric influence is going to get into every office in the United States, and men are going to see that the best possible instruments that they can have are men whom they regard as partners and fellow-beings. (Applause.)

I look upon a Congress like this as one of the indispensable instruments of the public life. Law, ladies and gentlemen, does not run before the thought of society and draw that thought after it. Law is nothing else but the embodiment of the thought of society, and when

I see great bodies of men and women like this, running ahead of the law, and beckoning it on to fair enterprises of every sort, I know that I see the rising tide which is going to bring these things in inevitably. I know that I see law in the making; I know that I see the future forming its lines before my eyes, and that, presently, when we come to an agreement, and wherever we come to substantial agreement, we shall have the things that we desire. So that, for a man in public life, an assemblage like this is the food of his thought, if he lend his thought to what his fellow-countrymen are desiring and planning; and all the zest of politics lies, not in holding things where they are, but in carrying them forward along the lines of promise, to the place where they ought to be. (Applause.)

You are our consciences, you are our mentors, you are our school-masters. The men in public life have only twenty-four hours in their day and they generally spend eight of the twenty-four in sleeping—I must admit generally to spending nine—and in what remains they cannot comprehend the interests of a great nation. No man that I ever met, no group of men that I ever met, could sum up in their own thought the interests of a varied nation. Therefore, they are absolutely dependent upon suggestions coming from every fertile quarter, into their consciousness. They are subject, or they ought to be subject, daily, to instruction. A gentleman was quoting to me today a very fine remark of Prince Bismarck's. He was taxed with inconsistency, with holding an opinion today that he had not held yesterday. He said he would be ashamed of himself if he did not hold himself at liberty, whenever he learned a new fact, to readjust his opinions. Why, that is what learning is for. Ought any man to be ashamed of having accepted the Darwinian theory, because he did not hold it before Darwin demonstrated it? Ought any man to be ashamed of having given up the Copernican idea of the universe? Ought any man to be obliged to apologize for having yielded to the facts? If he does not he will sooner or later be very sorry, because the facts are our masters, and if we do not yield to them, we will presently be their slaves. I suppose if I chose to assert the full consistency of my independence I would say that I was at liberty to jump from the top of this building, but just as soon as I reached the ground nature would have said to me, "You fool, didn't you ever hear of the law of gravitation? Didn't you hear of any of the things that would happen to you if you jumped off a building of this height? Suppose you spend a considerable period in a hospital thinking it over," and it would be very impressively borne in upon me what the penalties of ignorance of the law of gravitation are. Now, it is going to be very impressively borne in upon the public men of this country if they ignore them what the laws of human life are. As Dr. Holmes used to say, "The truth is no invalid. You need not be afraid; no matter how

roughly you treat her, she will survive, and if you treat her too roughly there will be a certain reaction in your own situation which will be the severest penalty you could carry."

I come, therefore, to Indianapolis today to put my mind at your service, merely to express an attitude, merely to confess a faith, merely to declare the deep interest which must underlie all human effort, for, when the last thing is said about human effort, ladies and gentlemen, it lies in human sympathy. Unless the hearts of men are bound together the policies of men will fail, because the only thing that makes classes in a great nation is that they do not understand that their interests are identical. (Applause.)

The only thing that embarrasses public action is that certain men seek advantages which they can gain only at the expense of the rest of the country, and when they have gained them those very advantages prove the heaviest weight they have to carry, because they are then responsible for all that happens to those upon whom they have imposed and to those from whom they have subtracted what was their right.

So that the deepest task of all politics is to understand one another; the deepest task of all politics is to understand everybody, and I do not see how everybody is going to be understood unless everybody speaks up, and the more independent spokesmen there are the more vocal the Nation is, the more certain we shall be to work out in peace and finally in pride the great tasks which lie ahead of us. (Great and prolonged applause.)

NINTH SESSION.

The Congress reconvened at 8 o'clock p. m., in the Palm Room of the Claypool Hotel, and was called to order by President White.

President WHITE—This is the evening session of the National Conservation Congress. I foresaw what was coming a long time ago when we began to prepare a program. I knew there would be a large number of ladies here, because they were getting very enthusiastic. I knew they would want section meetings for themselves to talk over matters of vital interest and plan how they were going to work for Conservation in all its departments, vital, social and political.

I felt that I was not capable and I did not know of any man who was capable of presiding over a large number of women, who sweetly and persistently know what they want and are bound to get it. (Laughter and applause.)

I was invited by the lady who is going to take charge of this meeting to attend the convention of the General Federation of Women's Clubs at San Francisco, and right there I decided that Mrs. Moore should preside at this Congress at some one of its meetings, and I politely told her so

at that time. I did it in justification of her rare ability displayed upon that occasion, and, selfishly, because I knew I was too timid to rule on points of order where there were so many women. (Laughter.)

I take pleasure in introducing Mrs. Philip N. Moore, of St. Louis, former President of the General Federation of Women's Clubs, and a member of the Executive Committee of this Congress. She needs no introduction, as you all have met her many times. I now turn the meeting over to her good graces and good will.

Mrs. MOORE—Mr. President, Ladies and Gentlemen: During the year that I have had the pleasure of working with the presiding officer of this Congress, it has been his gracious courtesy during the whole time to the woman who was on the Executive Committee that has induced me to accept the position he has given me tonight.

Many of you will remember that four years ago, when the Governors were called to the White House in Washington, to discuss the natural resources of our country, the only woman's organization that was represented at that time was the General Federation of Women's Clubs, through its President. From that time to this, the Conservation Congress has recognized this organization as being very much interested in the conservation of the natural resources of the country as well as in the conservation of human life through its public health department, through its industrial and social conditions and through its home economics, four of the strongest departments of the General Federation. I am, therefore, very proud tonight to accept the courtesy of the presiding officer of the Congress.

While we are waiting slightly for the first speaker of the evening, I have asked the next one upon the program to take her place. I am sure it will be just as much of a pleasure to you, and I am sure it will be a pleasure to her, to take the earlier place upon the program.

We are all very much interested, as men and women, as fathers and mothers, in the Children's Bureau which has been created this past year, and we were very much interested in the possibility of a woman being made chief of that bureau. There never was a question in our minds but that it should be the very best person that could be found, whether man or woman. But the fact that there was a woman who by education, training and experience was fitted to take this place has been a pleasure to all who are interested in that special development. The fact that she has looked into the life of children from birth through childhood, with work and play and home and school as they have applied to the life of the child, will be of the greatest benefit to us all through these future years.

I am very glad to introduce to this representative audience of the Congress, Miss Julia Clifford Lathrop, who is Chief of the Children's Bureau of the United States Department of Commerce and Labor.

Miss LATHROP—Madam President, Ladies and Gentlemen: I need not explain to a Congress interested in Conservation why the representative of this new Bureau should be here and should wish to speak about the Bureau itself.

When I was first honored with this appointment it was suggested that the Bureau should be staffed with women alone, and I was asked what I thought about it. I said I should be very much embarrassed; that I had never known any children who had not two parents, and that I felt that if there had been intended a division of that sort the Lord would have communicated it long ago. I thought it would be presumptuous for me to begin, so the Children's Bureau has on its staff both men and women, and, perhaps, I may as well begin by saying something about that staff, and about the organization of this new Bureau. And, first of all, perhaps I may forestall a criticism which is likely to come before very long that we are rather dilatory and are not accomplishing very much, by reminding you that the Bureau did not go into operation last April, when the President approved the bill, but only on the 23d of August, when the appropriation became available, so that really the Bureau is just forty-one days old. It has a staff of fifteen persons, and it has to spend for this first year a sum aggregating about thirty thousand dollars. Its province, as the law says, is to inquire into and report upon all matters pertaining to the welfare of children and child life. You can see for yourselves whether that is a big job and whether the army really seems adequate for immediate performance of the contract.

It is, of course, enormously important that a Bureau of this kind, undertaking a sort of work which, after all, is in some respects new, should be composed of people who have very much at heart the welfare of children; who have, even as much as that, the scientific training and wisdom which is necessary if we are to make an appeal to people's emotions and sentiment. So the staff of the Bureau is composed of people who have been selected from various departments of the Federal Civil Service as having, particularly, acquirements in science, as statisticians, and in other respects particularly fitted, as we believe and as my superiors believe, to do the work of this growing Bureau.

The Bureau has this great general object. Now, it is a question how to take hold of this great task, where to begin, but the law itself does give some hint—it enumerates certain objects which we shall discuss in detail as time goes on.

The first of these is infant mortality and the birth rate, and after that follows various subjects, such as juvenile courts, or the care of children in regard to diseases and accidents which may befall them, the regulation of their labor, legislation affecting children and all matters pertaining to their welfare.

It is all very well for those of us who are doing all sorts of volunteer work, as most of us are, to begin on the problem of helping people at any point where we can take hold. We do not have to know any great fundamental facts; to know that babies need care, and that children ought not to go to work when they are too young, to know that children need to go to school, need to be healthy, need to be happy, and that they need recreation just as much as they do education and that the two are part of the one same great sort of development—all these things we have a right to begin on anywhere we can. But when the Federal Government takes hold, I think it somehow promises a sort of basis to all the rest of us, and it seems as if it were its business to see where there was the most fundamental point to begin its work. When we come to look at the question of dealing with children, we are constantly faced by the fact that we do not know how many children there are; we do not know how many children are born and die in this country. We do know once in ten years how many children exist at a particular moment, and by that decennial information we know that the Bureau has to deal with about thirty-six per cent. of the total population of this country directly, that between thirty-five and forty per cent. of the population of this country is under sixteen years of age, which seems to be the age of the end of childhood, just by common acceptance; at least, at that age in many of our States children are permitted to become independent workmen. So you see we have a very large number of children with whom we have the right to deal directly, and, as I tried to show a moment ago, we think we have a right to deal indirectly with all their parents. We think the whole country is a good deal our province in prospect, but we cannot be satisfied with this decennial knowledge of how many people there are in this country. What we want is a great, democratic continuing public edition of "Who's Who in America." We want to know day by day the advent of every citizen into this country. We want, in fact, in a phrase which is not particularly exciting, "birth registration."

First of all, we want it because we want to know, and we want to know for various reasons, which I think do not occur to most of us every day. In the first place, we want to know because, unfortunately, a great many babies come into this world under circumstances which do not give them the best chance in the world. If the advent of a little child could be at once communicated to doctors and nurses where doctors and nurses are not taken for granted, it would be possible to prevent the risk of that blindness which sometimes overtakes newly-born children; it is possible to establish the health of the mother and child together, so that it may have the best chance in the world; and you all know how throughout this country, even in our remoter counties, there is coming to be a great and splendid health service. I think we cannot be too delighted

with what the Red Cross Society, with what many similar societies are doing in the way of rural nursing. I think if Florence Nightingale could look out over America now, she would think we are beginning to realize her noble words about health and nurses.

Now, those are perhaps the most important reasons why we want to know the advent of every child, so that we can help that little child, and help his mother and keep her alive, because it is a very terrible thing that out of all the children who are born into this country a very large number—two hundred thousand, some people say, and three hundred thousand, some people say—die before they are twelve months old, and more, a third of them die before they have been in the world a month. I want us to consider this for a minute, not as an economic problem, but what it means in the old-fashioned terms of human suffering, the agony and loss of family happiness and joy, that two hundred thousand little babies should die and leave the hearths to which they come every single year of the world in this country. And when we think that already, doctors tell us, we know enough so that that waste is very largely the fault of our carelessness and selfishness and greed, it makes us blush to think we are not all working hard to save the lives of these children.

Now, there are great efforts already undertaken to save the lives of these little babies, in which many of you are already engaged, and we may well hope that such societies as this Conservation Congress and the Congress for the Prevention of Infant Mortality will before the next decennial census occurs have made a great difference in the number of children who are born only to die.

But, suppose that a child lives, is there any real sense in his having a birth certificate, or is that just some abstract notion of the statisticians, who get all the certificates and have punching machines and a great many mechanical contrivances for numbering and making computations out of figures? I think you will be surprised to find how much human connection it has.

In the first place, as to this very Bureau for which I am venturing to speak, we are told to find out about the diseases of children and about the birth rate of children. How can we know about the birth rate unless we know how many children are born and die? In Washington, there was set up a wonderful placard on the wall to show the birth rate in that city, and there were columns of red and green and other colors, and you just knew, humanly speaking, that the birth rate was fluctuating that way, and you talked with somebody and you discovered that this birth rate was fluctuating as one set of gentlemen or another was electing the health officer.

So now we want to have some authoritative way of truly finding out how many children come into the world in order to know what the birth rate is, in order to know how to study the diseases of children, and then,

when children grow a little older, we want to have a public record of their births so that we may know when they are entitled to go into the schools to begin on that system of care and culture for which the public schools stand, and then beyond that, when they are older and the time comes for their advent into the army of work to which we hope we all belong, then we want to know that those who are less favored are not hurried into that army unduly. How much it would simplify the problem if we had not to trust to all sorts of chance ways of proving a child's birth and if we had a public record of it.

Have you ever thought that we are the only great nation which does not know how many children are born into it, and which does not do its children the dignity of putting their names down in a public record? All Europe has a public registry, and why? Because it has a standing army and wants the names of its boys for conscription. Now, in a country of peace, aren't we to have any victories for peace? Are not we to recognize a child as having any dignity to be a peaceable citizen and not either a target for a gun, or the man behind the gun?

I think you will, perhaps, be interested if I venture to tell a story of a neighborhood in which I have lived long, an illustration of how a birth certificate is a good thing. A little while ago, a family came over to Hull House for some help. They were awfully poor. The oldest girl, who was at that time the breadwinner of that family, was out of work on account of the garment workers' strike. There were eight children. They had come over at the time of the earthquake in Messina. The father had been entombed and his mind had almost succumbed to the fearful experience. He was always thinking the walls were coming on him and he was not in a very good frame of mind to be a successful breadwinner. So they got into difficulties and asked the Charities Board to help them. There was another younger girl and they thought they had better get a work certificate for Giovanna, but the truant officer said she looked too young and couldn't have it, and she was sent back to school. And then they got a little more desperate and they tried again to have poor little Giovanna go to work. The Charities Board, who were helping the case, thought they had a right to dictate a little as to how they should help, and they just wrote to the City Hall in Messina, and the City Hall in Messina sent back a very prompt letter showing how old the children were, and showing that the daughter who had been at work for two years was really about fourteen years old and had been working that time illegally, had been cheated of two years of school, where she might have learned good English and learned American house-keeping and had a better chance to earn more money the next two years. The other little girl was still younger. So the people in Hull House and the people in the Associated Charities and the factory inspector made a veritable cordon around this helpless family and demanded they be sent

back to school. The oldest girl went back very unwillingly. She said indignantly, "Me go back to school, me big enough to be married." She was very hurt and humiliated. I am not sure we did right about it. Giovanna was confiscated and sent back to school for two years. This family did not have a fair chance over here just because the factory inspector and school authorities, not having any birth reports over here for children, followed the usual system of guessing and did not think to take advantage of what Messina, notwithstanding the earthquake, had to offer from her very responsible records.

Has it ever occurred to you that to very many of our foreign residents a birth certificate for a child would be an absolute asset?

In Chicago is a very prosperous and highly respected man. He came from Germany when he was a baby of four years, with the family. His father was never naturalized and the man himself never was challenged in his right to vote. He grew up and attended our public schools, and all that. He accumulated a fortune and went back, as many people do, I suppose rather proud, to see the old country and friends who remained there and with whom he had kept in constant communication, a prosperous and splendid example of what America could do for a man. He had been in Berlin for about two hours when the police were on his track merely because he was a German citizen and must serve in the army. He telephoned to a lawyer friend and asked him what could happen. He said, "There is just one thing that can happen, and that is that you get out of town." So, two hours after he arrived at Berlin on this triumphal journey, he left very actively, and he is said never to have heaved a sigh of such joyful relief as when he crossed the boundary into France. That is an example of people really knowing where they were born and being able to prove it.

I suppose the reason we have not been more eager about our birth rate is because we have not thought anything about it. We think a great deal about writing the baby's name in the family Bible and christening it in the church we attend, but somehow we have forgotten this larger, more fundamental thing. The advent of every citizen of this country ought to be on the books of the commonwealth.

There is a very good story, which belongs to your own Dr. Hurty. I do not know whether you all know it, or whether I dare tell it, but I will presume that this audience is largely made up of visitors, and steal his story. In this State, Dr. Hurty is authority for saying there was a farmer who had a ne'er-do-well son and a granddaughter, and when the farmer came to die he wished to leave the farm to the granddaughter, but he left the use of it to the son until the granddaughter should arrive at the age of twenty-one. When the girl, as she thought, was twenty-one, she claimed her inheritance, but the other side said she was only nineteen. She went to the Bible, where her name was written down, but

the leaf was torn out, and the court was very much perplexed. It came to be a serious legal question, and finally a neighbor recollected that the grandfather had had a very remarkable calf born on the same day with this little girl, and he said he knew the farm books kept by the grandfather would record this pedigree. So the farm books were looked up and the birth of the calf was discovered and the birth of the girl was established. (Laughter.) You all remember how George Bernard Shaw warns us against placing confidence in the *deus ex machina*. He says you cannot presume on things being some miraculous way you would like them to be, and so we cannot presume on grandfathers always keeping herds of cattle. (Applause.)

I am perfectly sure, as I have said before, as I had the honor of saying over at San Francisco before the General Federation of Women's Clubs, that if the women of America wanted birth registration they would get it in a twelvemonth. Now, it sounds so very remote from putting down the baby's name in the book.

In the State of Indiana you have a very good law, Dr. Hurty tells me, and all that is necessary is for the women of Indiana to say that they want the names when their children are born recorded in the public records of Indiana. In 1910, when the last census was taken, all that we know about the births in this country was what we learned from eight States, the New England States, Pennsylvania and Michigan. Not your State, or mine, Illinois, was deemed worthy to be considered at all. So far as the general government was concerned, for anything it knew, nobody had been born in either of these States in ten years. In the next census year, I hope very much in a great many States in this country, perhaps in all the States in this country, we shall be able to be recognized by the general government as having been born and as having been born very accurately, so that we will be worthy to be counted, as much so as if we lived in Boston and Massachusetts, which, they are always telling us, are the most accurate State and city.

Of course, the Bureau cares for a great many things besides the registration of births, but I hope I have made it plain that we should ask that we be allowed to get a method of acquiring steady, constant and reliable means of legal proof as to the children who enter this Nation, because it is the dignified basis for a governmental Bureau, which I believe is destined to grow to proportions which none of us can measure, which shall continue long after all of us are gone. No other bureau in the world makes so tremendous an appeal to the emotions and sentiment—a children's bureau, a bureau to concern itself with the life and happiness of the children of a great nation, and the more appealing it is, the more must it be founded upon facts which will bear the very closest scientific scrutiny. What the Bureau will be doing years from now I do not know. I know what it must do now. The law is very distinct

about some of the things it must do, and by implication many of the things it cannot do. It is a bureau to gather information and to publish it as the secretary of the department under which it exists may direct. It can publish in any way which the secretary deems best. There are a great many different ways of publishing facts. We are learning to publish facts through the sort of thing you have in the State House here and other exhibits, through the appeal to the eye. In this way thousands of those who cannot study very carefully or cannot read a table to save their lives may understand, and I hope it is with some of the simpler methods of popularizing things that this Bureau may begin to make itself useful.

The Bureau, although it is a different type from all the other work of the government in a certain sense, after all, is not so isolated as we might think. There is a Bureau of Labor, which has studied much the labor of women and children. There is the Census Bureau, of which I have spoken. There is the Bureau of Immigration and of Education, and the Bureau in the Department of Agriculture, which has concerned itself very much in the South with those very interesting and productive efforts for better farming, which have begun their activities by stimulating tomato-canning among the girls. All of these things, part of them purely educational, part of them a matter of direct work, are things which we shall not do over again, from which we hope to learn very much.

There have been a good many anxieties about this Bureau, many people have thought it was a mistake. Some people have said, "Ah, well, you are going to center everything about children away off there in Washington where there will be a government with a lot of very comfortable clerks sitting about in offices and writing down figures about children instead of doing things for children and you will palsy local effort." If the Bureau does that it is a failure. What the Bureau must do is to stimulate and help local effort. It must gather facts and try to present them so convincingly and simply that they will be useful and stimulate many to activity.

Then there has been a great dread lest the Children's Bureau might interfere with parental rights, lest the Bureau might seem to override the dignity and privacy of homes. I do not believe the Bureau will ever do that, because I know that the people who care most about the Bureau are people who realize that the welfare of the child is measured by the welfare and the wisdom of its parents, and that the way to help the child is not to take him out of the family, but keep him in it and help the parents to help him. And the Bureau will do its work with a fine respect for parenthood. And perhaps I cannot better close, since this is a woman's meeting, and we may well be generous to the gentlemen scattered here and there, by a story of a man, a father.

Not long ago I went to a meeting in Chicago, at which there were many delegates from the foreign colonies in that city. It was a representative meeting standing for about one hundred thousand residents of that foreign town. It was really a meeting of protest against threatened restrictions which many of us thought very ill-advised and cruel, which were to be applied to immigration. A man rose who belonged to a foreign colony which we are accustomed to regard as especially dull and illiterate, and he told very simply how that colony had come from a people who had been oppressed, the study of its language had been forbidden, reading and writing had been forbidden, and in a way, a certain illiteracy and dulness had been forced upon them; and he told so simply with what ardor they came here where there was freedom, where there were schools. I shall never forget how simply he said, "I am a father, and, like every father, I want my child to go higher than me."

That was the simple but overwhelmingly eloquent expression of a man whose English was very broken, but who, after all, spoke exactly the great impulse which has controlled all of us since the beginning of that wonderful seventeenth century when parents began to come over here. And, as I heard him speak, I thought that whether it was those who came in the cabin of the *Mayflower*, or those who sank in the steerage of the *Titanic*, they were all moved by that same mighty impulse, that the next generation should have a better chance than they had.

Now, this Bureau must move forward if it is to be useful in the same spirit in which families move forward, in which the race moves forward, to give the next generation a better chance than this has had. I thank you. (Applause.)

The CHAIRMAN—Those of us who heard Dr. Wiley, the other evening, give his impressions, may be interested in giving to Miss Lathrop another fact which will prove the value of birth registry. Dr. Wiley said that no one across the water could marry unless he could prove that he had been born. It would be impossible for many to marry in this country, if that were the case here.

We have always admired the way the Daughters of the American Revolution have taken the history of our country, have looked up the old stamping grounds and marked them, and have taught the children in schools the traditions of the country, to honor the makers of our country and to make them good American citizens. But we are really more pleased that the Daughters of the American Revolution have recently taken up more modern things, and that they are preserving the resources of the children. The speaker has been very much interested in modern life, in community life for the rural life of our country.

As a loyal Daughter, I have great pleasure in introducing to you Mrs. Matthew T. Scott, of Washington, D. C., President-General of the Daughters of the American Revolution.

Mrs. SCOTT—Madam President, Members of the Fourth Conservation Congress: Among the many opportunities for service, which today are open to women in this country, there are three to which I wish to call attention for a few moments this evening. The first is that of the unrealized possibilities of the home life of the nation. If we only were endowed with a larger share of that priceless attribute—the constructive imagination—we should be able to see the untold resources which still lie latent, waiting only to be discovered, developed and enjoyed in the mysterious precincts of that laboratory of the soul—that forging-room of character, that fountain-head of those subtle forces which add temper and edge and distinction to our ordinary human attributes—that civic and social Holy of Holies—which we call Home.

And let us remember that the sources of our country's permanent prosperity and glory lie not in the form of our government, in the wisdom of its administration, nor even in its written laws and constitution, but deep in the intellectual and moral life of society, and potentially in those nameless influences, radiating from the women who give its halcyon charm to hearthstone and library and to all the intimacies and inspirations of the home. For, after all, it is the home—the sanctuary to which we women must hark back—the home, with its *sanctity*, which is the palladium, the corner-stone, the key to the arch, of all that is most precious in the life and destiny of America.

Again, let us never forget, that to us women—the home-makers of our land—as never before in the world's history, is entrusted the healthy development of the social and moral fabric of society in our country, in the innumerable and intricate complications of this Twentieth Century civilization. A distinguished educator has recently said:

“At the present time the world is awakening to the teachings of the old prophets. Now, as then, the morals and ethics of a nation are just what the wives and mothers, the home-makers of the land, make them.”

Again, the home is also the place where the future citizens of this nation are to be trained. The place that fosters patriotism, obedience and love, reverence for authority, the finest elements of character. Some day the present generation will have to hand this country over to the sons and daughters who are being trained by fathers and mothers of today to administer the affairs of the home, in preparation for the larger field and wider duties of government. It is well for youth to learn that honest toil is never hopeless or degrading. It is well for youth to be at one with Nature and to learn of her; to know and feel the joy there is in bountiful, glorious Nature; to be familiar with her song—the ripple of the river on its stones, the murmur of trees, the rhythm of the sap that rises in them, the thunder in the hills, the stars shining in perennial

beauty, the song of the thrush, and the carol of the lark; to watch the sun in its course and learn the dim paths of the forest.

"It is the song of infinite harmonies."

The man, woman or child of vision responds—perhaps, all unconsciously and inarticulately—but responds like a vibrating chord to the note of these melodies, that should be part of the charm of the home-life of the farm.

There can be no disputing the fact that a goodly number of American women are wonderfully successful home-makers. But at the same time, it must be admitted, that a large number of our household mistresses must plead guilty to the charges of extravagance—technical ignorance of household economy—and a considerable degree of all-round inefficiency, both as housekeepers and as home-makers; for the terms are not synonymous.

It is a commonplace among sociologists that in most well-to-do American homes enough is wasted in the kitchen alone to keep a French family in comfort. We are also wasteful of light and heat, and, above all, of our time and energy. Our country is in dire need of a woman who will do for the home what a distinguished inventor and public benefactor of Philadelphia has done for the factory—that is, introduce an "efficiency" system, which will do away with our present waste of both money and time, and increase the quantity and quality of the actual output—not only of creature comforts, but also of artistic attractiveness; and of that indefinable atmosphere of peace and restfulness, which, of all the by-products of home life, is certainly the pearl of greatest price. The time will surely come when both mistress and maid will prepare for their life's work—as home-makers—with the same care and enthusiasm that men now put into the work of perfecting themselves in their various trades and professions. Home-making, like piano-playing, is an art—to succeed in which requires something more than temperament. Until the technique has been properly mastered, temperament has little opportunity to manifest itself to advantage.

A generation ago home-making and farming were occupations that anyone with a mediocre intelligence and a reasonable degree of industry was considered sufficiently equipped for. But today these two avocations occupy a secure and increasingly important place among the learned professions.

Agriculture, "dignified by the ages, as old well-nigh as the green earth itself," has become a scientific profession alluring to men and women of brains and culture, who quickly become enthralled by its ever-expanding and fascinating possibilities. In every State in the Union we have magnificent agricultural colleges and schools of domestic science, in which are being prepared for their respective careers thousands of prospective

farmers and thousands of prospective housewives. Moreover, several bills have been pending before Congress which provide for the widest possible dissemination of instruction in agriculture and domestic science (including the pure food problem) among the rural population of every county in this Nation.

This is a glorious work. The proposed instruction in agriculture is something which, as a farmer, I am particularly enthusiastic about. Yet I feel that quite as important as this will be the educational facilities in the household arts and in the highest home-making ideals, which are to be placed within reach of every housekeeper and every prospective housekeeper in this land. Just as agriculture is the basis of all our material prosperity and power, so the home is the perennial and sacred source from which emanate those potent, ennobling and refining influences, which slowly and silently have lifted man out of past savagery, and will yet, we trust, lift us out of our present state of semi-civilization—with its class war, political and business corruption and industrial brutality—on to higher and even higher stages of moral, intellectual and social development.

This is my idea of the relatedness of Conservation to the home. Is there any question that this is truly Conservation—its essence—in the minds of any member of this convention?

The second realm of opportunity which I want to point out to you is that which spreads out before us in a bewildering splendor of promise, in connection with the schooling of the young, as related to the home. We are all aware that the large majority of our common and high school teachers are women. In many of our States women vote for members of the School Board, and if a majority of them really wanted this right, there is no doubt that they would secure it everywhere. In this event it would be a comparatively easy matter for them to formulate and carry through policies of their own. Thus from the cradle to the university the education of the children is potentially in the hands of the women of this country.

This is a power which the priests of various religions frequently have endeavored to obtain on the grounds that if they were allowed to control and dominate the child's mind during its formative period, their influence upon its after-life would be dominant and enduring. I wonder if we realize what almost unlimited power over future generations is thus entrusted to our hands. Are we, as women and mothers, exercising that power with an adequate sense of the responsibility which it places upon our shoulders?

There are now thousands and hundreds of thousands of our sex who are pining for something to do, which they can feel is entirely and splendidly worth their while. How fortunate it is, that here, already at hand, is a task which Nature, and "Man, the tyrant," are agreed is

peculiarly adapted to our particular tastes and talents. But what are we doing about it? Little as a sex, I fear, that is either significant or creditable. When not merely in a few isolated cases, but as a class, the women of America decide what they want in the way of education for their children, if they want it badly enough, there is no earthly power which can stand between them and their splendid ideal goal.

But this means work, persistent, intelligent work. First of all, in the matter of self-education, and, secondly, in that of carrying on an aggressive campaign for the education of our own sex, and, if possible, of the other sex as well.

I am beginning to get deeply concerned, not about the lack of adequate opportunities for service on the part of women, but about our failure, so far, to measure up to the incomparable opportunities which are already ours. If there is any subject in which we, as women, ought to be intensely and intelligently interested, it is in this subject of education—not in the academic sense alone, but in the broader view of character-building—upon a proper understanding and handling of which depends the very future of civilization.

This, I take it, is truly Conservation work and when thoroughly grasped, will as truly mark milestones of progress in our lifetime, as those we may leave behind in material form.

The third of these brilliant avenues of possible social service, which open before us in beautiful vistas of alluring opportunity, is one which is involved in the purchasing power of women. As a general thing, men are the wage-earners and women are the wage-spenders for the home. Nearly all of the household expenditures of the family are made by the wives and mothers of the race. It is a sad commentary upon our business ability, and our rudimentary sense of social solidarity, that so few of us have any realizing sense of the potential power over the business and industrial world, which is inherent in this our position as buyer, or spender, for the family.

I call your attention to the fact that if the women of America would pool their purchasing power, and, resisting all the blandishments of the "bargain counter" and the "sale"—based on *sweat-shop labor*—would demand pure goods, made and sold under sanitary and salutary conditions—more could be accomplished for the moral and material uplift of the factory-worker and the saleswoman than by the enactment of a volume of restrictive statute, the breaking of which we thoughtlessly connive at, and practically become a party to, in our mad scramble for cheapness at any cost of human degradation and wreckage.

A superb organization, known as the "Consumers' League," has come into being, for the express purpose of enabling men, as well as women, to utilize their purchasing power in the great work of raising the standards of the business and industrial worlds, both as to the purity of the

product offered to the public and the fairness of the treatment accorded to employes.

Of all the splendid "movements" and "causes" which today invite our co-operation and support, this is one of many, which seem to me to fall naturally within our province, as wives, mothers and home-makers. It is the principle underlying this great crusade of the "Consumers' League" and like organizations which appeal to us. As a matter of fact, this is a work for the betterment of women in the business and industrial worlds, and as a consequence improvement in the home, which we women cannot avoid doing, without definitely and publicly shirking our heavy economic and moral responsibilities, as family purveyors and budget makers. Or, in other words, as domestic chancellors of the exchequer.

Far be it from me to say that the members of our sex may not some day decide to undertake, in addition to their other duties, the heavy responsibilities of the voter and political worker. Perhaps it may transpire, that upon our planet the true super-man is woman, and that she is entirely capable of doing the man's work as well as her own. But, in the interim, until this fact has been satisfactorily demonstrated, let us devote ourselves whole-heartedly to what is more particularly woman's work; to those delicate and difficult tasks for which man's clumsy fingers and prosaic processes of reasoning are unfitted and wholly inadequate. And, above all, let us be quite sure that we do our especial work—at least as well as he does his—before we insist upon taking a hand in his activities and improving upon his methods of performing his highly useful, if somewhat less exalted, functions.

It may seem in these lines of work—somewhat unique—and hitherto undefined as belonging to the realm of Conservation, that I am departing a long way from the usual addresses on that subject. But I ask your careful consideration of this subconscious knowledge of every woman's breast, that at least every issue and question I have referred to has its foundation, in the broadest and deepest sense, in the life and action which center in the home.

In the ways which I have so hastily outlined and in other, and perhaps better ways, that may not yet have occurred to us, our great work of Conservation is destined to continue its triumphal march upward and on—in the name of the great principles upon which it is founded, and in the name of patriots, living and dead, who have labored and sacrificed to make of this, our fatherland, what, under God, it is, has been, and ever must remain—the greatest nation on earth. Because, beneath the ample folds of its unconquered flag, there live more free, happy and God-fearing people than upon any other part of the habitable globe. (Applause.)

The CHAIRMAN—I had been tempted to introduce the next speaker as a charter member of the organization of the Daughters of the Amer-

ican Revolution, but I was told by her that this would be considered antediluvian, so that I have not any right whatever to use the knowledge I possess. I have also been told by her friends, for I am sorry to say that until this meeting we had not known each other, that she is the personification of patriotism.

It gives me great pleasure to present to this audience the Honorary Vice-President-General of the Daughters of the American Revolution, Mrs. John R. Walker, of Kansas City, Mo.

Mrs. WALKER—Madam Chairman, and Ladies and Gentlemen: The term Conversation has become so all embracing, from the viewpoint of a Daughter of the American Revolution, it is as much a work of patriotism as that of our own great organization—the one dealing with the present and the future, the other with the past, the present and the future. The motto of the Daughters of the American Revolution is “Home and Country,” and so lofty is its ideal, so practical its work, it will be felt throughout all time, as will this broad, wise work of Conservation. The spirit of commercialism, of money worship, about in the land, is fast sapping the resources of our great country and begetting a selfishness that makes a willing sacrifice of the rightful heritage of future generations. It would seem in the order of things in this work of Conservation, that the men of our land should give special concern to its material needs, its lands, its waters, its mineral resources, and that the conservation of life should appeal as nothing else to woman, the transmitter of life—Life, a priceless boon. We protest against child labor—implore with all the tenderness, developed through mother love, to spare the child in the greed of money getting. Refuse the work of little hands, and little feet, in factories, mills, and mines, and out of your abundance make it possible for them, during the few short years of childhood, to enjoy the freedom of the bird and the butterfly, give them a memory of Nature’s blessed joys—God’s pure, sweet air; the wayside flower plucked at will, the willow-shaded stream, and all that the sweet breast of Nature offers so freely, without money and without price—to the child of poverty. The Daughters of the American Revolution are awakened to the realization that we, the home-makers, descendants of the woman of the spinning wheel, hold the destiny of a nation in our hands, that we must not only accept but consecrate ourselves to woman’s highest mission, the crowning glory of womanhood—guiding the young feet into right paths.

To give patriots to our country, we must rear patriots, train Americans for America. In our great work of patriotic education our aim is to train the youth of our land in good citizenship; teach them to battle for good laws and social conditions, and to be courageous in the fight, daring to do right in both the political and business world—thus honoring his birthright. The Daughters of the American Revolution have

gathered the alien into the fold of the children of the republic, to make of them true Americans, do for them the best we know how; and many a lesson we can learn from them of thrift, industry and patience under discouragement. In my own State opportunity came to such men as Carl Schurz and Joseph Pulitzer, poor emigrants, who became pre-eminent in our country's history. The privileges of the American woman go hand in hand with her responsibilities, in her zeal for home and country; she is pointing the way, realizing that our children have a great work before them, a great problem to solve.

The Jewish dramatist, Zangwill, says: "To think that the same great torch of liberty, which threw its light across all the broad seas and lands into my little garret in Russia, is shining also for all those other weeping millions of Europe, shining wherever men hunger, or are oppressed, shining over the starving villages of Italy and Ireland; over the swarming cities of Poland; over the ruined farms of Roumania; over the shambles of Russia. What is the glory of Rome and Jerusalem, where all races come to worship and look back, compared to the glory of America, where all races and nations came to labor and look forward." America! great charity of God to the human race.

Conservation of life! As I stand before the shafts erected at Arlington and Richmond and read to the memory of sixteen thousand who fell in battle, to the memory of eight hundred unknown dead, my very soul cries out against war. Eight hundred unknown dead! Can you not see the long procession of anguished, broken-hearted mothers, waiting and watching—watching and waiting, and hoping? Our law makers oppose legislative measures advocating universal peace. How can they with our Civil War yet fresh in memory, the nations of the earth yet shuddering over the horrors of the war between Russia and Japan? The heart sickens at the memory of the undying hatred of the human heart; the blood thirst for blood in its brutal frenzy, sacrificing her young men—the hope of a nation—and all for what? One more island, perhaps, or insignificant kingdom: A war involving principle, as our Revolutionary War, hundreds of years afterward excites the most passionate interest and feeling; but wars for power, and possession, the world cries out against. The time has come to sheathe the sword and spare mankind. The vast expenditure of money for more destructive engines of warfare, for the slaughter of men, would go so far in our work for humanity, the helpless, the unfortunate, the struggling. War affects not only those who bear arms, but those who stay at home; the entire country is affected. War retards progress, paralyzes effort; ambition cannot feed a sorrow, hands are listless and lax when the heart is heavy. Mrs. Browning's Italian mother wails: "Both boys dead, one of them shot by the sea in the East, and one of them shot in the West by the sea. Dead! both my boys. If your flag takes all heaven,

with its white, green and red, for what end is it done, if we have not a son?"

On one occasion, a distinguished Confederate general was a guest at our table; he had fought from the beginning to the close of the Civil War. The little boy of the family gazed upon him with awe and admiration. To know and be close to a great soldier, one who had commanded armies and fought many battles, was indeed glory for a small boy. After gazing upon him long and steadily, he startled the assembled company by saying: "General, how many men have you killed?" We gasped in horror, wondering what the reply would be. Quickly the General responded, "I don't know that I have killed any."

We read "The Charge of the Light Brigade"; "Scots Who Ha'e Wi' Wallace Bled," and other stirring poems of war, and see only the glory of it. Death by shot and shell and sabre stroke is heroic; but the question of a little child startles us with the question of our individual responsibility; we are brought face to face with the words engraven on the tablets of stone, "Thou shalt not kill."

Universal peace is no longer a dream. The peace court at The Hague is established, and marks an epoch in international law. Let us not cease in our efforts until the pressure of strong public sentiment becomes so compelling, legislation will be favorable. Our country is the beacon light; she stands for justice, for freedom, for God; she is the messenger of the Prince of Peace, is elected to proclaim with trumpet call, peace to all the nations of the earth and the islands of the sea.

I cannot let this opportunity pass without asking this influential body of men to throw the weight of its great influence in favor of another matter taken up by the Daughters of the American Revolution—the desecration of the flag. I was appointed by our President-General Mrs. McLean, to speak on the subject before a committee of the United States Senate, and, with representatives from other patriotic societies, urged legislation upon it. It is a matter of sentiment, but what is life without sentiment? With you men laboring for your country's welfare, see to it that our country's emblem is held sacred, shall not be used as an advertising medium by the soulless money-maker, who cares for naught save personal gain, who does not consider that this banner stands for this great country—"your flag and my flag."

"And Oh! how much it holds,
 Your land and my land
 Secure within its folds,
 Your heart, and my heart,
 Beat quicker at the sight,
 Sun-kissed and wind tossed the
 Red and Blue and White;
 The one Flag—the Great Flag—the Flag for me and you
 Glorified all else besides—the Red and White and Blue."

Wherever we fling it to the breeze, it carries a breath of freedom into every land and unto every people. Should we not hold it a sacred thing? (Continued applause.)

The CHAIRMAN—For the past two years the next speaker has been working in the General Federation as Chairman of the Department of Conservation. We have worked so closely together, I, as her adviser, and she doing the large work of the organization, that it is almost like speaking of one's own family in introducing this speaker. I shall not try to tell of her work. We are the very best of Conservation friends to this day—Mrs. Marion A. Crocker, of Fitchburg, Mass.

Mrs. CROCKER—Madam Chairman, and Mr. President and Members of the Convention: Conservation is a term so apt that it has been borrowed and made to fit almost all lines of public work, but Conservation as applied to that department bearing its name in the General Federation means conservation of natural resources only, and that is a field so vast that we have found it all that can well be handled under one head without a chance of neglecting the very principle for which the Conservation movement was established. And then it is always easier to come back to simpler things. I do not mean exactly "simpler," but to those that touch our lives from day to day, of which we may see the effect almost from hour to hour, and therefore it seems so unnecessary to dwell on these things that are far away. The problem of Conservation of natural resources is so wide and far extended that much of it must be solved on great government plans, and that seems to make it even more remote.

Now, we all concede that there is nothing so important as the conservation of life, of health, education and vital force, so closely connected with the life. We all grant that, and it is only because the conservation of natural resources is so closely related to these other lines that it is of any vital consequence. But, with the other side having been so strongly emphasized, and, to my sorrow, a few times I have noticed it even being decried in this conference, it seems to me it has become my bounden duty to emphasize the other side, because if we do not follow the most scientific approved methods, the most modern discoveries of how to conserve and propagate and renew wherever possible those resources which Nature in her providence has given to man for his use but not abuse, the time will come when the world will not be able to support life, and then we shall have no need of conservation of health, strength or vital force, because we must have the things to support life or else everything else is useless.

Do not think I am pessimistic. I should not feel this so strongly, but I feel that this Congress was originally established for the conservation of natural resources, because the other side had received so much greater

recognition and it is naturally nearer to our hearts. You do not know how much harder it is to appeal to people for these far-away things than to those that are so near and dear to them, and the things they can take hold of in an animate way.

I would like you to review with me just a few of the natural resources and the result of their Conservation, or the result of a lack of Conservation.

We will begin with the forests, because in our natural conservation we consider that the foundation of the fundamental principle of the conservation of natural resources. And what does the forest for us? What is the purpose of the forest? Why must we have them? Well, the forest makes soil in a way; that is, it makes humus matter, which is so large a portion of the soil that it may well be termed the soil. The forest is the only crop that grows that gives to the soil more than it takes from the soil. It also conserves the mineral in the soil that it takes Nature ages to produce by its slow processes of disintegration, and at the same time prevents the filling up of reservoirs, lakes and streams, and to that extent prevents the pollution of the waters. The forest is a great health resort, and why? Because it actually purifies the air. Its action is just the reverse of animals. It gives the air what we need and takes from it that which is detrimental to our health.

We must look a little into plant life and see what nature does that we may fully appreciate that point. I cannot take time tonight because of the late hour to go into the whole life of the tree, but I will say that its principal constituent is carbon, and it takes from the air the carbonic acid gas which is so detrimental to human beings and to all animals. It has a way of converting it into its own life blood in combination with the sap taken up from the roots, by the marvelous process in the leaves, by this little understood substance called chlorophyll, that has the power of converting this poisonous substance for us into the life of the tree, and then taking so much from it and giving it to the soil. That is a most important factor which is so often overlooked.

Then the forest is valuable as a wind shield for crops. And for the wood supply. Wood is demanded in all the industries or the arts, for almost all things we use.

These are the fundamental things the forest does for us. Are we not working for conservation of strength and health and human life when we are working for the forest?

While the General Federation takes up many phases of water Conservation, perhaps I may just say that we have irrigation, drainage, waterways, the deep canals for transportation, we have water power, which is the coming thing. This is something to be conserved, and which conserves our coal, which conserves the purity of our atmosphere by not having all the gases turned into it by the burning of the coal.

All these things it does for us.

And then the very last and most vital is the pure continuous supply of water, which all human beings and which all animals demand. It is, next to the air we breathe, the most important factor in animal existence. Are we not working for health, for strength and for life when we are working for this pure plentiful water supply, and does not that come pretty near working directly for conservation of human life? Have you anything you can bring forward that touches much more nearly the health, life, strength of human beings, the child, than this same conservation of water, which is a natural resource?

The soil is indirectly our staff of life. From it does not come our bread? Must not this seed fall into the ground, spring from the earth and be protected until it reaches maturity, and we have food? Many other instances might I bring forward had I time.

Then the animal kingdom is much more nearly related to human existence than we would think at the outset; but when we come to look more deeply into it we find this close relationship.

I so often come up against the saying, "Oh, I am so much interested in human life. I have no time, no thought, no desire to give to the animal kingdom. It is all right enough for you sentimentalists, but I am not interested." Yes, but even from a selfish point of view, if we do not care at all for any suffering, or anything which may come to the animal kingdom beside ourselves, it is of economic value to us.

I will choose but one example of the animal kingdom, and that is the birds, because it is said that all vegetation from the earth would cease if the birds existed no longer. It is very interesting to know that Longfellow appreciated this economic value of insectivorous birds long before there was any movement on foot for bird protection, and I wish you would all read the poem, the last of the Wayside Inn stories.

This very conservation of bird life is one of the things that is the great new problem of conservation of natural resources, and one in which you women take a hand and have the real control. I know you have heard so much about that I am not going to give you statistics as to what the birds do for agriculture. I am going to ask you a personal favor: that this fall when you choose your fall millinery, will you not think of your Chairman of your Conservation Department of the General Federation, and I beg you choose some other decoration for your hats. This is not sentiment. It is pure economics. You have no idea what you do when you wear these feathers, until you think really deeply into it, and I am not speaking of the egret, of the paradise feather, wholly, but of the less choice feathers. There is only one exception to this rule, and that is the wearing of the ostrich plume. That is a legitimate business and one to be encouraged. There is no reason why we should not use ostrich plumes

if so we deem it best, but in regard to everything else in the way of feathers, let us turn over a new leaf for the fall. Will you not spread this gospel, not only to yourselves, but all the other women need to be asked to do the same thing? There are so many other articles, all the jets, the laces and ribbons. Will you not consider those things, even leaving out the sentiment?

I might cite for you many examples where conservation of natural resources works for the betterment of the human race, but I have just brought up a few of the most important.

Now, I want to say just a few words about the way to go to work to do some of these things. I will not go into the larger fields of forestry, or even into shade trees, except to emphasize the fact that while the shade tree is a very important one, and especially in the cities, we must never lose sight of the larger fact that after all it is not forestry, it does not stand for that, and that our arbor day, where we plant the one tree, should extend far beyond that. But I think one of our primary ways of working is to begin with the school, perhaps begin with the normal school. Many of the States have made great progress in that. I really have not the record of Indiana in that regard. I may be carrying coals to Newcastle to bring up this subject in Indiana. My own State, Massachusetts, stands very high in this line. Still I know there are many States that need this message. There is a great work to be done with the children, in making the school garden, and then the home garden; to teach the children to know what the soil is made of and how it should be treated, to make them love the growing flower and to make them respect the property of others. There we are laying the foundation of things for the next generation.

I know perhaps of no better book on the subject than that fine book for children, "The Land We Live In." I sent a copy into each State of the United States last year, with a request to each of my State chairmen that she do all she could to introduce that work into the libraries of her State, and the schools, feeling sure that if every child could read that book or hear it read, he would have a different idea of the natural resources and the need of natural Conservation. Some of the States have hundreds and thousands of copies of this book, and I am sure it is doing a great propaganda work.

I am going to tell you a little story of how I became interested in these things. It was before I was out of school myself, although pretty nearly so. It was when the welfare work began of taking the children out in the country from the slums in the north end. I was personally acquainted with one of the teachers, who was among the first to take the children out in the fresh air to breathe and see the grass and flowers and trees that they had never seen before. One little boy, after he had

looked around in amazement—it was in the fall of the year—saw the bright red apples on the trees, and he looked up and said, “Apples on trees, by God!”

It is overwhelming, isn't it? I don't wonder that you gasp at it. But look a little more deeply into it and see the pity of it. That child had been born and bred in the slums of the north end of Boston and actually had never seen apples on trees. He had seen apples in barrels. How did that poor child know that they did not grow in barrels? No, it had never occurred to him. They did not teach, in those days, the principles of horticulture in the schools. Was it not pathetic? Doesn't that teach a lesson? That has come home to me many and many a time. I actually believe that was the foundation of my interest in Conservation. I think I was born with a love of the soil. And the story of the boy added to that, made me feel that I must know something about nature, about the fundamental principles, about the other side of life, the vegetable kingdom that supports the human life. Those two things combined taught me a lesson that I never, never could forget, and I wish you would think them over.

I will say to you this one message, while you are working for this thing of prime importance, the conservation of life, for which this Congress has stood at this fall meeting, do not forget that the conservation of life itself must be built on the solid foundation of conservation of natural resources, or it will be a house built upon the sands that will be washed away. It will not be lasting. I thank you. (Great applause.)

President WHITE—I want to have read into the record of this evening's proceedings, by title only, a paper which was intended to have been read by Mrs. Elmer Black, of the International Peace Congress. She was expecting to be here and was on the program originally, but we learned that she could not get back from Europe in time to be present. She sent on her contribution in the way of a paper. It will be published in the Proceedings. The title is “War is the Policy of Waste—Peace the Policy of Conservation.” (For Mrs. Black's paper, see Supplementary Proceedings.)

President WHITE—I wish to say further that your very gallant Sergeant-at-Arms, Col. John I. Martin, wants to address the ladies for just three minutes.

Col. MARTIN—Madam President, Ladies and Gentlemen: For the very cordial manner in which you have carried out the suggestion made by our popular, esteemed and whole-souled President of the National Conservation Congress, the Hon. J. B. White, that I briefly address this association, and for your kind invitation, I return my most profound thanks.

Nowhere in this wide and extended country can there be found a grander association of noble, unselfish women, planning, acting, counseling upon the great subject of conservation of human life than this organization under whose auspices we are all assembled this evening. Nowhere can there be found an institution more efficient for good, more blessed in all its labors of love and humanity, more universal in its application to the advancement of love and sympathy, stimulating education, encouraging enlightenment and scientific and humane development and morality, than an institution of the character of this band of noble women, engaged in such a magnificent undertaking as your association promulgates. Fully appreciating the fact that as the world grows better and people become more educated and more honest in their endeavors to espouse the cause of the weak against the strong, and the right against the wrong, then such organizations as the Ladies' Auxiliary of the National Conservation Congress will be heralded as the very acme of perfection along the lines of the contemplated work in which you are now engaged. (Applause.)

In all ages of the world chivalry has yielded to feminine beauty, patriotism, loyalty and devotion, and I am sure that our popular President, Captain White, his efficient officers and all the members of the National Conservation Congress are at all times ready to listen to advice and counsel from the fair sex, and to surrender with wise discretion to all her laudable undertakings. (Applause.) Wherever cheeks have turned pale with waiting, weeping and watching, there was woman's presence to cheer, to comfort and to save, and in her garden of the sun heaven's brightest rose is yet to bloom, and when it comes it will be the bright-hued mission of a heavenly charity. The poets have sung no truer rhyme than that inscribed by one of your own number :

"Woman, not she with trait'rous lips her Savior stung,
Not she denied him with unholy tongue,
She, when Apostles shrunk, did dangers brave,
Last at the cross, and earliest at the grave."

God Almighty, in his crowning work of creation, gave woman to man, made weakness her strength, modesty her citadel, truth, gentleness and love her attributes, and the heart of man her throne. (Applause.)

The CHAIRMAN—The meeting will stand adjourned.

TENTH SESSION.

The Congress convened in the Murat Theater, on the morning of October 4, 1912. It was called to order by President White.

President WHITE—We will put things through on the ten-minute plan this morning, so as to give every one a chance who has a place on the program. Today we have reports from the committees, and elect our officers. We can then get ready for another Congress, for we are all going into the field, we are going to work for Conservation, and the whole country is going to take it up. We will give them the text, and the press will take it up, the politicians will take it up, and we will each be a committee of one to go forth through the country and make this Conservation idea a potent force that will change and correct legislation for the benefit of all the people. (Applause.)

Mr. A. B. Farquhar, who was to speak this morning, spoke yesterday, and therefore his address, for which a great many expected to be present, will be printed and you will have an opportunity to read it. Every one should subscribe for as many copies of the Proceedings as he can afford, for distribution among friends. It is without doubt going to prove to be the greatest book on conservation of human life that has ever been written. These papers are scholarly, and they are true, and the truth will prevail if we can only get people to read and to think. We want to give you all an opportunity to subscribe for this publication, which will be published as soon as possible, and will only cost one dollar, and those who pay this dollar will be entitled to membership in this organization next year, so that if your Mayor, or your Governor, or your civic body does not reappoint you, you are sure of membership next year, because you have paid in your dollar and subscribed for the book.

Dr. Livingston Farrand, of New York, will now speak to us on "The Problem of Tuberculosis."

Dr. FARRAND—Mr. President, Ladies and Gentlemen: The problem of tuberculosis in the United States is simple in its outlines. Stated in their lowest terms, the figures which describe it are sufficiently impressive and appalling. Increasing experience and added knowledge serve only to confirm earlier estimates and to emphasize the seriousness of the situation which confronts us. The vital statistics of our country are notoriously faulty and incomplete, but the lesson they teach must arrest the attention of every thinking citizen.

According to the census of 1910, treating the non-registration area on the same basis as that from which mortality reports were recorded, there were 150,000 deaths from tuberculosis in that year. This is, of course, an under statement by many thousands. Rigidly conservative estimates agree that the mortality from tuberculosis in this country is at least 200,000 each year and very probably considerably more. Let us for the

moment, however, deal with the demonstrable facts and not enter the field of estimate.

The real problem is not the number of deaths from tuberculosis, but the number of living cases of the disease. In calculating this different methods have been employed. For many years, the ratio of three living cases to each death was used as an index of the situation in any community. It was quickly realized by those familiar with the situation that this proportion was far too low, but with our almost total lack of registration, figures to demonstrate the discrepancy were not available. With the improvement in recording the facts of disease in certain typical centers of population, it became certain, however, that a ratio of five to one was not only conservative but below the truth.

More recently records of great value have been obtained which confirm the convictions of experts and allow still sharper definition of the problem.

It has remained for the city of Cleveland to work out during the past two years a system of tuberculosis registration and administration which is undoubtedly the most complete in the country for a community of its size and complexity. Without going into details of method, notification, and registration have been brought to such a point in Cleveland that of all the deaths from tuberculosis now occurring approximately ninety per cent. have been previously recorded and under observation by the Department of Health, before death is reported. This is an achievement for a city of its population of extraordinary significance. There are in round numbers something over 700 deaths a year from pulmonary tuberculosis in that city of 600,000 inhabitants. There are in register and under observation at this time approximately 4,600 cases of tuberculosis. Allowing for the ten per cent. in the mortality not reported before the death, it is obvious that the number of living cases is over seven times the number of deaths and with slight allowance for the very large number of active cases in any community which have not yet come to diagnosis, we can demonstrate in that city a ratio of eight living cases for each death.

It is singularly fortunate that this demonstration has taken place in a community of sufficient size to include the problems in some degree of all our larger cities and to be regarded as reasonably typical of the situation throughout the country. It has also been shown that except for certain centers, where the problem of congestion is extraordinarily prominent, the rural situation in the United States does not differ appreciably from that obtaining in all cities and towns so far as the presence of tuberculosis is concerned. I have no hesitation, therefore, in asserting that we must from this time on raise our figures and use a ratio of at least eight to one in calculating the prevalence of tuberculosis on a basis of the recorded deaths from that disease.

Apply these figures to the country. The Bureau of the Census indicates 150,000 deaths a year. On this basis we have 1,200,000 living cases of tuberculosis. Let us not forget, however, that 150,000 recorded deaths is far below the actual number, for it is easy to show in most of our communities that many deaths properly to be assigned to tuberculosis are reported under other terms, and the area of the United States from which no statistics are forthcoming includes precisely those States where the mortality is high and the prevalence of tuberculosis demonstrably widespread. We are still absolutely certain that the mortality from this disease is at least 200,000 each year, and the number of living active cases more than a million and a half.

Such, numerically speaking, is our problem. What are the efforts for its solution?

Since the discovery of the bacillus as the cause of this disease in 1882, an organized campaign has gradually been developed. The inferences from the discovery of the cause were perfectly inevitable and indicated the lines of operation. It became entirely clear that tuberculosis, being due to a specific germ, was infectious, and it was equally clear that the bacillus and its life history being known, the disease was theoretically preventable. Here, too, the outlines of the campaign are simple, even though the details of operation are varied and the end in view baffling to attain.

It was inevitable that the first sporadic efforts based upon slight experience should have been more or less random, and that years of trial and proving should precede the establishment of definite method. Some degree of order is, however, emerging, and we are witnessing an increasing clearness of purpose and definition of attack in the preventive movement against tuberculosis which is now sweeping over the country and the civilized world.

While recognizing the unfortunate complexity of the social conditions whose maladjustment is perhaps the chief underlying factor in the problem, while recognizing fully the obligation to lend all possible aid to the betterment of those conditions, the administration of the campaign against tuberculosis has still conceived its specific task to be a direct attack on the sources of infection; this, because experience has indicated such procedure to be the best and most feasible means of prevention. As the logical conclusions of laboratory discovery and clinical experience began to express themselves in organized movement, it was recognized that the preliminary task in prevention was one of education; an education which should impress upon the public mind not only the fundamental facts that tuberculosis is infectious and preventable and the methods of its infection and prevention, but an education that should bring about an improved knowledge of public and private hygiene, and particularly

an education which should create a public sentiment which could appreciate conditions and would support and even demand those measures which expert advice and experience might indicate as necessary. This educational propaganda, now so familiar, has been in the United States the particular province of private organization. The union of professional and lay effort in this latter day crusade has been one of the most inspiring of social phenomena and has already resulted in accomplishments of imposing dimensions.

With our political organization such as it is, this enlightened public sentiment is an absolute essential if the responsibility for the situation is to be an official one, and not left for the suggestive and stimulating but less final and efficient efforts of private philanthropy.

The insistence upon official responsibility has been made an essential point in our American campaign and toward its intelligent acceptance by public authorities all efforts are directed. As may well be appreciated, the attainment of this desired end is slow, even though ultimately inevitable.

In planning the campaign, an ideal program was not difficult to lay down. It included as fundamental:

1. The education of which I have spoken, not only as it applies to tuberculosis but as contributing to the solution of that problem of misery which is, after all, the chief problem of the day and which reduces in the last instance largely to terms of good or ill health.

2. Enactment or enforcement of protective laws of which the basis was that notification and registration agreed upon as preliminary to official knowledge and control of the situation.

3. Adequate institutional provision for all classes of cases; the sanatorium for the curable; the hospital for the advanced and hopeless, and dispensaries for early diagnosis and as centers for that all-important field of action, education and treatment in the homes of the poor.

The developments of the years have not served appreciably to modify the main features of this program. Emphasis has shifted from time to time and will continue so to shift, but the fundamentals remain more firmly established than ever.

In developing the movement in this country, the most effective means of stimulating action in our various communities has been the voluntary association for the prevention of tuberculosis. In organizing these societies the local community has been recognized as the essential centers of action. The effort has been made, therefore, to obtain in every community of considerable size an organization embracing elements both medical and lay which shall charge itself with the task of securing adequate official treatment of the tuberculosis problem as it there presents itself.

In many of our commonwealths such organizations can best be brought about through the action of a State society, whose special function becomes one of organization and of securing desired legislation. In other cases the initiative is local in origin. Where State societies exist, these act as co-ordinating agents for the affiliated local societies, and the National Association for the Study and Prevention of Tuberculosis acts as a clearing house for them all.

It will be seen at once that such organization is but preliminary, and would be entirely futile, did it not result in preventive measures of a definite sort. There is, however, no other index equally valuable of the vigor and growth of this movement in the United States. Speaking from the national point of view, the organized campaign in this country has been in existence exactly seven years. In 1905 there were in the entire country but twenty-one of these societies, while at the present time there are no less than 660, working in co-operation and presenting a united front to the enemy. There is no considerable area that does not contain some such center of intelligent action.

The carrying out of the program outlined a moment ago is the special function of the organized movement. In the development of this program it is historically interesting that it was institutional provision for tuberculosis that first obtained support. It was the sanatorium for the cure of curable cases with its peculiar appeal which first engaged attention. From our present point of view, it was perhaps not the logical beginning, but it was certainly the obvious and perhaps the most fortunate point of attack. The sanatorium with its promise of restoring to a wage-earning capacity those unfortunates who formerly had been regarded as doomed to a speedy and inevitable death, was peculiarly fitted to arrest public attention and to engage public support.

As the movement for sanatorium establishment developed momentum, attention turned to the need of special dispensaries as logical centers of preventive work. Time will not permit even an outline of this phase of the problem. Suffice it to say that with the first general survey of the movement in the United States, six years ago, there were in the country but eighteen dispensaries exclusively devoted to tuberculosis. There are today more than 400 such foundations and their number is increasing at a rapid rate. All those who deal hand to hand with the problem become impressed at once with the fact that tuberculosis is pre-eminently a disease of social life, of living and working conditions. In the absence of adequate institutional facilities it is unavoidable that the problem should be attacked in the homes and workshops of the people, and with such weapons as may be at hand or which can be devised. With early diagnosis and careful instructive nursing supervision, much can be done even in the distressing conditions which characterize the crowded and poorer quarters of our great cities. The center of activity in this field is every-

where the dispensary, and the elaboration of its function to include supervision in the homes of indigent patients has been one of the most interesting and important of recent developments.

The third and possibly the most important aspect of institutional provision was the last to be taken up with energy. Every survey of our equipment during recent years has served to emphasize the shocking lack in our facilities for the care of advanced cases of tuberculosis. It has become increasingly evident that as centers of infection the consumptive in the advanced stages presented the most serious problem. Equipped as we were, with a healthily growing movement along educational, sanatorium and dispensary lines, the time seemed ripe for a vigorous attack on this point of weakness. The result has been that during the last four years there has been a concentration of energy in this direction and a notable advance has been made. Without pausing to specify various kinds and degrees of hospitals and sanatoria for the treatment of tuberculosis in the United States, it is encouraging to note that we now have over 500 in the country, as compared with 111 seven years ago. The number of beds contained in these institutions is approximately 30,000, a number small when compared with the need, but encouraging when compared with the situation but a few years since.

The third feature of the program already mentioned, that of legislation, is less susceptible of numerical expression, but it is in many ways the most fundamental and most significant of advancing intelligence. The principle of compulsory notification and registration has been insisted upon from the outset, and it has now come to be fairly generally accepted in all parts of the country. With few exceptions the more important States provide for registration by enactment either of the Legislature or of the State health authorities. In most of our larger cities local regulations are also on the statute books. Unfortunately the enforcement of these regulations is far behind their expression, but the situation is rapidly improving, and the example of such cities as New York in initiating the principle, and of Cleveland in demonstrating its possibilities, is of inestimable value.

In dealing with the question of public hospital establishment, the best adapted political unit has caused much embarrassment where a given community is not large enough to support an independent institution. Federal provision is agreed upon as being out of the question. The State as such is in most instances regarded as having the same limitations to a lesser degree as the national government. It is fairly generally accepted that where the municipality is of sufficient size it should accept responsibility for its problem. In those sections where communities of lesser population are the rule, the county is now in the focus of attention.

Little difficulty has been encountered in procuring the necessary leg-

islation for local and county institutional provision. We have now reached the point where the possibility of mandatory State legislation is being considered with care and some favor. In this connection one should note the recent passage by the Legislature of the State of New Jersey of a law which undoubtedly represents the most advanced legislation in the United States and probably in the world. Without going into details, the law in question provides for the establishment of special tuberculosis hospitals in all the counties of the State, for the payment by the State of a certain sum (\$3.00 per week per patient) toward the maintenance of such hospitals, for the compulsory segregation in such hospitals of dangerous and incorrigible cases of the disease, and for the general supervision of these provisions by the State Board of Health, though the primary responsibility is placed upon the local health officer. This legislation is of the highest interest, not only in its promise of results, but as an enactment into law of principles formulated as necessary by expert experience even though in advance of public appreciation.

Reaching into every field of social activity as this campaign must do, it is inevitable that new phases of importance should successively make their appearance and demand attention. I should say that perhaps the most striking is the essential importance of the child in the tuberculosis problem. With improved methods of diagnosis and wider facilities for examination, there has been shown a prevalence of tuberculosis in children of school age that is most alarming. It is a conservative statement that there are today in the public schools of the United States 100,000 children who will die of tuberculosis before they reach the age of eighteen if the present rate of mortality be continued. A very recent estimate presented by the United States Bureau of Education states that at least 15,000,000 children now in attendance in the schools of the United States are in need of a physician's attention, and that of this number 1,000,000 have or have had tuberculosis. It has become clear that if our educational campaign in the interest of preventive medicine and public health is to achieve success, the attention must be concentrated upon the coming generation rather than upon those who have already passed their years of plasticity.

We see, then, on every hand the tendency to attack the problem in the schools, and this not only by the establishment of provision for open air teaching and the improvement of the undernourished and the predisposed, but upon insistence of regular and intelligent instruction as to the prevention of disease.

Such in its general outlines is the plan by which we are working. With such a situation and with such a campaign what then is the outlook? I have little sympathy with the enthusiasm which deals in specific predictions or which assigns a date for the practical achievement of theoretical possibilities. It is perhaps inevitable that an impatient

public should demand results before definite results can be forthcoming. There is, on the other hand, a corresponding obligation for conservatism in expression when indicating probable or even possible results. A drop in the mortality curve of a slowly developing and slowly progressive disease such as tuberculosis, is not a matter of months but a matter of years. It is unjustifiable to expect results from the specific campaign against tuberculosis in an observable diminution of mortality for some years to come. I believe, however, that we have reached a point where our equipment is such as adequately to test our basis of operations and to warrant an optimism as to the future if our reasoning and method be correct.

Believing as we do, that the soundness of the procedure is certain, it would seem reasonable to expect a response in the mortality tables within five years, and that ten years should afford indisputable proof.

There is, of course, no doubt that tuberculosis is diminishing and has been diminishing for a generation. This decrease is not to be assigned to the specific warfare against the disease, but is doubtless correlated with other factors. It is uncertain whether we are to assign as its cause the general improvement in public hygiene or whether there may be perhaps an acquisition of immunity gradually extending through the civilized world. In my own judgment this decrease in the prevalence of tuberculosis is associated with the improvement in hygienic conditions which has been so marked during the last fifty years. I believe we are justified in expecting an acceleration in this diminution as a result of the specific measures now being adopted not only here but in Europe. While we cannot interpret them with confidence, there are already appearing certain figures of possible significance. It should not be forgotten that the first result of all concentrated activity and interest is a greater accuracy in mortality and morbidity statistics, and that an actual decrease in tuberculosis might appear in official reports as an apparent increase in the disease.

Taking all these factors into account and viewing the situation candidly and with all the precautions possible, I do not hesitate to assert that optimism as to the future is justified, and that the end of the present decade will witness the beginning of another drop in the mortality curve comparable to that which was seen in the closing years of the last century. (Applause.)

President WHITE—Dr. W. C. Mendenhall, of the United States Geological Survey, at Washington, was expected to be here this morning to speak upon the subject of "Water as a Natural Resource." He is unable to be present, and Mr. Jacob P. Dunn, Secretary of the Indiana Historical Society, will now have ten minutes to discuss "The Conservation of Navigable Streams."

(For Mr. Dunn's paper see Supplementary Proceedings.)

President WHITE—The subject of the next address is “Social, Industrial and Civic Progress.” It is to be a review of fifty years of what has been done in labor economics, by one who has given a great deal of study to the subject, Mr. Ralph M. Easley, of New York City, Chairman of the Executive Council of the National Civic Federation.

Mr. EASLEY—Mr. President, Ladies and Gentlemen: In view of the fact that the work of the Committee on Civics was not outlined at the time it was organized, and as it was the desire of the national officers of the Conservation Congress that its work should not duplicate nor overlap the work of other organizations, the mapping out of a practical program for the committee was deferred until this meeting of the Congress.

Recognizing this situation, the officers of the Congress suggested that, as Chairman of the Committee on Civics, I should briefly review the progress that has been made by others in this country along industrial, social and civic lines. This seemed to me wise because at a gathering of this kind, which has discussed conditions that call for improvements, it might be helpful to note what progress our country has already made along these lines. To look back adown the slopes we have so painfully and undauntedly climbed in advancing to our present plane of material and moral welfare, far from inspiring us with a smug complacency, should heighten our resolves and give renewed energy and freshness of spirit.

Another reason for accepting the suggestion is that I had just read in an English newspaper a sweeping and vitriolic criticism of our social and civic conditions. Our unkind critic spoke of us as a people so utterly bound up in the worship of the “almighty dollar” that we had lost whatever social vision might have illumined the minds of our fathers. To all sense of social righteousness we were as a people pitifully indifferent. In mill, factory and mine our working people slaved; in tenement and farmhouse our poor lived, little if any better than the poorest of Europe’s poor; our sick and otherwise helpless were scarcely given a thought. Politically we were rotten to the core, statesmanship and graft going hand in hand.

That, in short, ours was a dog-eat-dog civilization, and that the only direction in which light might be seen breaking was in the “fact that making headway among the wisest and most far-seeing Americans was the conviction that American institutions were a failure!”

The editorial concluded with the statement that if any one considered that view a biased one, all such skeptical readers need do was to acquaint themselves with the writings and speeches of American sociologists and magazine writers or to converse with any of that “dwindling proportion” of our well-informed citizens to whom human values are not a mere academic phrase or an abstraction.

It is unnecessary to point out that our English critic might have used his columns to better advantage if he had differentiated between the sociologists and magazine writers who seek our country's good and those who seek only its destruction—a very important differentiation to make at this time.

In fact, our critic may be a Socialist, who is only passing along to England the general cry of the pessimists of this country, that "whatever is, is wrong"; and that there is a great unrest in the industrial world which will, sooner or later, burst out in volcanic force and engulf us in a terrible cataclysm—all of which is unspeakable rot.

I think I am in a position through the organization with which I am connected (composed as it is of the representatives of the great labor, agricultural, manufacturing, banking, commercial, educational and professional organizations) to know something about this "great unrest" upon which the Socialists and other radical writers and speakers declaim so much, and I can assure you that the only unrest in the industrial and social fields that I can discern is that wholesome, normal unrest which comes through the education of the people, and therefore a better understanding of their rights as workers and the translation of that knowledge through the labor unions and other social and economic organizations into concrete demands for better living conditions.

But let us take a birdseye view of the situation and see whether we are advancing or going backward. I think you will agree with me that the following bare outline of a few of the important achievements and the work now being done by organizations and movements of public-spirited citizens is inspiring and encouraging.

Let us start with the industrial gains.

The American Federation of Labor and the railway brotherhoods have in the past twenty-five years secured better wages and working conditions for millions of wage-earners and the eight-hour day for hundreds of thousands, and they have developed a system of collective bargaining and methods of conciliation and arbitration that are reducing the number of industrial disturbances. To get a clear idea of what this means in terms of progress, let us consider that while in the past six months 500,000 coal miners and their employers have made contracts covering wages, hours and conditions of employment for a term of four years; all the railroads east of Chicago are arbitrating their differences with their thousands and thousands of engineers, trainmen, conductors and so on; the hundreds of thousands of carpenters, bricklayers, painters, plasterers and others of the thirty-five crafts involved in the building industry have made contracts with associations of builders all over the land from Maine to California; while the publishers of the great daily newspapers throughout the United States have made a five-year contract with their printers, pressmen, stereotypers, etc.; and the street railway

employes in many great cities and many others of the 135 crafts belonging to the American Federation of Labor have made satisfactory contracts with their employers—I say, let us consider that while this is what is going on today in this country, we shall not have to go very far back into history to find the time when it was a penal offense for a man to join a labor organization, or for workers to ask collectively for an increase in wages, and to find that, while we are now legislating in the interest of the employe for a minimum wage, at that time the effort of legislation was for a maximum wage in the interest of the employer.

In the meantime, the State factory legislation has revolutionized the methods of sanitation in the workshops of the country and is safeguarding better and better the lives and limbs of the workers.

Employers are making increased provision for the welfare of their employes through sanitary and safe work places, opportunities for recreation and education, model homes rented or sold, and relief funds for sickness, accident and death benefits, as well as old age pensions, all affecting millions of railroad, factory, mine and department store workers.

The National Child Labor Committee has led a campaign that in ten years has secured wholesome legislation in practically every State in the Union, reducing hours of labor, prohibiting children under fourteen years of age from working in factories, mines and mills, and preventing night work for women and children in many places.

The tenement house reform movement in New York alone, where the problems are greatest, has made seventy-five per cent. improvement in fifteen years; and as an example of the growing recognition of big business of its social responsibility, it may be pointed out that when the Supreme Court upset the Tenement House Law, and by a decision wiped out all that had been accomplished in twelve years through the tenement house agitation, the allied real estate interests in New York joined with the tenement house reformers in securing the passage of a State law and a city ordinance correcting the defects.

Amazing in magnitude and usefulness are the health organizations, public and private, devoted to securing more efficient methods of sanitation and the prevention of disease, recent statistics in New York City showing as a result of such work that the mortality rate has decreased fifty per cent. in fifty years.

There are various national and local organizations devoted to the protection and education of the millions of immigrants from all parts of the world who have landed on these shores in the past ten years, and whose assimilation and adaptation to American standards and conditions have constituted one of the problems of the age.

There are thousands of non-sectarian hospitals and institutions for the scientific care of dependents, defectives and delinquents.

Splendid work is being done by the great charity organization move-

ment which is teaching independence and thrift through its penny provident societies, and which has organized some of the most important preventive and remedial agencies.

The National Federation of Remedial Loan Societies covers twenty-eight cities, where societies lend money to the poor at reasonable rates to protect them from the loan sharks, the New York organization alone having a fund of millions for this purpose. A rapidly increasing number of large employers have changed their attitude towards their employes, in that they now aid instead of discharging those who incur debt—the latter policy having played directly into the hands of the loan sharks.

The National Association for the Promotion of Industrial Education has brought the manufacturers' associations and the labor organizations into harmonious support of the measure providing a federal appropriation of \$5,000,000 for industrial education of the young workers in towns and cities, whether in factories, stores or offices, and including domestic science for the girls. The measure also provides an equal amount for the sons and daughters of the farmers.

The tremendous program of constructive work undertaken by the United States Bureau of Labor and the Bureau of Mines in the interest of the workingmen and by the Department of Agriculture for the farmers should alone silence our English scoffer. The recent establishment of the Children's Bureau is an achievement of which humanitarians may well be proud.

The public school system and other free educational institutions enable the children in this country today to receive twelve times as much schooling as their grandparents—a tremendous factor in our advancement of itself and one that readily accounts for much of the unrest without which no progress could come.

The universities, especially the State institutions, have in the past ten years enlarged the scope of their work to such an extent that many of them can be classed as leaders in what are termed the "uplift movements" of the day. A complete catalogue of the public work done by the University of Wisconsin alone would be a revelation.

The Playground and Recreation Society of America and other recreation movements are assisting in the development of children's playgrounds in parks and schools and are bringing health and good cheer to congested centers.

The Association for Labor Legislation is working jointly with the American Medical Association to safeguard wage-earners against occupational diseases.

The American Bankers' Association is organizing a movement to help the farmers of the country develop idle land in the effort to decrease the cost of living.

One of the most encouraging signs to those who are alarmed over the high cost of living, and that is about all of us, is the recognition by the farmers, State agricultural colleges and railroads, of the necessity of introducing up-to-date methods for raising and marketing grain, live stock, fruit, dairy produce, etc. Only last week I read the announcement of a convention called in Kansas, where three thousand delegates will meet to consider this very question of improving the methods of farming. These delegates will represent not only farmers but also the bankers, merchants, wage-earners and all divisions of society.

It would take a volume to describe even in outline the great social and economic reforms being promoted by Mr. Andrew Carnegie, Mrs. Edward H. Harriman, Mrs. Russell Sage and Mr. John D. Rockefeller, whose \$60,000,000 gift covers the promotion and development of the high school system in the Southern States and the promotion of higher education throughout the United States, while his Sanitary Commission has discovered and is eradicating the hookworm disease in the South. The Carnegie Institute of Washington, with an endowment of \$22,000,000, was founded to encourage in the broadest and most liberal manner investigation, research and discovery, and the application of knowledge to the improvement of mankind, while the Carnegie Foundation for the Advancement of Teaching, with its \$15,000,000 endowment, provides retiring pensions for the teachers of universities, colleges and technical schools. The Russell Sage Foundation, endowed by Mrs. Sage with \$10,000,000, has for its purpose the improvement of social and living conditions in the United States of America.

There are the tremendous achievements through the institutional work of the churches of all denominations. Three-fourths of the efforts in the live churches of today are devoted to material welfare, as is evidenced by the especial care of the orphan, the sick and the poor on the part of the Catholic Church; the great Hebrew philanthropic and educational agencies; and such single illustrations as the social work outlined in the handbooks just issued by Trinity and St. George's parishes in New York—the former being a revelation to those who believed that the millions of Trinity Church were being used only for commercial profits.

The Young Men's Christian Association, with its tremendous energy and enthusiasm, while organized primarily to promote the spiritual growth of young men, has lately, under its "physical and social well-being" clause, gone into the field of industrial betterment with conspicuous success.

The Men and Religion Forward Movement and the Federation of Churches, representing many million members of Protestant denominations, have recently adopted broad programs of industrial and social reform.

There are the movement to suppress the social evil, known as the Federation of Sex Hygiene; the Anti-Tuberculosis Society, with its wonderfully comprehensive and successful efforts in fighting the great white plague; the Red Cross Society which, in addition to relieving distress in great disasters, has fostered with marked success annual competitive drills of "first-aid" crews from the mines; the Boy Scouts of America, inculcating patriotism and good citizenship; the National Consumers' League; the New York Museum of Safety and Sanitation; the Prison Labor Reform Association, and hundreds of other organizations and movements devoted to human betterment too numerous even to mention by title.

And last, but not least, there is the educational work being done by the National Civic Federation through its Departments on Conciliation, Compensation for Injured Workmen, Industrial Welfare, Pure Food and Drugs, Reform in Legal Procedure, Regulation of Interstate and Municipal Utilities, Regulation of Industrial Corporations and Uniform State Legislation.

As much of the work of the various departments of the National Civic Federation called for uniform State legislation, a special department was organized to co-operate with the Commissioners on Uniform State Laws.

The importance of uniformity to all business and commercial institutions is clearly recognized, when we consider that our larger corporations—such as the railroads, telegraph, insurance, banking and trust companies and, in fact, so far as taxation is concerned, all manufacturing concerns whose plants are in different States—are subject to forty-eight masters, each with a mind quite different from that of the others. The "interminable" law's delay, the clashing of the States upon the question of regulation of corporations and combinations, the diversity of State laws on ordinary commercial matters, such as warehouse receipts, bills of lading and negotiable notes, the urgent need for a uniform bill on compensation for industrial accidents, all give emphasis to the need for uniformity. But even this chaotic legislative situation shows encouraging signs of clearing up.

So much for progress along industrial and social lines; but we have made and are making just as great progress in this country along other lines that affect the general welfare of the people. And also our ethical standards and our aspirations are conspicuously higher. For instance:

Within the past twenty years there has been a most remarkable gain in the popular concept of the relation of industrial, railway and municipal utility corporations to the public. The large corporations called trusts have been taught even in the past five years that they must recognize certain "rules of the game" that give their competitors a chance, and what is wholesome about this from the ethical standpoint is that they now admit the justice of these changed conditions.

The abolition of rebates and free passes and the placing of railroad, telegraph, telephone and express companies absolutely under the regulatory power of the Interstate Commerce Commission are so far-reaching that the benefits to the people are impossible to measure. From federal regulation of railroads, it was only a step to State regulation of street railway, gas and electric light companies.

The idea that railways or big corporations are masters of the people has been dissipated.

Today, through insistent demand of the people for publicity, it can be said that the big business of the country is being done behind glass doors. The improved methods of doing business adopted by banks, trust companies and insurance companies during the past five years would alone justify this statement.

In practically five years, thanks to the great educational work of the National Conservation Congress, there has been a complete transformation of the public mind in the matter of proper control of our natural resources, such as our public lands, timber and water power. It was not many years ago, when I was living in the West, that it was considered a smart thing to "grab off" all public land that one could get hold of. This was generally accomplished by taking land in the name of your mother and father and all your children, past, present and future, and it was not bad form even to use your neighbor's name in taking up claims. I found my own name had been used in three or four different counties by some of my ambitious neighbors.

Politically speaking, we have progressed from the state where our elections were great public scandals and where primary elections were "free-for-alls," with no legal status whatever, to a day when, thanks to the Australian ballot law, ballot-box stuffing is practically unknown and primaries are generally so conducted that the voters control.

Campaign contributions that were largely responsible for corruption in politics and legislation are now by law made public to the world.

The initiative, referendum and direct primary have been adopted in some form in two-thirds of the States and in over two hundred cities the commission form of government, often with a recall attachment, has been adopted. These measures, whether they prove to be practical reforms or not—and there are many who doubt that—undeniably testify to the paramount power of those agitating for a so-called "progressive program," they all being opposed by what are termed the "reactionaries."

The civil service, from being a thing detested by nearly everybody twenty years ago, is so popular today that political parties are vying with each other to see which can include the largest number of civil employes. The President has just ordered the 35,000 fourth-class post-masters be taken from under the political brokerage offices of the Congressmen and placed under the civil service law.

The government of cities, which has been the burning shame of this country, as it was in the early days of every other country, is slowly but surely becoming more decent and effective. The work of the National Municipal League, the hundreds of local municipal reform associations, and the National Bureau of Municipal Research with its local bureaus, furnish abundant evidence of the truth of this statement. The Bureau of Municipal Research is not only making an exhaustive and painstaking analysis of administrative methods in many large cities, and installing more up-to-date and efficient systems, but it also has prevailed upon the Federal Government to have a similar investigation made in its various departments. It has, in addition, organized a training school to meet the demand for municipal experts.

The administration of justice and the influence of wealth upon the decisions of the courts have been revolutionized in the past ten years. It used to be charged that the criminal courts convicted only the poor and released the rich, whereas today the penitentiary that has not a half dozen or more bankers or rich malefactors within its walls is the exception. There is no man or corporation so powerful today as to be immune from attack by the government when violating the law.

The American Bar Association and the National Civic Federation are jointly working to bring about a reform in legal procedure which will wipe out unnecessary delays and cost in litigation, thereby opening the courts more freely to the wage-earner.

Five years ago there was no such thing as a Pure Food and Drug Law. Today there is a federal act which has been made the basis of legislation in thirty-five States, and in another five years it is likely to be practically impossible for misbranders or adulterators of food and drugs to live outside of our penal institutions.

The rural free delivery, the postal savings bank and the parcel post are all great advances from which the farmers largely benefit.

The building and loan associations and savings banks, unknown in early days, are great aids to wage-earners.

In other words, reform is writ large over all sections of the country and all classes of society. There are:

Over two thousand boards of trade and chambers of commerce, at least half of whose efforts are directed towards municipal and industrial reforms, and the other half to commercial reforms;

Thousands of church societies and committees aiding in the improvement of industrial, social and political conditions in their respective localities;

Thousands of women's clubs, representing over two million of the brightest and most energetic women of our nation, devoted to securing civic improvement, factory legislation and reforms in public schools, to spreading information upon social hygiene and domestic science and

working for the protection of women and the redemption of unfortunate ones;

Thirty thousand labor organizations, whose purpose is not only to secure better working conditions, better wages and a shorter workday for wage-earners, but also to lift them to a higher plane of citizenship, and

Millions of farmers who, through granges, alliances and institutes, are working not only to improve the home life on the farm, but to educate their children in the use of better and more scientific methods of production.

Pretty fair, is it not, for a people whom our English critics and our American Socialists say are bereft, or almost so, of a social sense?

And it must also be kept in mind that this resume does not refer to progress in science, invention and the arts, nor is attention called to the fact that never before in the history of this country were the basic conditions better than they are now, despite the fact that a national political campaign is supposed to be on.

But while the progress made has been so tremendous that we do not realize it, on none of these lines is it contended that anything near the ideal has been reached. There are yet very many black places and perplexing problems demanding attention on the part of those who love their fellow-men. But the same courage, intelligence and humanitarianism that have accomplished so much will not now falter, but will press forward.

Many in this audience may conclude that I am unduly optimistic and that I am able only to see the good, but I can assure you that I know something as well about the ills of society; for instance, I could cite from the records of the Welfare Department of the National Civic Federation alone a catalogue of industrial horrors showing where greedy and thoughtless, if not unfeeling and criminal, employers are grossly and outrageously mistreating the wage-earners in their employ, paying them atrociously low wages, working them excessively long hours and giving no consideration to the comforts or decencies that a humane employer would furnish. But also from that same record I could show that all such evils are being met by other employers, justifying the belief that, through education and proper agitation, the remaining sore spots can be removed. Last year one great corporation alone spent five millions of dollars in betterment work, including a gradual shortening of the working time in its plans for improving conditions, and several large corporations, operating night and day, have gone from two twelve-hour shifts to three eight-hour shifts without decrease of pay.

As a concrete and striking example of the power of agitation and education, there can be no better illustration than the present widespread sentiment in favor of legal enactments requiring compensation

to injured wage-earners in lieu of the old employers' liability system. Through the work of the National Civic Federation and co-operating bodies, this complete reversal of policy has been brought about in four years, fourteen States having already passed workmen's compensation laws. The legislation, both Federal and State, which is now being secured, makes the industry bear the burden, while before the wage-earner took all the chances, did all the suffering and, if, after long-drawn-out litigation, he finally got anything in the way of damages, he had to give up fifty per cent. of it to the "ambulance chaser."

I am happy to state that a movement is now on foot to make a painstaking inquiry into the progress made during the past fifty years in the directions indicated, with a view not only to discovering the good, but also to ascertaining what social and economic ills remain to be eradicated, and to propose, as far as possible, practical remedies therefor.

It is believed that a movement which will recognize the good and sincerely seek to remedy the wrong would be more effective in accomplishing reform than one designed only to tear down and destroy.

It were well, and with this suggestion I conclude, if at all future gatherings of this great organization some such counting of the milestones passed were to be made a feature. There is good reason for this. There are among our ninety millions of people many who, strange as it may seem, interpret such occasions as this as diagnostic of a body-social sick nigh unto death as the result of neglect. They do not know—and the fault is not wholly theirs—that the patient, far from being in extremis, is in better condition than ever before, that what to them is a death chamber consultation is merely an evidence of periodical stock taking in terms of social health and welfare. (Applause.)

President WHITE—This is certainly a truthful resumé. It is well for us all sometimes to stop and "count our blessings." (Applause.)

We will now listen to Dr. Burton J. Ashley, of Morgan Park, Illinois. His subject is "Disposition of Sewage," a very interesting aspect of Conservation.

Dr. ASHLEY—The universal aim of every one is to succeed. Success in anything depends, it is aptly said, on one's ability, reliability, endurance, and action—four personal requisites, the absence of any one of which means failure. Ability and reliability are personal qualities, while endurance and action, two of these four requisites, are physical endowments dependable on one's health. Accepting these statements as correct, then half of our successes is dependable on personal health and one-half on personal quality.

If man's successes are equally as dependable on health as on his mental or acquired qualities or abilities, then we must draw but one conclusion, viz., that as much attention should be given to the mainte-

nance of a healthy body as to the use and maintenance of our mental and moral capabilities.

Healthfulness depends in part on cleanliness, the state or quality of being clean. Health is natural. Disease is unnatural and is the result of some known or unknown transgression of natural laws. Dirt and disease have always been good friends. Disease is always most flourishing when it has dirt and filth for company; and to be dirty or filthy is to transgress nature's efforts at keeping the body well.

Water and food are essential to life. Consume them and the liquid waste produce is sewage filth. To man the foulest and most repulsive dirt or filth is that of his own daily making, and well that it is, for it contains the most poisonous substances that exist and civilized humanity everywhere is increasingly directing its efforts to accomplish its destruction in the most sanitary and economical way possible. Modern methods employed by cities or lesser municipalities to disposal of their liquid filth is that of establishing systems of underground drains called sewers, into which such liquid filth is discharged.

The first well designed sewerage system to be adopted in the United States was built in Chicago about the year 1855.

The modern water-closet was not evolved until early in the last century, and in consequence of which evolution water carriage as a means of conveying sewage away logically followed its introduction. Former designs of sewerage provided for drains that would accommodate both the storm waters as well as the sewage. This method is commonly known as the "Combined System," but when the employment of this character of sewage disposal created nuisances, the demand arose for the abatement of said nuisances, and it was then that civilization faced sewage purification in some form as a remedy. Storm waters are only dirty waters and not, strictly speaking, polluted waters, for merely dirty water will not create an offensive nuisance and requires no purification, while polluted water does. So the "separate system" of sewers was then evolved, namely, where one system conveys the storm waters and a separate system the sanitary sewage, for, inasmuch as only sanitary sewage needs purifying, therefore works of smaller capacity are needed than would be required were the large and unsteady volume of storm waters to be also subjected to the purifying process.

Many experiments have been made and varying forms of sewage purifying plants have been built during the last half century, and out of the many failures there have been evolved a few processes of purification which have proven fairly successful, but from an economic standpoint as well as from a physical one much yet has to be gained.

The broad irrigation of land with raw or crude sewage has been tried out and its limitations discovered. Although physically successful when properly administered, this form of disposal has been found to be expen-

sive. Existing costly land values are usually exceedingly against the adoption of this form of disposal. The Broad Irrigation Plant of Berlin, Germany, with her 43,000 acres of land, is a notable example of the continuance of this form of disposal, but while this scheme has through its years of usefulness sometimes shown profits and sometimes deficits, the profits have never been large enough to pay the interest and sinking fund charges on the capital expended on the purchase of farms.

The method of purification now in general use is what is broadly called the biological method, wherein nature's own mysterious forces, viz., putrefaction and nitrification, are encouraged usually by first impounding the sewage and then nitrifying the impounded liquid in a filter bed, so called.

This form of sewage purification is found to require a minimum amount of manipulation or labor as compared with some of the other forms.

The plea for sewage disposal is that it enhances life by preventing disease. The United States Censervation Commission reported that eighty-five per cent. of typhoid and malaria are preventable.

The sewage disposal problem is by no means an easy one, for every case being a law unto itself is sure to present a greater or less number of physical conditions that may not be found in any other case. Sewages differ in their composition as people differ. Some sewages are easily controlled and gotten rid of, while other sewages are stubborn to almost refusing to be subdued. The sanitary engineer in arriving at determination is obliged to previously dig deep and acquaint himself with existing conditions before he can safely conclude upon designs or measures or means that will bring successful results. The sanitary engineer's practice is therefore much like that of a physician who considers symptoms before offering a diagnosis or prescribing a remedy.

Contrivances that have worked successfully in England have often proven to be failures in the United States. The character and composition of sewage abroad differs widely from the composition of our greatly diluted sewage here. Latitude, quantity of contained manufacturing wastes, character of water supply and numerous other components all combine to make the art of sewage disposal a problem. For instance, when the water supply is what is commonly termed "hard" undue collection of scum or mat is almost sure to form in biological tanks, and this is only one of the innumerable vexatious enigmas that confront the engineer or biologist. Pioneer practitioners have frequently undertaken the solution of sewage disposal questions when not qualified for such duty, largely in answer to the urgent request of an impecunious public with the usual disappointing results. But the value and possibilities of health Conservation have now been brought to that degree of successful accomplishment where the demand for specialists in the advancement of this

modern art has become enhanced, and the advisability of employing specialists when the nature of the work is of such vital importance as is sewage disposal needs no argument.

Mr. Winslow has told us that a badly constructed or badly operated system is worse than none at all, for it creates a sense of false security and it also breeds a sense of distrust.

The first city to go about the establishment of sewage disposal in a thoroughly exhaustive way was Columbus, Ohio. Its example was shortly followed by the cities of Baltimore and Philadelphia. Very elaborate and exhaustive experiments are now being made by the city of Chicago at an experimental plant costing \$60,000, which experiments have already covered a period of over two years, so that when a report shall be forthcoming the character of disposal best suited to that city will be a known factor and such steps as will be taken will be along lines of certainty.

The whole civilized world is or should be deeply indebted to the far-reaching experiments that have been conducted since the year 1887 at Lawrence, Mass., by the Massachusetts State Board of Health. The annual reports of the findings have become classic both at home and abroad. Nor would we forget to mention particularly the fifth report of the English Royal Commission on Sewage Disposal, which, after making exhaustive observation covering a period of four years of the operation of twenty-seven sewage disposal plants in actual daily operation, gave information, the value of which to the sanitary expert and indirectly to the civilized world at large, may not be determined.

At this stage of sanitary advancement our common people should not be further excused for the density of their ignorance regarding the value of preventive medicine as exemplified in clean premises and person and the adopting of respectable sanitary conveniences.

Want of knowledge along lines of modern sanitary advancement is to a very large extent due to the inertness of legislatures in enacting laws to meet the modern sanitary needs. The passing and enforcing of such laws would surely force our ignorance on this subject out of us and place us on a higher hygienic plane, such as has been established by the excellent enactments in a few of our States.

Standing out pre-eminently in this respect are the laws relating to the public health in Massachusetts, with New York following as a close second. One of the most important laws which is the foundation of others in Massachusetts is a provision for the acquirement of land by cities and towns for the purification of sewage. All through the Massachusetts code are to be found an abundance of preventive measures, as well as curative—abatement of nuisances, of offensive trades; establishing water supply and sewage disposal. Then follows a long list of subjects such as lying-in hospitals, dangerous diseases, spitting, drinking

cups, protection of infants, vaccination, quarantine, public school inspection, diseases of domestic animals, hydrophobia, cemeteries, cremating of dead bodies, burials, bakeries, supervision of plumbing, pollution of streams, food and drugs, milk, registry of births, marriages and deaths—not one of which but has its peculiar relation to the producing of sewage, and indirectly with sewage disposal.

As a contrast with the Massachusetts code let me refer to the sanitary laws, or want of them, in the State of Illinois. According to a copy of the public health laws issued for the information of local health authorities and others of this State, there occurs, for instance, but two sections covering the establishing of sewers. Rules and regulations are in evidence for isolating, quarantining, disinfecting and coping with various infectious diseases after they come into existence, but not a statutory provision is to be found establishing sewage disposal, nor for preventing the pollution of streams and lakes. The State Board of Health in this State is well-nigh powerless in taking initiative steps, particularly with regard to sewage disposal and stream pollution. It is high time State legislatures betook themselves to looking more into the all important art of sanitation and its far-reaching results and at once enact laws that will meet the advanced requirements of our daily living, and give such attention to the conservation of health and to the physical welfare of our homes as it in some cases has given to the welfare of the barn, the pigsty and their occupants. Had I the time I could refer to some very astonishing facts that might cause the blush of negligence to come to the faces of our Hoosier legislators.

Ohio has recently enacted a code of plumbing and drainage laws, containing provisions supposed to cover scientific sewage disposal. This code provides for and encourages contrivances that have been most soundly condemned by leading sanitarians both in this country and abroad for a century past.

It was Eugene Field who said:

“It seems to me I'd like to go
Where bells don't ring or whistles blow
Nor clocks don't strike nor gongs don't sound,
And I'd have stillness all around,
Not real stillness, but just the trees
Low whispering of the hum of bees.”

What this tender poet wrote several years ago is increasingly being enacted today by the exodus of the prosperous captains of industry, of commerce and of the professions from their narrow city confines in unneighborly city neighborhoods to well appointed habitations in the outlying suburbs, or in his comfortable summer home up in the mountains or alongside the beautiful waters of some inland lake. These prosperous friends, though removing to the country, are unwilling to yield up any

of the comforts and conveniences afforded by municipal service. Sewers usually unavailable in these more or less remote locations causes sewage disposal to become at once one of their most vexatious problems, so here comes a new demand for special skill in aiding our country gentlemen in establishing a satisfactory sanitary service that will tend to his comfort and respectability and prevent a menace to life and health. So all along the line the requirements for the sanitary uplift of home surroundings is widening, and the requirements in the daily living is enhancing, for modern sanitary methods of which sewage disposal is the most important are found to be most effective and therefore more necessary in the conservation of man's most valuable asset—health. (Applause.)

President WHITE—While waiting for committee reports, we will hear from a gentleman from San Francisco, who asks a little time. I will introduce to you Mr. J. P. Baumgartner.

Mr. BAUMGARTNER—I just want to say to you that San Francisco will be in the field at the proper time with an invitation to this Congress to meet in that city in 1915—the year of the Panama-Pacific International Exposition. The State of California has raised twenty million dollars for this Exposition. There will be a million-dollar convention auditorium on the Exposition grounds, and we feel there are many reasons why it would be particularly fitting for this Congress to meet in that city that year. I do not want to press this matter unduly at this time, but I felt I had a duty to perform to tell you that we want you to come to San Francisco in 1915, and that we will extend to you a royal welcome. I thank you. (Applause.)

President WHITE—There is a committee to report at this time. The Chairman of the Executive Committee, Mr. E. L. Worsham, will report on some amendments to the Constitution.

Chairman WORSHAM—Mr. President and Members of the Congress: The Executive Committee makes the following recommendations for changes in the Constitution of the National Conservation Congress:

That the following be added as Section 3, Article III:

“After a call of the Executive Committee by the Chairman, and after all members of the committee have been notified of the meeting in sufficient time to be present, three members shall constitute a quorum for the transaction of business.”

That Article IV, Section 1, be amended as follows:

“Section 1. The officers of the Congress shall consist of a President, to be elected by the Congress; a Vice-President, to be elected by the Congress; a Vice-President from each State, to be chosen by the respective State delegations; one from the National Conservation Association and one from the National Association of Conservation Commissioners;

an Executive Secretary, a Recording Secretary, and a Treasurer, to be elected by the Congress."

That in Article V, Section 1, the words "during each regular annual session" be stricken out.

That Article V of the Constitution be amended to read as follows:

"Section 4. The President shall appoint a Finance Committee of five, three from the members of the Executive Committee and two from the Advisory Board, whose duty it shall be to plan ways and means of increasing the revenue of the Congress, and to prepare a budget of expenditures. The Chairman shall be a member of the Executive Committee.

"Section 5. The Executive Committee shall appoint in consultation with the Vice-President from the State, a State Secretary whose duty shall be to work with the State organizations for the especial interests of the Congress. Such Secretary shall report progress to the Executive Committee."

That the remaining sections of Article V be renumbered accordingly.

That Section 2 be added to Article VII, to read as follows:

"The membership in the National Conservation Congress shall be as follows:

"Individual membership, one dollar a year, entitling the member to a copy of the Proceedings and an invitation to the next year's Congress, without further appointment from any organization.

"Individual permanent, or life membership, twenty-five dollars, entitling the member to a certificate of membership and a copy of the Proceedings and invitations to all succeeding annual Congresses.

"Individual supporting membership, one hundred dollars, or more, entitling the member to a certificate of membership, a copy of the Proceedings, and an invitation to all succeeding Congresses.

"Organization membership, twenty-five dollars, entitling its delegates to the Proceedings and an invitation to the organization to appoint delegates to the next Congress.

"Organization supporting membership, one hundred dollars or more, entitling the organization to appoint one delegate from each State, each of whom shall receive a copy of the Proceedings."

Mr. WORSHAM—We are proposing some radical changes regarding the membership of the Congress. Heretofore, the personnel of the Congress has varied from year to year, and we have had no way of keeping in touch with delegates who attend. We think it is necessary to place the Congress on a good financial basis, and also to keep in touch with the people who attend from year to year, and we have, therefore, recommended these changes. I move the adoption of this report.

The motion was seconded, put, and declared carried.

President WHITE—I will now call for the report of the Nominating Committee, which will be presented by the Chairman, Prof. George E. Condra.

Professor CONDRÁ—Your committee has been working very diligently, canvassing the situation. We have looked over the field, reviewed the work of various persons connected with Conservation, noted their efficiency. We have looked into the future, we have thought of the fitness of certain individuals for the work, and therefore report as follows:

For President, a man who can take up the work where Captain White leaves off—Mr. Charles Lathrop Pack, of Cleveland, Ohio. (Great applause.)

For Executive Secretary, one who has been with the work since its beginning, and has accomplished so much—Mr. Thomas R. Shipp, of Indianapolis. (Applause.)

For Recording Secretary, one who has also been valuable in the work, and has been associated with Mr. Pack and with Captain White—Mr. James C. Gipe, of Indianapolis. (Applause.)

For Treasurer, the man whom the Executive Committee at an earlier Congress gave an earnest invitation to take up this work, that it might be taken care of in a manner befitting this Congress—Mr. D. Austin Latchaw, of Kansas City. (Applause.)

The one who has been nominated for second place, Vice-President, we named because of fitness to serve all phases of the work of Conservation, but especially the conservation of life and the home. Not chosen because she is such a womanly woman; not especially because she has done splendid work for us here, but chosen because she is a great leader and we want her for the work. A person known to most of you—Mrs. Philip N. Moore, of St. Louis. (Applause.)

I do not name the Vice-Presidents of the States, for reasons given in the report of the Executive Committee. I take great pleasure in moving the adoption of this report.

The motion was seconded by Mr. A. B. Farquhar, put, and declared carried.

President WHITE—I now wish to present to you your next President, Mr. Charles Lathrop Pack. (Applause.)

It is with great pleasure that I present to you the President of the next Congress. He is one who is thoroughly in love with Conservation. He is one of those who first studied Conservation. He spent years in its study, and he is, I know, the first American who ever received a fee for scientific forestry advice. He was paid one thousand dollars by the

President of the Missouri Pacific Road for his expert opinion. When Mr. Pack returned from Germany, where he had been studying forestry for some time, he was sent for by Jay Gould, who asked him for his expert opinion on some forestry matters. Next morning Mr. Pack found in his box at the hotel a check for \$1,000. This was the earliest record of such a fee being paid in the United States. So, if he was appreciated to this extent by a great railroad president then, we surely can trust him now. We are proud to have him as our President, and we feel he will be a great help to Conservation in the ensuing year. Mr. Charles Lathrop Pack, your new President, will now take the chair. (Applause.)

President PACK—Ladies and Gentlemen: You have a great work before you, not only for the ensuing year, but for all years. The Conservation movement is not one for today, but for all time, and it matters very little the name or the names of the workers in the cause. It matters that you, and every one of you, should have your hearts right and do the right work. Conservation makes for the best use of all resources, and is dead against their abuse. It is your duty and my duty not only to come to these Congresses and confer and talk, but when you go home to be a true advocate of the cause and to be against everything that is opposed to it. (Applause.) Conservation is for men and women, and for one I thank God we have the women with us. (Applause.)

I do not intend to make a speech; I am not a speech-maker. You have plenty of orators. But with your help during the next year, I will try to do my part, and I ask every one of you to go to your homes and come back to the next Conservation Congress with three delegates in place of one. I thank you. (Applause.)

Before we go any farther, I ask you to rise and join me in giving three cheers for that great Conservationist, Captain White.

Three rousing cheers were given, led by Mr. Pack.

Mr. WHITE—Ladies and Gentlemen, Delegates to the Congress, Mr. President: This is glory enough for me. I feel paid for the work I have done in the past year in having the appreciation of such a good class of people. (Applause.)

President PACK—The next speaker on the program is Mr. George M. Lehman, representing the Mayor of Pittsburgh, who will speak to us on "The Investigations of the Flood Commission of Pittsburgh."

Mr. LEHMAN—Mr. Chairman and Delegates of the Fourth National Conservation Congress: It has been the custom in this country to build dams and locks on lower reaches of rivers, for navigation; to build regulating works for forming and maintaining channel depth, etc., and to dredge deposits caused by erosion.

Our country has received large benefit from this process, particularly in certain sections. It would have thrived, however, to a far greater extent and much suffering, involving general living and business conditions, would have been avoided and a better foundation provided for future generations, if, in addition to the above-named developments, attention had been promptly and thoroughly given to the control and conservation of flood water. We have been woefully thoughtless and backward in bringing about a comprehensive treatment of this matter which is of such great national importance.

HISTORICAL AND GENERAL OUTLINE OF WORK.

Pittsburg having been seriously troubled by destructive floods for over a century, attention was finally directed toward means of alleviation and in 1908 the Chamber of Commerce organized a commission consisting of business men, engineers and other professional men, to ascertain the character and extent of flood damage and make investigations of methods for relief. Later, an enlargement of the commission was made by the addition of city and county officials and representatives of manufacturing and various business concerns affected by floods. The expense of carrying on the work has been borne by public-spirited citizens, including the interests affected by the floods, and by county and city contributions. To this date about \$137,000 has been expended.

The work has involved detailed surveys and soundings, within the city limits, of the Ohio, Allegheny and Monongahela Rivers, and a survey of the areas of overflow. The topography was fully developed, and streets, lines of transportation, buildings, etc., located. Extensive topographic surveys were made along the principal tributaries of the Allegheny and Monongahela Rivers for the purpose of determining the possibility of constructing storage reservoirs.

In connection with complete contour maps, diagrams, profiles, etc., made from the above work, studies have been made of the cost and effectiveness of a flood wall, in connection with dredging, in deepening, widening and straightening of the river channel at the city, and the cost and effectiveness of regulating the stream flow by storage reservoirs, located throughout the drainage basins. In addition to the collection of a vast amount of general data, including precipitation, taken from the records of the United States Weather Bureau, the work involved many special studies, among which were forest conditions, geology and stream-flow. For the stream-flow studies, gauging stations were established by the Flood Commission and also a number in co-operation with the Water Supply Commission of Pennsylvania. In the forest studies, the co-operation of the United States Forest Service and of the Forestry Department of Pennsylvania were secured. Valuable stream-flow data have been provided by the United States Geological Survey.

At the beginning of the investigations the matter was treated as of local concern only, but as the work progressed the broad aspect of the problem and its national scope were realized, as it became evident that Pittsburgh's floods had a direct bearing upon the flood troubles of other communities. Further study disclosed the fact that inseparable from the flood problem was the question of navigation, sanitation, water supply and water power, and that the valleys of the Allegheny, Monongahela and Ohio Rivers could be benefited wherever conditions are favorable for the construction of storage reservoirs. On many of the principal tributaries of the Ohio below Pittsburgh, the topography is favorable for storage reservoirs upon a large scale, and floods could be prevented throughout the Ohio valley by extending the plans of the Flood Commission.

An exhaustive report, consisting mostly of original data, has been published by the Commission, as the result of nearly four years of painstaking work. It is said that this report forms the most comprehensive treatment of a subject of this kind that has ever been carried out. The report contains over 900 pages, including numerous maps and diagrams, and a large number of illustrations, showing flood damage, reservoir sites, forest conditions, etc.

FLOOD DAMAGE.

Pittsburgh, which has a population of 533,905, and about twice as much with the contemplated greater city, is located at the head of the Ohio River and at the confluence of the Allegheny and Monongahela Rivers. The combined drainage area, above the city, amounts to 18,920 square miles. Of the two rivers, 150 miles, directly connecting with the city, have been slackwatered. About 14,000 miles of navigable waterway lies below the city. The National Government, in a few years' time, will have the entire 967 miles of the Ohio River improved.

The tonnage of Pittsburgh, incoming and outgoing, amounted in 1910 to 167,000,000 tons, of which 11,000,000 tons consisted of river traffic. The above total tonnage, which has doubled in the last six years, is twice as great as the combined tonnage of New York, London, Hamburg and Marseilles.

As is frequently the case in communities situated upon the inland rivers of this country, the most important commercial and industrial parts of Pittsburgh are located upon the low lying areas bordering the water. The need of free access to water and of rail and water transportation naturally brings about such development. In fact, on account of the topography, rail communication can in many cases be satisfactorily established only along the stream. Such a condition, however, frequently causes great suffering and interruption to business, involving not only the districts in direct touch with the river, but the whole community.

During the progress of the investigations, it became evident that unless some adequate method of flood relief could be devised and carried out, the larger portion of the flood affected areas could never be properly developed, and the capital invested therein would continue to suffer. The general needs of building operations and of city improvements will of necessity keep pace with the advance of population; and the flood damages, which in their effect involve the home conditions and business life of the entire city and surrounding communities, will become correspondingly greater.

In ascertaining the extent of flood damage to the city, a careful investigation was made of three floods which occurred within a period of about twelve months, from March 15, 1907, to March 20, 1908. In the conduct of this work it was noted that while those coming in direct contact with the floods are alert to the seriousness of the situation during the flood, the matter is, however, after a time almost forgotten; the disposition in most cases apparently being to take the troubles as they come rather than to do anything in the way of even attempting to devise means of relief.

The classification under which this work was done, and the monetary amount of direct losses within the city by the three floods may be given as follows:

| | |
|--|--------------------|
| Damage to buildings, equipment and machinery..... | \$782,400 |
| Damage to materials..... | 1,698,900 |
| Loss to employer by suspension of business..... | 1,974,200 |
| Loss to employe due to shut-down..... | 1,308,300 |
| Expense of cleaning up..... | 547,400 |
| Charities dispensed and funds for prevention of disease..... | 27,800 |
| Fires uncontrolled through inaccessibility or lack of water pressure.. | 175,000 |
| Total | \$6,514,000 |

It was found that the loss ranges as follows: For the flood of 27.3 feet, \$414,700; 30.7 feet, \$839,800; 35.5 feet, \$5,259,500.

The area comprising the larger part of the mercantile, industrial and railroad interests amounts to about 3,000 acres, 1,540 of which was covered by water during the great flood of 1907, which had a height of 35.5 feet, or 13.5 feet above the danger line. This flood remained sixty-five hours above the danger line of 22 feet. About fifteen miles of river front land are occupied with industrial works of various kinds. The assessed value of real estate as affected by the 1907 flood amounts to about \$160,000,000, and a careful estimate shows that this property is nearly \$50,000,000 lower in value than it would be if protected from floods. Using the results obtained for the above floods and the flood records for the past twenty years it is estimated that the direct loss to the city has amounted in that period to about \$17,000,000, over \$12,000,000 of which occurred in the ten years preceding January, 1911.

Based on the assumption that in the next two ten-year periods there will be no increase in number or height of floods over those occurring in the ten years just preceding January, 1911, it is estimated, if protective measures are not provided, that the flood losses at Pittsburgh in the next twenty years will amount to about \$25,000,000. As records show, however, that floods are increasing in frequency and height, it is estimated that the losses in the next twenty years will amount to about \$40,000,000, or nearly twice as much as it will cost to carry out the flood prevention measures recommended by the Commission.

The Commission did not have resources for securing the amount of damage at the many important points along the rivers, above and below Pittsburgh, but at Wheeling, W. Va., it was ascertained, for instance, that about \$1,000,000 was lost during the flood of 1907. Authorities consider that the total loss along the Ohio Valley for the two floods of 1907 amounted to more than \$100,000,000. This is indicative of the vast losses occurring annually all over the country.

In addition to many miles of street car tracks, streets and alleys, about 435 acres of railroad and industrial yards were covered, in addition to 17 miles of main railroad, by the big flood of 1907.

At high stages many manufacturing plants must close down. The following is quoted from a report of the American Iron and Steel Association: "Damage to the iron and steel industry unprecedented. At beginning of March, 1907, flood there were forty-four blast furnaces in Allegheny County in blast, and of these thirty-eight had to be banked for an average of two days. Work at most of the sixty-five or seventy rolling mills and steel works was suspended." Many of the open-hearth furnaces were badly damaged and some of them practically ruined.

FLOOD PROTECTION.

Regarding methods of local treatment, studies and estimates of cost were made of the following: A wall of about twenty-five miles in length to be built in the city along the river fronts; also for deeping, widening and straightening of the river channel by dredging.

The wall, high in places above the river streets, would prevent overflow by confining the floods to the channel. Dredging and removal of obstacles in the channel, bank encroachments, etc., as can now be accomplished, would have comparatively slight effect in reducing flood heights and these means were, therefore, not broadly recommended. Furthermore, these forms of treatment would be of local flood benefit only and communities above and below Pittsburgh would continue to suffer in various ways.

A wall of limited height, however, is really desirable, at least along certain parts of the river. While reservoir control would result in reclaiming considerable areas of land, a wall would provide means for

adding to the amount and greatly improve the appearance and usefulness of the banks. The handling of cargoes to and from river boats would be greatly facilitated by means of modern devices. Sheds could be constructed along the wall and close to the boats which would lie alongside. Such arrangement would make feasible the bringing directly of river and rail transportation with the great advantage of through rates and routes, a condition which is now lacking at practically all points on American rivers.

FLOOD PREVENTION.

In the treatment of the flood problem, prevention, by the use of storage reservoirs, for the purpose of holding back the damaging part of the flood water, is the rational and comprehensive method, as it goes to the source of the trouble, and extends its benefits throughout the entire river valleys, not only in the form of flood relief, but by improvement of the low-water flow, due to the release of the impounded flood waters during the dry season.

Forest cover is beneficial to some extent in retarding the run-off and in improvement of low-water flow, and the attitude of the Flood Commission is to support such National and State legislation as will tend to preserve and increase the present forest cover. The Commission, however, recommends the use of the storage reservoir system, supplemented by other means where necessary, for the reason that such a system could be speedily brought about. The use of storage reservoirs for flood control is not a new idea in this country and this method is now successfully employed in European countries.

The exhaustive surveys and studies for flood prevention disclosed the fact that forty-three reservoir sites are available in the Allegheny and Monongahela drainage basins above Pittsburgh, and that while not needed for present purposes additional sites are feasible. The forty-three projects would have a total capacity of 80,500,000,000 cubic feet, would cost \$34,000,000, and would control about sixty-two per cent. of the total drainage area above the city. After a careful analysis it was found that a less number of reservoirs was practically as effective, under proper manipulation, and a selection was made of the most favorable ones, seventeen in number. These would have a total capacity of 59,500,000,000 cubic feet, would cost \$21,700,000, or about \$364 per million cubic feet of storage capacity, and would control fifty-four per cent. of the total drainage area.

As a basis, eleven of the principal floods, occurring within recent years, were exhaustively studied and it was found that the seventeen selected reservoir projects would reduce all of them, with one exception, to below danger line. Investigation showed that a low wall built at comparatively small cost along a few parts of the low-lying river fronts

could be used in combination with the seventeen reservoirs to prevent overflow by the highest known floods. This combination was therefore recommended, the total cost being estimated at \$22,350,000.

Some of the benefits to be derived by preventitive methods and stream regulation and development, may be summarized as follows:

1. Reducing or doing away with floods and flood damages and their constant menace, thereby encouraging and making possible for present and future generations full development of affected areas.

2. (a) Improving of navigation, by permanently increased stream flow in slackwatered rivers, where dry weather flow is frequently inadequate to furnish desired draft, thus providing uninterrupted transportation not only for present business but for future demands. (If the reservoirs were brought up to maximum capacity, that is, above flood control requirements, the low-water flow of the Ohio, at Wheeling, ninety miles below Pittsburgh, would be nearly six times the present minimum, giving an increase in stage of 3.7 feet. One of the largest floods would have been reduced over thirteen feet.)

(b) Making possible slack water on certain rivers, worthy of attention, but now unimproved largely on account of absolute lack of sufficient water.

(c) Reducing velocity of current, due to lowering of high stages, thereby making safer the maneuvering of river craft; reducing wide fluctuations in water levels, particularly at river ports, facilitating thereby the handling of cargoes and increasing clearance under bridges. (Under a certain bridge at Pittsburgh, investigations show that during the past fifty-three years there has been an average of fifty-seven days when the ordinary steamboat could not pass. Had the proposed system of reservoirs been in operation the water would have been lowered so that there would have been an average of only three days.)

(d) By having the great fluctuations reduced, the erosion of the banks along the bottom lands and at other places would naturally be considerably lessened.

3. Improving sanitary conditions and increasing the quality and quantity of the supply for municipal and industrial purposes. High stages leave deposits on banks, becoming a nuisance to health; and low stages are frequently unable to properly carry away polluted water stagnating in slack water or natural pools.

4. Developing water power, which is feasible under favorable conditions in connection with reservoir systems for flood prevention.

I would call attention to the fact that this brief review upon stream regulation goes far enough to show that so far as damage from floods is concerned alone, the matter is not only of local but of great National concern, affecting as it does railroads and manufacturing interests which supply the Nation. What is true of Pittsburgh is also true of many other river localities, and it is therefore urged that the question be looked at in a progressive manner and that suitable State and National legislation be enacted at the earliest possible moment to provide not only for full navigation requirements, but in addition for flood damage and the combination of needs as outlined in the report of the Flood Commission. It is hoped that this Congress will lend its powerful cooperation in bringing about the accomplishment of this great movement which is so necessary to the public welfare. (Applause.)

President PACK—I am sure we are all indebted for this paper, and to Mr. Lehman for coming from Pittsburgh to present this valuable subject.

If there is nothing more before the Congress at this time we will adjourn until 2:00 o'clock.

ELEVENTH SESSION.

The Congress was called to order by Mr. J. B. White, in the Murat Theater, Indianapolis, at 2:30 o'clock p. m.

Chairman WHITE—It is long past the time for our meeting, but we have not had the last word from Governor Hadley. He wired me night before last of an accident, and that his physician said it would not do for him to come yesterday. Last night we had another telegram, saying he was afraid he could not come, and that we had better not depend on him. I also received a letter. Then I wired him again, but have no reply, so it is barely possible that he will be here in time to speak to us this afternoon. The committee has gone down to meet the 2:50 train. In his letter, he says:

“I want to thank you again for your kindness in giving me such a prominent place upon your program, and were it not for the fact that I know your meeting will be a complete success with Governor Wilson alone, it would be an added regret—my inability to be present.”

I know many of you came expecting to hear Governor Hadley, and he certainly will give us a splendid address if he comes. He appointed a commission in the State of Missouri, of which I have the honor of being a member, and we have had meetings at the Governor's mansion, and we are trying to induce the Legislature of Missouri to pass a good law in favor of Conservation of all natural resources. I cannot report as to our

progress as I would like, so I will not say anything about what we have done. We know what we are trying to do.

The newly elected President is not here, and he insists that I take his place until he comes. We will now listen to "The Story of the Soil," from one who has given it great thought and attention. He has brought about good results that will be of benefit to the farmer and to every one who lives in the country, and therefore of benefit to all the citizens of our common country. I have pleasure in presenting Mr. H. H. Gross, President of the National Soil Fertility League, who will speak on "The Story of the Soil." (Applause.)

Mr. Gross—Mr. Chairman, Ladies and Gentlemen: I am here representing what we think is one of the most distinguished organizations of this country—one devoted to a specific and definite purpose, and that is to secure the application upon our farms of the best methods of farm practices.

In our self-sufficiency we are sometimes disposed to pooh-pooh science. I have heard farmers say, "What do I care about science? I know how to farm. I am a practical farmer." When I hear a man talk about being a practical farmer, or a practical shoemaker or anything else, I begin to question his knowledge of the art. Reduced to its last analysis, science is simply applied common sense. In other words, to find out the best way of doing anything and then doing it that way.

Scientific farming will increase the output per man, per plow, per mule, per acre, and at the same time it will build up the fertility of the soil. Unscientific methods will wear it out. Millions upon millions of acres of land have been wasted by practical farmers in unscientific farming, by abuse and misuse until the land fails to yield enough to pay the labor of cultivating them. There are millions of acres east of Albany that are not worth today one-fourth as much as they were one hundred years ago.

The soil is our greatest natural asset. It is God's best gift to man outside of Him who came to save us. It is our duty to conserve this gift as a priceless heritage. In a higher sense the man in whose name the title stands is not the real owner of the land; it is his to use during his lifetime and to pass it on to his successor. It is his paramount duty to turn it over to those that follow him as useful as when he received it. The land is not his except to use, it is not his to abuse. The fertile fields were placed here by God Almighty for the use of humanity for all time and no one has the right to rob the soil of its power to produce and thereby imperil or destroy the birthright of succeeding generations.

Let us look at Europe. They produce two or three times as much as we do upon the same area, notwithstanding their lands have been a thousand years longer under the plow than our own. There must be a

reason, and it is that Europe, because of its large population, has been compelled to adopt intensive farming or go hungry. With us it has been different up to the present time. A few years ago, some of we older men can remember the time, when the United States invited everybody to come in and possess the land. An old song says, "Uncle Sam is rich enough to give us all a farm." Since then our population has increased faster than the farming industry. We are now consuming ninety per cent. of our wheat and ninety-eight per cent. of our corn. The population is rapidly overtaking production. In fifty years our population will be doubled. What shall we do about it? I say to you this, we must do better farming or the people will go hungry. A thousand years or so ago Japan and India were at the parting of the ways—about where we stand today. Japan chose the better part and conserved the fertility of her soil and by intensive scientific culture she has fed her people and has demonstrated that a very small patch of ground indeed is sufficient to support an individual. This has been shown in this country—that one or two acres, properly handled, will take care of a small family. Japan acted wisely and is rich and prosperous today. India neglected her duties and her opportunity and today there are millions starving there on account of the lack of foresight of those people who lived thousands of years ago. Shall we follow Japan or India? There can be but one answer. The intelligence of the American people, the spirit of the age demands that we go forward to attain the highest and best and it is our duty to help to this end.

Denmark, a generation or two ago, was in poverty and distress, its people were crowding into the cities. The government saw something must be done to improve conditions. It wisely decided that agriculture must be encouraged, so it commenced to teach agriculture in the schools. It had its agricultural colleges strengthened, it sent men out among the people as traveling schoolmasters, visiting one community after another. Agriculture was taught in the schools. This helped some, but did not solve the problem. Finally they adopted the plan which we propose to follow, of sending a trained farm demonstrator into every community and stay there, study local conditions, meet the farmers right on the soil, and help them to understand and apply the best methods and get the best results for the time and effort expended. In two generations it brought Denmark from poverty to thrift, and today it is the finest agricultural country in the world. This comes about from carrying the knowledge to the farm home in the personality of the farm demonstrator who helps the farmer apply the best methods in practice.

Wherever the plan has been tried it has succeeded. It is the one plan that has made good, and in my judgment it is the only one that ever will. Now, then, what are we going to do about it? The most important question that has been discussed on this platform during this Con-

gress is the one under discussion now. It is vital, it touches every human interest. The question is, shall we build up our soil and insure the food supply for coming generations, or shall we not? It is a tremendously important question and one pressing for answer.

I am glad to say this to you, that the National Soil Fertility League determined upon a plan, and so far we have had greater success in carrying it forward than we had any reason to expect. Its plan has the approval of nearly every agricultural authority in the land. It has awakened a tremendous amount of interest. It shows many people were thinking in a general way that something ought to be done and were ready to rally to the support of any definite proposition that commended itself to their judgment. The National Soil Fertility League, together with the agricultural college men, drafted what is known as the Lever bill, the object of which is to provide for the co-operation of the Federal Government and the several States in carrying forward this farm demonstration plan. Under this bill the Federal Government makes an annual appropriation to every State of \$10,000 a year, irrespective of condition; then it makes further appropriations conditioned upon the States furnishing an equal sum beginning with \$300,000 and increasing to \$3,000,000 in ten years. Except for the \$10,000 all the appropriations are pro rated among the States on the basis of rural population. Indiana under this plan would get \$10,000 right off the reel from the fixed appropriation; it would get \$9,400 from the conditional appropriation provided Indiana should furnish an equal sum. So Indiana would get from the Federal Government the first year a total of \$19,400. This would go to Purdue University. Next year it would be increased to \$28,800 and would go on up to \$104,000 from the general government to the State College of Agriculture. In order to get this money Indiana would have to raise \$94,000, so that the State would have when the maximum was reached approximately \$200,000 to expend for carrying to the farmers of Indiana the existing methods of agriculture and carrying to the farmer's wife the best they can give her. What a wonderful help this would be.

There are three great needs in the open country. One is better schools. The country schools of today are not worthy of their name. They fail to meet the requirements of the day and generation. The next important need is good roads, and the third is scientific agriculture. Bringing these improvements about will revolutionize conditions. It will raise agriculture to the first place and the highest place in the estimation of the people. It will be the strongest possible magnet to hold the girl and the boy to the farm home. It will make agriculture more pleasant, more profitable and in every way a more desirable vocation.

When I was a boy and went away to school, I entered a class of boys and we were lined up before the principal and each was asked his name

and his father's business; one would answer his father was a banker, another a merchant, another a doctor, a manufacturer, and so on. When it came to me, I said a farmer. The boys all laughed and I was obliged to take it. I licked two or three of them afterward to get my standing on the campus.

We used to think that anybody could run a farm. A story is told of a man who had three sons. One was very smart, one was exceedingly good and one was simple-minded. The father said: "Tom is smart as chain lightning; I am going to make a lawyer of Tom. William is about the best boy I ever knew; you can't get him to go wrong; I am going to make a preacher of him. But Jack don't seem to know much of anything, and I will make a farmer of Jack." (Laughter.)

Let me say to you with all possible emphasis that it takes as much ability to run a farm well as it does to run a bank or a factory, and much more than it does to run for office. (Laughter.)

When the Lever bill was introduced in Congress, it passed the committee and was placed on the calendar and was buried there. The question was to get that bill on the floor for a vote. Upon inquiry I found there was only one way to do it in order to get quick action, and that was to get a petition signed by a majority of the members, asking that the bill be taken from its position on the calendar and placed at the head of the list as unfinished business. Mr. Lever secured the required signatures and the bill was thus advanced to the position of unfinished business. The leaders of both parties rallied to its support and the bill finally passed the House by unanimous vote. It is now before the Senate and we want your help to get it enacted into law before the holiday season arrives.

The mind can hardly grasp the benefits that will flow from this legislation. Let me tell you a little of what scientific farming means. Dr. Hopkins, of the University of Illinois, and one of the world's authorities, just told me that they raised on an average ninety bushels of corn to the acre, covering a period of six years, and twenty-three bushels of wheat, average for six years. The Ohio experiment station on wheat for twenty years showed an average of about thirty-five bushels, while the average for the whole country was less than fifteen bushels. Denmark raises forty bushels average, many fields returning sixty and seventy-five bushels to the acre. We must do better farming.

During the ten years from 1900 to 1910 our population increased twenty-one per cent., our meat supplying animals decreased more than twenty-five per cent. We have an unparalleled high cost of living, due to the fact that population is pressing hard upon production. In short, we have too few producers and too many consumers. Increased production is not the only thing necessary. It is quite as important that the farm production shall reach the ultimate consumer from the farm

at less than the present cost. Our marketing system is cumbersome, unwieldy, wasteful and burdensome. (Applause.) The woman who orders her supplies over the telephone pays more money and gets less than the one who goes to market. I had the honor of speaking before the National Federation of Women's Clubs at San Francisco on the first day of July. It was the greatest and most intelligent audience I ever faced. They were very enthusiastic and were quick to grasp the points as they were made. This great organization affiliated itself with the National Soil Fertility League, and when they did so we felt it brought to us the greatest assistance that could possibly come. I know of no organization of wider influence than the Women's Clubs of America. I have heard it said, if you want to get anything done to get a woman after it. (Applause.)

We must re-direct our agriculture; we must raise our meat upon the farms. The ranges are gone. The silo, alfalfa and scientific methods make it possible for the farmer to carry at least twice as much stock upon his farm as he thinks he can carry. In the silo the feed is kept practically green and juicy. You get forty per cent. more out of your corn by putting it through the silo than by handling it in the old way. There is no reason why the cost of producing meat may not be reduced practically one-half. The farmer has given and is giving too much thought to how much he can get for what he raises. It is equally important that he raise more. If he wants 2,400 bushels of corn, it is better to raise it on forty acres with a yield of sixty bushels than to raise it on sixty acres with a yield of forty bushels.

Our plan is to bring home to the farmer the best method that has been determined by the agricultural college and experiment station. We want to get the best results from year to year and at the same time build up the soil. This can be done and this is scientific farming. This is what the whole world needs. The colleges of agriculture and experiment stations have gathered a vast fund of knowledge, and if this were put into practical operation it would double the yield of our farms within a few years and give us a large surplus for export and bring money into the country. We would get richer and richer as the years go by. We would largely supply the world with food. Our position in the councils of nations would be paramount. When it comes to the question of peace or war, the country that has the money and the bread basket is ten times more potent than the nation that only has back of it battleships and armies. (Applause.) So I wish to emphasize that the success of this country rests primarily upon the scientific farming of our fields. Let us remember that no country ever became great and remained so that could not furnish its people with an ample food supply at a moderate cost. To that end we are securing legislation that will put the plan in operation. The Lever measure is a simple one, it creates

no new administrative machinery; it simply carries to the farmer and puts to work the information and knowledge that the States and Federal Government have been gathering for fifty years. This whole matter may be likened to a great irrigating system. The United States Department of Agriculture is a dam, it has been gathering and has stored up the knowledge—the water. The colleges of agriculture are the main channels for reaching the various parts of the country; but so long as the water is back of the dam it is doing no good; so long as it remains in the main channels it is accomplishing nothing. What is needed is to get the water to the grass roots, or, in other words, our purpose is to get the information to the actual farmer—the man behind the plow.

Fifty years ago Horace Greeley said, "Go West, young man, and grow up with the country." If he were here today he would say go South and East, for that is the land of opportunity. In my judgment this Congress ought to meet next year somewhere in the South. That part of the land is entitled to recognition, and you will get a welcome such as you never had before.

In conclusion, I wish to urge that you give us every possible support. We need it. It will help you and it will help us. Let us all work together for reviving agriculture. (Applause.)

(A woman in the audience): "Is it true that Congress is investigating this silo business and under the pure food law is it to be condemned? Also, what must we do in Indiana to cultivate alfalfa?"

Mr. GROSS—I have not heard anything about the Federal Government condemning silo, and I do not expect to. Inoculate your soil for alfalfa. You had better take this matter up with your people at Purdue. Ask them what to do. They will send you all the information necessary. They will examine into conditions and tell you just what to do. The most valuable crop today, outside of wheat and corn, is alfalfa. (Applause.)

Chairman WHITE—I have been handed a communication, and I wish to say for the benefit of the gentleman who sent it to the chair that it will be referred to the Executive Committee, which takes up matters of this kind. This is the communication:

"You are requested to make a motion that this organization take steps toward publishing a monthly, or quarterly, magazine, to be known as the National Conservation Magazine. If the society is unable to finance it, there is little doubt that the Carnegie Institute or the Sage Foundation would back it."

Chairman WHITE—I will now introduce a gentleman who will tell you "The Story of the Air," Prof. Willis L. Moore, of Washington, Chief of the United States Weather Bureau. (Applause.)

Mr. MOORE—Mr. President, Ladies and Gentlemen: I have been trying to reason out why the management put me at the end of the program, and I have concluded that they had an idea that along about this time in the proceedings they would need to have some one take the platform that had supervision over atmospheric air of abnormal temperature.

Now, why should one wish to conserve the atmosphere? I shall try to show you that that is one of the assets of this continent, and, I am afraid, almost the only one, that cannot be monopolized. (Applause.) And you will be surprised, and probably doubt my statement when I say that, with all due respect to the matter of conservation of our wonderful mineral deposits, the controlling of the flow of our streams, the preservation of our great forests—all of them important—we have in the atmosphere one of our greatest assets, if not the greatest asset of our continent. Humboldt has said that “Man is a product of soil and climate. He is brother to the trees, the rock and the animals.” All true, but still I would slightly modify that and say that man is largely a product of climate. For it is the action of rainfall, flood and temperature changes that makes soil.

I shall try to show you that it is climatic conditions that produce this wonderful, this powerful, this resourceful composite man called the American.

I am to speak on “The Story of the Air,” but before I elucidate any further, let me give you a little picture of this wonderful ocean, on the bottom of which you live.

In the turbulent stratum in which we live we have vortices in the atmosphere which cause weather. Weather is the result of the motions of air; it is the result of the dynamic heating and cooling of ascending and descending currents of air. If it were not for these vortices cooling the air and heating it, you would have precisely the same temperature on any day of one year as you would have on the same day in another year. You would not have one first day of June warmer than the first day of July, or the first day of December colder than the first day of January.

To demonstrate my first proposition that we have a great asset in the climate of the United States, I call your attention to some of the conditions in Europe. Their great mountain ranges trend east and west; ours trend north and south. Cyclonic storms originate largely from conflict of equatorial and polar currents coming together. The currents of air come together in the lower stratum. In Europe the great mountain ranges prevent that conflict; but not so here, with our mountain ranges running north and south. Here is the great meteorological theater of the world, the region of conflict. What is the result? A people power-

ful physically and resourceful mentally. An actual air is pure and invigorating.

Now, I just have a thought that may not be germane, but it is upon my mind. I remember some years ago I wrote a report that dealt with the relations of forests and floods. Although from the inception of this movement I have been heart and soul with the people back of it, still because I do not agree with some of my friends on forestry, on the effect of forests on the flow of streams, I was classified as an enemy of the cause. I wish to say that it is a mistake to bring a fallacious reasoning to any good doctrine. I believe it is a positive injury to attempt to sustain truth by falsehood. I do not mean that anybody is wilfully untruthful—no, simply mistaken. There are so many reasons why we should conserve and protect, why we should use wisely our great forest areas, that there is no need to bring to the support of that great project anything like a reason that can be successfully attacked and refuted. I am satisfied, and as time goes on and other investigators come along and go over my data, I am thoroughly well convinced that the forests do not exert a great controlling influence over floods. I am satisfied that the percentage of floods has not increased for the past forty years. When we remove one vegetable covering like the forests, if we go on and plant, wheat, or corn, or grass, we simply exchange one form of vegetable covering for another. If we cut the forests away and leave them, they will at once begin the process of reforestation, and within a few weeks the ground is shaded. If you grub out the roots and stumps and plow, you change one form of vegetable covering for another, and the history of the United States, as well as of the world, does not bear out the statement that the floods have increased with the disappearing of the forests; nor has it been shown that any part of the world has been materially changed in its climatic conditions as a result of civilization or the coming of man. But that is no reason why the forests should not be protected and a wise use made of them.

Let us get down to facts. Just so long as the Gulf of Mexico lies down there on the south, and the great Atlantic remains on the east, just so long rainfall in the United States will be as voluminous on the great cereal plains as it was when the first white man set foot on the continent, and in its movement back to the sea the permeable, cultivated soil of the unforested acres will doubtless as well conserve and restrict its flow as the forests. We have over-estimated the effect of the little scratchings upon the earth's surface by the activities of man. The coming civilization of the great West is immaterial in causing an increase in rainfall. When you stop to consider the enormous volume of the atmosphere above the surface, whose vaporous contents must be materially changed and the thermal conditions altered before you can detract from the rainfall, you will realize how absurd are some popular theories. I

do not agree—I radically differ from some of my contemporaries in the Department of Agriculture—but people may differ and still be friends. They may differ in regard to the details of a great movement and still not be inimical to its best interests. The man who differs and brings forth the truth is the best friend of the movement, because nothing can stand long that is not predicated on truth.

I am glad to see that in this movement your managers have brought together so many independent lines of human activity. This great movement is only at its inception. I predict that this Conservation Congress will be one of the most potent factors in the Nation for the developing and awakening of the people. You are willing now to have a free forum, to have free discussion by those of differing opinions. And at this time, Mr. President, when there is such great conflict among the forces that make for civilization, we must not only protect ourselves morally and mentally, we must with equal earnestness attempt to conserve and protect the human individual. He is the greatest asset we can have, after all. (Applause.)

A fair wage scale and reasonable hours of labor have done as much to elevate the American citizen and furnish the ties that bind him to home and State as have all the libraries and universities in the land, and I say this without any disparagement of these magnificent institutions for public good. But if you stop to think for a moment, the library can only be used by those who have a reasonable leisure to enjoy it; colleges have closed doors for those who do not receive something more than a living wage. The welfare of this Nation depends not on the accumulation of great wealth in the future; not upon the palaces on Fifth avenue or the villas at Newport. It depends upon the cultivation—upon the high average intelligence and prosperity of those who actually do the Nation's work, whether they labor with brains or with brawn. (Applause.) And right here let me say to you people who are considering these great problems, that we want brawn developed by working hours that shall not warp and distort the image of God; and we want technical and scientific teaching that shall be as free to the sons and daughters of those who work as to those who have their way paid to college. (Applause.) We must lift from the bottom in any great movement; no movement gets very far that is worked from the top down.

So I am glad to see this movement bringing into its counsels those who are affiliated with the great labor movements of organized labor. My sympathies go out to the man who works with his hands, as well as to the man who works with his brain. I thank you. (Applause.)

Chairman WHITE—Professor Moore stated he did not know why he was put down at the last end of the program. Perhaps it is not necessary to remind him that there is an old saying that the best of the wine

is reserved for the last of the feast. (Applause.) But where all is good, and where all is best, as has been the case with the program of this Fourth National Conservation Congress, there can be no choice. And again I am going to remind this audience that this Congress is going to prepare a book containing every bit of the proceedings of this meeting, and it will be one of the best publications of proceedings that has been presented by any congress in the land, and I want to impress upon you, delegates and visitors alike, to leave a dollar for a copy of these proceedings.

While we are waiting for a final word from Governor Hadley, I will call upon Mr. Walter H. Page, Chairman of the Committee on Resolutions, who will present the report of that committee, which I hope will be enthusiastically adopted.

Mr. Page read the resolutions (which will be found in full at the beginning of this volume), and moved their adoption.

The motion was seconded, put and carried.

Mr. JOHN B. HAMMOND (Des Moines, Iowa)—I have a resolution to present. It was referred to the Resolutions Committee, but somehow it was lost in the shuffle.

Mr. PAGE—It was referred to one of the sub-committees, and, presumably, was not accepted by the sub-committee. It was not reported to the full committee.

Chairman WHITE—If there is no objection, it may be presented to this body.

Mr. HAMMOND—

Whereas, The protection of womanhood and childhood is the heart and center of the Conservation of "Vital Resources;" and, whereas, forty states of the Union have prohibited the maintenance of houses of prostitution, the market places of the white slave traffic and the centers for the dissemination of the most dangerous and revolting diseases; and, whereas, the city administrations of many of the larger cities, in defiance of state law, have set apart districts where the crime of prostitution is tolerated and protected;

Therefore, be it resolved that we condemn such policy of segregation by city officials as contrary to sound public policy and indefensible in morals, and recommend the absolute suppression of the social evil in all its phases.

I move the adoption of the resolution, Mr. Chairman.

The motion was seconded, put, and carried.

Chairman WHITE—We will pass to the next order—the presentation of invitations from the cities desiring the next Congress. This is the usual way. These invitations are not acted upon, because the Executive Committee will take three or four months to consider everything and

compare the different cities, looking to the welfare of the next Congress. Mr. Don Carlos Ellis, of Knoxville, Tenn., I believe has something to say.

Mr. ELLIS—Mr. Chairman, Ladies and Gentlemen: There is to be held in the city of Knoxville, in September and October of next year, the National Conservation Exposition. Its purpose and nature are precisely parallel with those of this Congress—for the promotion of the development, wise use and conservation of all of the natural resources of this Nation. The Exposition is of national scope, but is to have special reference to the Southern States. There are to be buildings set aside for each one of the five divisions of our natural resources—forests, minerals, soils, waters and vital resources. In these buildings are to be shown, by example, as this Congress has shown by precept, the various results accomplished by Conservation by the Federal Government, the State governments and by private individuals, and the possibilities of Conservation in the future.

The Exposition originated in Washington last February, when a number of the leading spirits of Conservation met in that city and there was formed an Advisory Board composed of the gentlemen whose names I desire to read to you:

Gifford Pinchot, President National Conservation Association, Chairman; Don Carlos Ellis, in charge Educational Cooperation, United States Forest Service, Secretary; Philander P. Claxton, United States Commissioner of Education; Miss Julia C. Lathrop, Chief of the Children's Bureau, United States Department of Commerce and Labor; Dr. Harvey W. Wiley, Director of the Bureau of Foods, Sanitation, and Health, of good Housekeeping Magazine; W. J. McGee, Soil Water Expert, United States Department of Agriculture; Senator Duncan U. Fletcher of Florida, President Southern Commercial Congress; Logan W. Page, Director United States Office of Public Roads; Bradford Knapp, in charge Farmers Cooperative Demonstration Work, United States Department of Agriculture; Jos. A. Holmes, Director United Bureau of Mines; Representative Joseph E. Ransdell of Louisiana, President National Rivers and Harbors Congress; Senator Luke Lea of Tennessee; Charles S. Barrett, President Farmers' Educational and Cooperative Union.

These various members of the Advisory Board are to represent, in the formation of plans for the Exposition, the various departments of Conservation in which they are acknowledged leaders. They have instructed me, as Secretary of this Advisory Board, to read to the delegates the following letters:

September 23, 1912.

To the Delegates of the Fourth National Conservation Congress, Indianapolis, Indiana:

We, the undersigned members of the Advisory Board of the National Conservation Exposition, take this means of laying before you an outline of the plans and purposes of the Exposition and of respectfully recommending the adoption

of the resolutions which will be introduced at this Congress endorsing the National Conservation Exposition.

This Exposition is to be held at Knoxville, Tennessee, in September and October of 1913. It is an outgrowth of the Appalachian Exposition, which has been held at Knoxville for the past two years. Knoxville was chosen as the location of the National Conservation Exposition because the Southern States are in great need of education concerning the proper handling of their great natural wealth; because Knoxville, while in the South, is readily accessible to the entire East; because the State in which it lies is in the transition zone between North and South and has more States bordering upon it than any other State in the Nation, and all the bordering States are southern; because the city is in the center of the region where the National Government is establishing new National Forests and carrying on other lines of work in Conservation to a greater extent than in any other region; and because of the city's preparedness, in being willing to turn over to the National Conservation Exposition Company the excellent buildings and grounds which had been acquired for the Appalachian Exposition Company and to raise sufficient additional capital besides. A bill has been introduced in Congress providing for a government building and exhibit at the Exposition, and the Committee to which it was referred has given assurances of a favorable report for a quarter of a million dollars.

The purpose of the Appalachian Exposition was to aid in the development of the Southern Appalachian Region. The new Exposition is a national, not a local project. Its work is to promote the preservation and development of the different forms of natural wealth of the entire country. Its special field, however, is to be the Southern States. The Exposition comes at a time when these States are in the midst of a great awakening. It is to be devoted in an especial manner to assist in this awakening and in directing the course of this awakening toward genuine, permanent progress and highest efficiency. The purposes are parallel with the magnificent undertakings of the National Conservation Congress. The means only are different. To every part of the Nation the Congress is sending its message. The Exposition invites the people of the Nation to view the tangible results and possibilities of Conservation on display. All fields of the Conservation work will be represented, forests, waters, lands, minerals, fish and game, and human efficiency including health, child welfare, education, home economics, good roads, and country life improvement. The Exposition is to be held at a time when special efforts are to be made by such agencies as the southern railroads and the Southern Commercial Congress to direct the tide of passenger traffic through the South. During the same period the city of Mobile, Alabama, is to entertain the Fifth Annual Convention of the Southern Commercial Congress and to hold its celebration of the opening of the Panama Canal, and plans are being made to direct southern travelers of those two months through both Mobile and Knoxville.

Expositions of the past have been commemorative and historical. They have celebrated and glorified past achievements. The field of the new Exposition is the future. It is to tell the progress which we are to make in the coming years, which we are to enjoy ourselves and to hand down to our children. It will be prophetic of the development which is to come and of the permanent enrichment of the country and its people. In the words of the late and beloved Dr. W J McGee, "The change thus wrought in the exposition idea is fundamental; the old exposition looked backward, the new looks forward; the old exposition was solely material, the new is essentially moral; the old was a proud boast of achievement, the new a signpost to progress and an assurance of perpetuity. The expositions of the past were as songs of achievement at the end of a good day's

work, the new may well be as living and tangible promises of a still more glorious tomorrow foreordained by the wise action of today."

GIFFORD PINCHOT, Chairman,
JOSEPH A. HOLMES.
PHILANDER P. CLAXTON.
JULIA C. LATHROP.
CHARLES S. BARRETT.
DUNCAN U. FLETCHER.
HARVEY W. WILEY.
BRADFORD KNAPP.
LUKE LEA.
JOSEPH E. RANDELL.
MRS. ABEL.
DON CARLOS ELLIS, Secretary.

Mr. Chairman, Knoxville, has empowered me to invite to that city, to the Exposition, the fifth meeting of the National Conservation Congress. The National Conservation Congress belongs to the whole Nation, and the Nation is proud of it. For the past four years, since its birth, it has held its meetings in the North and Northwest. The South needs the Congress, particularly at this time, when it is in a phase of its great industrial awakening, and it earnestly urges that the Congress come within its bounds next year. If it should come South next year, there is certainly no more fitting place for its sessions than in that city which has done so much by its own energies and industries for Conservation as has Knoxville. It will be centering in Knoxville in that year and at that time all the forces working for Conservation throughout the United States. Knoxville is a smaller city than others in the South where the Congress might be held, but it is a city of between seventy and eighty thousand people. It has five excellent hotels. Two main railroads run through, and it has shown its ability to handle large crowds of people by the way it has taken care of the Appalachian Exposition for two years, with an average of twelve thousand visitors a day.

The Exposition is moving along parallel lines with the Congress, and it is in a way an offspring of the efforts of this Congress. It has taken up the ideas that have been promulgated by this Congress, and is going to apply them by showing at Knoxville the tangible, visible results of Conservation. The people in that section of country are in great need of instruction along these lines.

The plant already established for this other exposition is valued at between one-half and one million dollars. Already several buildings have been erected, and all this has been turned over to the new Exposition as a foundation.

I have letters with me from the various commercial bodies of the city, and this has been also heartily endorsed by the Governor of the State.

In conclusion, I wish to offer a resolution made by the Advisory Board:

Whereas, It is the sense of the Fourth National Conservation Congress, assembled at Indianapolis, Indiana, October 1 to 4, 1912, that the National Conservation Exposition, to be held at Knoxville, Tennessee, in September and October, 1913, will be a strong factor in the advancement of the Conservation and wise use of the national resources of this Nation, and particularly of the Southern States; and

Whereas, It is, further, the sense of this Congress that education in the care of natural resources is particularly needed in the Southern States, where the resources are of great value and their development in a period of a great awakening, but their Conservation at a low ebb; therefore, be it

Resolved, That the National Conservation Congress hereby signifies its gratification that the National Conservation Exposition is to take place, and its earnest hope that all persons and institutions interested in the Conservation of any of our natural resources will give to the Exposition their cordial support and cooperation.

I move the adoption of this resolution.

Hon. R. M. AUSTIN, Congressman from Tennessee—I wish to second this as a citizen of that progressive city, and I wish to join in the invitation extended by Mr. Ellis, not only to the delegates to this National Conservation Congress, but also to the citizens of this great capital city of Indiana. I hope this invitation will be accepted and this resolution just read will be passed. We will be happy to see you all when you come to sunny Tennessee, away up in the mountains, and this little city of ours of about eighty thousand people, which nestles at the foot of the Great Smoky Mountain. We will show you the richest mineral and timber section in all the Union. There are ten counties in this Congressional District. Five have coal, six iron, six marble, five zinc, two copper, and the largest amount of hardwood timber now existing on the American continent. It is an ideal location, not only for a Conservation Exposition, but an ideal place for a meeting of this great and useful organization, the National Conservation Congress of America, and we hope you will all come.

Mr. Chairman, we do not intend to open the doors of the Exposition until we know that Captain White, of Kansas City, answers "Present." (Applause.)

I wish, while I am on my feet, to commend the very excellent report from the Committee on Resolutions submitted by the able editor of "The World's Work," Mr. Page, and to say that so long as I am a representative in Congress I shall, by my influence, do all that I can to carry out the principles set forth in these resolutions. (Applause.)

The motion on Mr. Ellis' resolution was put and carried.

Mr. A. M. LOOMIS (New York)—I wish, very briefly, to read the action of the New York State delegation, adopted possibly before this matter of the Knoxville Exposition had become known.

The New York delegation at this, the Fourth National Conservation Congress, wishes to go on record in favor of asking the delegates to this great body to hold the next annual meeting in the East,—to be more explicit, in New York State. There is an urgent reason why the work of the Congress at a point nearer the great centers of the business and wealth of the country, and in the section of the more crowded population would have wider effectiveness, and greater force along lines of practical understanding of its work, and needed legislation in favor of the great reforms for which it stands.

One point in New York State stands out in particular as the ideal place for this Congress to gather, namely Chautauqua, the home of the great Chautauqua Institution, on the shores of beautiful Chautauqua Lake. At this point, in a little city in the woods, are ample accommodations both for meeting places, exhibits, and housing for a gathering of five thousand people. The Assembly houses more than double that number for ten weeks each summer and has an auditorium hardly excelled in America, seating more than eight thousand people, as well as many other halls and buildings for meeting places and exhibits.

This institution stands for all that the highest aims of this Congress point to, in education, morality, and direction of human effort. Its reputation is world wide, and its home offers an ideal meeting place for the Conservationists, ideal in that for which the two institutions stand, and ideal in location, accommodations, railroad facilities and the economy with which a great meeting of this kind could be conducted there.

The New York delegation unites in inviting the Congress to choose Chautauqua, New York, as the place of its next meeting.

Chairman WHITE—The chair, in behalf of the delegates, wishes to thank the representatives from New York who have invited us to Chautauqua, as well as the representatives from Tennessee for inviting us to Knoxville. This subject will be referred to the Executive Committee, who will, in their wisdom, consider it all as it may relate to the best success of our cause.

Is there anything more to be presented at this convention? If not, the chair will state that the Fourth National Conservation Congress is now about to pass into history. Tomorrow will be the beginning of a new Congress—the Fifth Annual Congress, with the new President and new officers in some respects—but with a great many of the old ones, too—and we hope that all who are here will be present at the next Congress, the Fifth National Conservation Congress, wherever it may be held. And in the meantime the work will go on. It will begin tomorrow and continue throughout the year. Everywhere any delegate has influence, the cause will be heard and will be advanced.

The Chair wishes to thank this Congress and its delegates for the kind consideration given him while he has been presiding, and for the support he has received from every one. We now stand adjourned, subject to the call of the Executive Committee. (Applause.)

SUPPLEMENTARY PROCEEDINGS.

FORESTRY SECTION.

Delegates specially interested in Forestry held section meetings in the Turkish Room of the Claypool Hotel throughout the sessions of the Fourth National Conservation Congress. The Standing Committee on Forestry consisted of Prof. Henry S. Graves, Chairman; J. B. White, Major E. G. Griggs, George K. Smith, William Irvine and E. T. Allen. Chairman Graves, being unavoidably absent, delegated Mr. Allen to arrange meeting facilities and represent him in an effort to further the progress of forestry at the Congress.

The first session of the Forestry Section was held on the evening of October 1, with about twenty-five foresters and lumbermen present. (At later sessions the attendance increased to forty.)

Mr. Allen, acting as Chairman, announced that Professor Graves had suggested that such preliminary meeting be called to determine, first, if a section meeting on Forestry should be conducted, and if so, the lines it should follow. Mr. Allen suggested the probable advantage of formulating plans for more systematic forestry work at future Congresses, and of utilizing the opportunity thus afforded to exchange experiences and ideas on legislation, forest protection and educational work. The meeting concurred in this suggestion and determined to hold a series of meetings on Forestry at this Congress.

Second Session—10 a. m., October 2.

Mr. E. T. Allen called the meeting to order, and Mr. D. Page Simons, of California, was chosen secretary. The chair then presented a tentative program for ensuing sessions covering publicity work, co-operation in forest protection, needed forest legislation, and organization for future Congresses. He described the educational work conducted by the Western Forestry and Conservation Association, and read a communication from Professor Graves, United States Forester, emphasizing the need of a propaganda for more adequate and uniform State forest legislation.

Mr. T. B. Wyman, of Michigan, representing the Northern Forest Protective Association, then described the co-operative effort by Michigan lumbermen covering a territory of seven and one-half million acres. He told how they had been enabled to maintain a patrol service and that their association had made a careful study of fire causes. In the campaign of public education, he said, they had utilized modern advertising methods.

Major E. G. Griggs, of Washington, President of the National Lumber Manufacturers' Association, pointed out the necessity of united effort in a campaign of education which would bring about a better understanding, on the part of the public, of all phases of forest industry. He emphasized the need of continuous effort throughout the year, and said that he believed there should be some national framework or organization which would unite the foresters and lumbermen for such continuous and concerted action. Major Griggs also praised the work of the United States Forest Service.

Mr. Charles Lathrop Pack, of New Jersey, concurred in Major Griggs' suggestion and said that he believed the Conservation Congress, meeting annually, illustrated the need of a Committee on Forestry, which would be active throughout the year. He said that he believed that other features of the Congress had been much better advertised and organized and that he hoped that before another year the work of the Forestry Committee, particularly, would be on a systematic basis with the necessary funds to carry forward its work.

Chairman Allen pointed out the need of local publicity as was illustrated by the difficulties experienced in obtaining adequate State legislation.

Mr. I. C. Williams, of Pennsylvania, Deputy State Forest Commissioner, said that taxation and not fire protection was the big forestry problem in Pennsylvania. He said that a campaign of publicity for a yield tax measure had been unsuccessful owing to a lack of organization among the friends of the measure to back up the publicity.

Dr. Henry S. Drinker, of Pennsylvania, President of Lehigh University, reported the distribution of a million circulars on forest protection, modeled on those issued by the Western Forestry and Conservation Association. He also endorsed the yield tax principle.

Mr. E. A. Sterling, of Pennsylvania, emphasized the importance of conducting a systematic campaign of publicity which would bring out definite facts. Competent committees, he said, should be in charge of such work so that the publicity would be in effective form and carry weight.

Hon. John M. Woods, Mayor of Somerville, Mass., suggested the danger of relying too much on education and not enough on practical politics. In his judgment, forest legislation could best be furthered by interesting the Governor and the Legislature.

Mr. Henry E. Hardtner, of Louisiana, told of the forest laws of that State and of his effort to secure reforestation.

Prof. F. W. Rane, State Forester of Massachusetts, said that results are a question of enterprising organization and that more system and effective committee work will bring better results.

Col. W. R. Brown, representing the New Hampshire Forestry Com-

mission, said that he believed the American Forestry Association offered facilities for the work under discussion and that means for utilizing them could be devised.

Mr. F. A. Elliott, State Forester of Oregon, then outlined western problems which he showed were peculiarly difficult because of a lack of forest appreciation in a new country. He testified to the efficiency of advertising propaganda to reduce fire carelessness.

Mr. Hugh P. Baker, of New York, said that the Empire State went on the principle that people had to be shown and that, therefore, they were making a feature of demonstration forests and of assisting individual owners.

Mr. P. S. Ridsdale, of Washington, D. C., Secretary of the American Forestry Association, then told of the educational policy of that organization, and said that its magazine was devoting special attention to all practical matters of interest to lumbermen.

After some further discussion along the line of desirable committee action the Chair was instructed, by motion, duly seconded and carried, to appoint two committees, each of which he should be ex officio chairman, as follows: A committee of five on permanent organization, and one of three to represent the Forestry Section in a conference with the American Forestry Association and the officers of the Fifth National Conservation Congress. It was also agreed to appoint a Committee on Resolutions. These committees were appointed, as follows:

Co-operation with Other Agencies—E. T. Allen, chairman; H. S. Graves, and J. B. White.

Permanent Organization—E. T. Allen, Chairman; F. A. Elliott, Don Carlos Ellis, T. B. Wyman, and F. W. Rane.

Resolutions—Dr. Henry S. Drinker, chairman; F. W. Besley, D. P. Simons, P. S. Ridsdale, and H. E. Hardtner.

Third Session—2:40 p. m., October 2.

Co-operative Forest Protection was announced for the topic for discussion.

Mr. Hardtner told of the success of the Louisiana lumber associations in securing legislation.

Mr. Wyman told of the co-operative patrol of the Northern Forest Protective Association, in Michigan, and described briefly their methods and the fire fighting equipment.

Mr. Brown explained the methods of the New Hampshire Timberland Owners' Association. There are four district chiefs, each in charge of a patrol system. They utilize all modern devices, such as telephones, lookouts, tool depots, etc. They have reduced the fire damage one-half at a cost of seven-tenths of one per cent. of the values protected. Mr. Brown urged that the adjoining States should co-operate along boundaries.

Mr. Elliott told of the progress being made in Oregon under their new law providing for syndicate co-operative patrol maintained jointly by the Federal and State governments, the counties and lumbermen.

Mr. N. P. Wheeler told of the fight against forest fires by Pennsylvania lumbermen.

Mr. D. P. Simons described the organization of the Washington Forest Fire Association, which maintains over a hundred patrolmen and protects nearly five million acres. This association also has been very successful in publicity and legislative work.

The report of the Committee on Resolutions was then presented, discussed by sections and adopted. (See resolutions of Fourth National Conservation Congress—Forests.)

Fourth Session—8:25 p. m., October 3.

Chairman Allen reported that the Committee on Resolutions of the Conservation Congress, of which he was Secretary, had endorsed the resolutions presented by the Forestry Section.

Chairman Allen then read the following report from the Section Committee on Permanent Organization:

Your committee believes that the consensus of opinion of the lumbermen and foresters assembled at the invitation of the forestry committee of the Fourth National Conservation Congress is about as follows:

1. That the Congress has not so far included satisfactory facilities for securing for forest matters the attention they deserve at such a meeting.
2. That the facilities to be desired should provide for two main activities:
 - (a) The general discussion of forest Conservation needed to bring its importance properly before the public.
 - (b) The meeting for mutual help, in practical constructive detailed work of the men actually engaged in organized forest work.
3. That unless there is early assurance of such facilities hereafter, the Congress' support from forest interests is in danger.
4. That private, state and federal forest interests are anxious to support the Congress and in turn to receive all benefit to be derived from it.
5. That what is clearly needed is a greater recognition of forestry upon its general program and arrangement for sectional forest work outside the general meeting, both to be carefully planned in advance so as to be practical, effective and without lost time.
6. That probably similar steps should be taken to provide for other branches of Conservation work, so that all may unite in perpetuating the usefulness of the Congress.
7. That the duty of your committee is to bring about the things outlined above, or at least to suggest some means of doing so.

After careful consideration of what these seven points involve, your committee feels that the very fact that inadequacy in the past has prevented as wide an attendance as desirable, prevents us from conferring at this time as fully with all agencies involved as would be sure to get the best result, and that in particular we are at a great disadvantage in being unable to confer with the executive officers of the 1913 Congress not yet chosen.

For these reasons we recommend as our very best judgment that this meeting correct us as far as may be necessary in stating its beliefs and desires and then leave working out the detail until we can offer the executive officials of the next Congress the courtesy of consulting with them, with the understanding, however, that there shall be no negligence or unnecessary delay and that long before the next Congress all these matters shall be arranged in detail and given the necessary publicity

Your committee consequently recommends further either that it be given instructions to act as suggested, or that it be discharged and the duties outlined be added to those of the committee of three already appointed to discuss similar questions. We believe that a faithful attempt to work the matter out in this way will be more satisfactory than trying to settle matters at this session. There is ample time if we do not waste it, and less danger of error.

The report was adopted, following the suggestion that the Committee on Permanent Organization be discharged and its duties imposed upon the permanent co-operative committee, including E. T. Allen, Prof. H. S. Graves and J. B. White.

Mr. Allen, being called out to assist in revising the resolutions of the general Congress, asked Mr. Sterling to take the chair, and suggested the reading of a paper sent by Chief Forester Graves, outlining the policy of the Forest Service.

Mr. Graves' paper (appearing elsewhere in the proceedings of the Congress) was animatedly discussed, the meeting without dissenting voice approving the Forest Service policy and deploring any attempt to restrict its operation. Short talks urging its support by all forest interests, State and private, including the Conservation Congress, were made by Z. D. Scott, Minnesota; F. A. Elliott and H. D. Langille, Oregon, and W. H. Shippen, Georgia. A resolution was passed emphasizing the meeting's endorsement of the resolutions commending the Forest Service then before the general Congress (and adopted the following day).

Mr. Langille spoke particularly against the turning over of the National forests to State control and Mr. Shippen of the necessity of Federal control of interstate watersheds.

A discussion of State legislation followed. Mr. Scott described the effort of Minnesota under its new law. Leonard Bronson, Washington, outlined the trend of attempted tax reform, dwelling particularly upon the yield tax system proposed by Professor Fairchild of Yale University, and urged concerted, harmonious effort by all forest States. Dr. Drinker and Mr. Wheeler reviewed the proposed Pennsylvania law for a nominal land tax and a yield tax from which counties are to be reimbursed for taxes lost during growing period.

Upon motion of Mr. I. C. Williams, Pennsylvania, the meeting went on record as considering tax reform to promote reforestation and better forest management, the most important problem and the one most in need of study and legislation of any before the forest interests of the United States today.

The Forestry Section of the Fourth National Conservation Congress then adjourned, leaving plans for more effective work in 1913 in the hands of the committee of three previously mentioned.

REGISTER FORESTRY SECTION MEETING.

- E. T. Allen, Western Forestry and Conservation Association, Portland, Oregon.
 Wm. G. Atwood, Chief Engineer L. E. & W. R. R., Representing American Railway Engineers' Association, Indianapolis, Ind.
 Hugh P. Baker, New York State College of Forestry, Syracuse, N. Y.
 W. E. Barns, Missouri Forest Service, St. Louis, Mo.
 F. W. Besley, State Forester, Baltimore, Md.
 F. H. Billard, Forester, New Hampshire Timberland Owners Association, Berlin, N. H.
 Leonard Bronson, Manager National Lumber Manufacturers' Association, Chicago, Ill.
 W. R. Brown, President New Hampshire Forestry Commission, New Hampshire Timberland Owners' Association, Berlin, N. H.
 L. S. Case, Weyerhaeuser & Company, St. Paul, Minn.
 W. C. Darms, Wisconsin Forest Commission, Wisconsin.
 Chas. C. Deam, Secretary Indiana Board of Forestry, Indianapolis, Ind.
 Henry S. Drinker, Lehigh University, South Bethlehem, Pa.
 F. A. Elliott, State Forester, Salem, Oregon.
 E. G. Griggs, West Coast Lumber Manufacturers' Association, National Lumber Manufacturers' Association, Tacoma, Wash.
 N. H. Guthrie, Indiana State Forestry Association, Franklin, Ind.
 Henry E. Hardtner, Louisiana Forestry Association, Urania, La.
 John W. Kellough, Ohio State Forestry Association, Mt. Sterling, Ohio.
 H. D. Langille, Oregon Conservation Association, Portland, Oregon.
 William R. Lazenby, Ohio State Forestry Association, Columbus, Ohio.
 Henry Nelson Loud, Au Sable, Mich.
 Frank E. Mace, Forest Commissioner, Augusta, Me.
 Mrs. John E. Moore, Indiana State Forestry Association, Kokomo, Ind.
 John Oxenford, Indianapolis, Ind.
 Charles Lathrop Pack, President Fifth National Conservation Congress, 308 Euclid Ave., Cleveland, Ohio.
 F. W. Rane, State Forester, Boston, Mass.
 P. S. Ridsdale, Secretary American Forestry Association, Washington, D. C.
 Z. D. Scott, State Forestry Board, Duluth, Minn.
 W. H. Shippen, Hardwood Manufacturers Association, Ellijay, Georgia.
 D. P. Simons, Western Forestry and Conservation Association, Los Gatos, Cal.
 Geo. K. Smith, Secretary Yellow Pine Manufacturers' Association, National Lumber Manufacturers' Association, St. Louis, Mo.
 E. A. Sterling, Forest and Timber Engineer, Philadelphia, Pa.
 R. D. Swales, Union Lumber Company, Fort Bragg, Cal.
 U. L. Thom, Forester, Wheeler & Desenberg, Endeavor, Pa.
 William P. Wharten, Groton, Mass.
 N. P. Wheeler, Pennsylvania Conservation Association, Endeavor, Pa.
 I. C. Williams, Pennsylvania Department of Forestry, Harrisburg, Pa.
 E. B. Williamson, State Foresters Office, Bluffton, Ind.
 John M. Woods, Somerville, Mass.
 R. C. Young, American Railway Engineers' Association, Chief Engineer Munsing R. R., Marquette, Mich.

THE PRESENT SITUATION OF FORESTRY.

Prof. HENRY S. GRAVES, United States Forester.

A review of the work of forestry in this country during the past year shows that in many directions there has been substantial progress and positive achievement. On the other hand, the continued organized attacks on the National Forest system, and the efforts to break it down or cripple it, present a situation of real danger which the country should realize and vigorously meet. We have before us a task of constructive activity in practical work, extending and building on foundations already laid; we have also the task of preventing a destructive attack upon National forestry.

During the past few years public interest in forestry has been rapidly changing from a mere inquiry in regard to its purpose to a vigorous demand for practical results. This more intelligent public sentiment is now finding its expression in a growing appreciation of the need of better forest laws, greater State appropriations for fire control, and increasing interest in forest protection by private timberland owners. It often happens that public attention is caught only by the most striking new departments and developments, such as a change in public policy or important legislation, while but little is known of the steady advance in applied forestry. The past year has been signalized not so much by new undertakings as by marked accomplishment in the effective carrying out of work previously inaugurated.

PROGRESS IN NATIONAL FORESTRY.

Every year shows increased efficiency in the administration of the national forests. The most conspicuous advance has been in organized fire protection. The disastrous year of 1910 taught many lessons. While that disaster could not have been avoided in the absence of better transportation and communication facilities and without a larger patrol force than the Forest Service could put into the field, it nevertheless showed how, even under the present conditions, the work of protection could be made more effective. Full use was made of the experience gained in that year, and during the past two seasons the loss by fire has been kept down to a comparatively small amount through the efficient system now in force. The problem, however, of fire protection on the national forests is far from being solved. There still remain to be built some 80,000 miles of trails, 45,000 miles of telephone lines, many miles of roads, many lookout stations, and other improvements, before even the primary system of control will have been established. The funds at the disposal of the Forest Service are still inadequate to employ the patrolmen needed to meet more than ordinary emergency. There is even yet danger, therefore, that in the case of a great drought like that of 1910 some fires might gain the mastery and a similar disaster follow.

An account of the progress of the work of the Forest Service in the administration of the national forests would be an enumeration of the different activities in which the work is going on with constantly growing effectiveness. Many of the local difficulties of administration are rapidly disappearing. This is due to the steadily closer co-ordination of the interests of the Government with those of the people living in and using the forests: More and more these people are coming to appreciate that their interests and those of the national forests are one. With a better understanding of the aims and methods of the Forest Service, local difficulties are disappearing and local support of the service is largely replacing opposition. Those who are aiming to destroy the national forest system are not the settlers and others who use the forests, but rather men who seek for their own advantage special privileges to which they are not entitled, and who wish to acquire for little or nothing valuable resources for speculation and personal gain.

During the past year the Weeks law, authorizing the purchase of lands on navigable streams, has been put into effect, and the Government has already entered into contracts for the purchase of 230,000 acres in the Southern Appalachian Mountains, and about 72,000 acres in the White Mountains. These lands are being secured on the most desirable areas, and it has been possible to obtain them for reasonable prices. A special feature of the Weeks law is the co-operation between the Government and the States in fire protection on watersheds of navigable streams. The law provides \$200,000, until expended, for such co-operation; but this money can be used only in States which have already inaugurated a system of fire protection under public direction. During the year 1911 there were eleven States which qualified under this law, receiving in the aggregate about \$40,000. During the current year sums varying from \$1,500 to \$10,000 have been allotted to the States of Maine, New Hampshire, Vermont, Connecticut, New York, New Jersey, Maryland, Wisconsin, Minnesota, Oregon, and Washington. There is still sufficient money left from the original appropriation for substantial co-operation during another year. It has been the aim of the Forest Service to spread the money over three years in order that there may be a full demonstration of what can be accomplished, and at what cost. It will then be possible to present to Congress a satisfactory basis upon which to consider whether Federal aid to the States should be continued.

The most urgent need of the national forest work is more ample provision of the funds necessary for adequate protection of the forests against fire. It is especially urgent that the work of constructing roads, trails, telephone lines, and other improvements needed for fire protection be extended much more rapidly than at present.

PROGRESS IN STATE FORESTRY.

A very great obligation rests upon the State governments in working out the problem of forestry. Organized fire protection under State direction, the establishment of a reasonable system of taxation of growing timber, honest and conservative management of State forest laws, education of woodland owners to better methods of forestry, and such practical regulation of handling private forests as may be required for the protection of the public, are problems which require the immediate action of all States.

While no State is as yet accomplishing all that it should, a number of them are making very rapid progress, and are giving as liberal money support as perhaps could be expected under the present conditions. The feature of State forestry which stands out most strongly is that a number of States have gone beyond merely passing forest laws, and have begun to provide the funds necessary to achieve practical results. At last it is beginning to be recognized that the prevention of fire is the fundamental necessity, and that this can be accomplished only through an organized public service. In order to make laws effective there must be adequate machinery to carry them out. The fundamental principle of fire protection is preparation. A forest region must be watched for fires, both to prevent their being started and to reach quickly and put out such as from one cause or another may get under way. The new State legislation recognizes this need, and already there has been inaugurated a measure of watchfulness in the season of greatest danger, through patrol or lookouts under State direction. During 1911, which was a banner year in the enactment of State legislation, laws related chiefly to fire protection were passed by Connecticut, Massachusetts, Minnesota, New Hampshire, New Jersey, Oregon, Washington, and Wisconsin; while Colorado created the office of State Forester. Since the beginning of 1912 Maryland and New York have amended their forest laws, and Kentucky has passed its first complete law.

It is exceedingly gratifying that substantial progress is now being made in the South. Unfortunately, however, none of the Southern States except Maryland has hitherto been able to qualify to receive Federal aid and fire protection under the Weeks law. It is hoped that during the coming year progress will be made in those Southern States in which practically nothing has yet been done.

One of the matters to which the Conservation Congress and all other educational agencies should devote their efforts is to bring about the protection of private lands from fire and the extension to them of forestry methods. While some may say that this is a matter for which the owner is personally responsible, the fact remains that private owners will ordinarily not work out the forestry problem on their lands without the participation of the public in the form of public regulations, co-

operation and assistance. This is recognized in some States, but others are doing nothing whatever in this field, and a good many which have made a small beginning are abundantly able to do vastly more than at present. It has usually happened that the securing of good forest laws and the establishment of a State Forest Service has been brought about by the efforts of a small group of interested men, and frequently through the efforts of a single individual who has been able to arouse the interest of the people in his State. Enough States in different parts of the country have initiated State forestry to make it comparatively easy for a State contemplating new legislation to benefit by what has been done elsewhere. All that is really required in the extension of State forestry is to find the man or men in each State who will take the leadership and follow up the matter until the Legislature acts. It would seem that in the heavily timbered States the lumbermen are the men who should be most vitally interested in the conservation of our forests. In some States timberland owners have participated very actively in bringing about State forestry, as for example, in Maine, New Hampshire, Minnesota, and some of the far Northwest States. In other instances the timberland owners have been indifferent and in some instances proper State forestry has failed on account of the attitude of the very men who should be foremost in promoting proper legislation. We need in each State not so much advice from the outside as a few patriotic citizens in whom the public has confidence and who will devote time and real effort to this public task. If the men can be found to do this preliminary work they will have no difficulty in securing competent assistance from other States and from the National Government.

THE ATTACK UPON FORESTRY.

At the same time that forestry has been making steady progress in constructive work and in public esteem, hostility to the national forest policy on the part of those who would substitute private for public control of these resources has become more determined under a new form. The early attacks upon this policy openly sought its overthrow. They came to nothing because the country was emphatically for the forests. At the present time those who attack the national forest policy commonly profess allegiance to the Conservation principle even while attempting to break it down. There is great danger that the public may not understand what is involved in measures whose purpose and inevitable effects do not appear on their face. Two such measures are the proposal to require the elimination from the forests of all lands capable of cultivation, on the plea that this will increase settlement, and the proposal to turn all the forests over to the States in which they lie, on the plea that this will increase their benefits to the people of these States. In both cases quite the contrary is true.

An amendment which was attached to the Agricultural Appropriation Bill last June, and which passed the Senate but was rejected by the House, would have required, had it become law, the opening to private acquisition under the homestead laws of all lands "fit and suitable for agriculture" within national forests, irrespective of their value for other purposes or of their importance for public use. The result would have been not to facilitate but to block agricultural development. It would also have been to transfer to powerful private interests timberlands, water power sites, and other areas, possession of which would tend to private monopoly of resources now under public control.

This measure is not called for in order that agricultural development of lands in national forests may take place. The Forest Service has consistently favored and sought to bring about agricultural settlement of all national forest lands which can be put to their highest usefulness by farming. It urged and obtained, seven years ago, the law which now permits the opening of such land. Under that law about one and a half million acres have been listed for entry by over twelve thousand settlers; and more will be listed as it becomes possible to list the land without defeating the very purpose of the law.

To open land certain because of its superior value for timber, water-power development, or other purposes to be absorbed by speculators or powerful interests would not only defeat the purpose of the existing law but also constitute a breach of public trust and a betrayal of the fundamental principles of Conservation. That principle has often been misrepresented as a policy of present non-use for the sake of future generations. Its true purpose is two-fold: to prevent monopoly of public resources, and to secure their greatest use, both present and future, by scientific development. The national forests are administered with a view to securing, first, use of present resources; second, permanency of such resources; and third, greater and more valuable resources for the future.

Experience has amply proved that the elimination, under pressure, of national forest lands locally considered or alleged to be of agricultural value but in point of fact more valuable for other purposes has led to their early acquisition by timberland speculators, great lumber interests, water-power companies, livestock companies, and others who desire the lands for other ends than agriculture. In 1901 705,000 acres of heavily timbered land were thus eliminated from the Olympic National Forest. Ten years later only a little over one per cent. of this land was under cultivation, while three-fourths of it was held for its timber, mainly in large holdings. Other examples might be multiplied. With a mandatory law the pressure for opening land sought under cover of the claim of agricultural value would be well-nigh irresistible in many cases. Local agitation and political influence would in the end break down all effort to maintain public control. Such piecemeal attack on the forests

would be made without any opportunity for the public to know what was going on. In the end the dismemberment of the national forests would be effected.

The only safety for the maintenance of the policy which now receives and has long received the overwhelming support of public sentiment lies in a correct knowledge by the public of the actual situation with regard to agricultural lands in national forests. It must be made plain that all but an entirely insignificant part of the national forests is not susceptible of profitable cultivation. The forests occupy the most rugged and mountainous parts of the West. Topography, soil, and climate combine to make them natural forest lands, not potential farm lands. The areas which form an exception to this condition are not over four per cent. of the total; and such areas are now being sought out by the Forest Service and will, under the existing law, be made available for homestead entry as fast as they can be opened without defeating the purpose of the law itself. It is necessary that the country should understand the manner in which bona fide settlement is being brought about in the national forests, and also the motive of those who are trying to break down the system of forest Conservation under the guise of promoting settlement.

There has been during the past two or three years a steadily growing movement to turn over the national forests to the individual States. During the past session of Congress a rider to the Agricultural Appropriation Bill was offered in the Senate, providing for the grant of the national forests to the several States, together with all other public lands, including "all coal, mineral, timber, grazing, agricultural and other lands, and all water and power rights and claims, and all rights upon lands of any character whatsoever." While the amendment was ruled out on a point of order, it received a surprisingly large amount of support.

The proposition so far as the national forests are concerned is to turn over to the individual States property owned by the Nation covering a net area of over one hundred and sixty million acres. This property has an actual measurable value of at least two billion dollars, while from the standpoint of its indirect value to the public no estimate on a money basis could possibly be made. These are public resources which should be handled in the interests of the public. Moreover, the problems involved are such that they should definitely remain in the hands of the Nation rather than be turned over to the State governments. The property belongs to the Nation as a whole, and every citizen has an interest in it. The Government has already made enormous grants to the individual States, but always to further specific objects of national importance. There should not be a moment's consideration of the proposal to turn the forests over to the States unless it can be clearly shown that the interests both of the States and of the Nation are consistent with such

action. In the case of the national forests, public interests both of the Nation and of the States require their continued retention and management by the National Government.

The scope of this paper does not permit a full discussion of this problem. It must suffice to mention a few cogent reasons for government ownership :

1. The property is now owned by the Nation, and should be administered from the standpoint of national as well as of local needs.

2. The problem of protection from fire and of timber production on the national forests is one of national scope and can be properly handled only by the Government ; its solution is a national duty.

3. The problem of water control is no less a national duty. Nearly all of the national forests lie on headwaters of navigable rivers or interstate streams. The Government is now purchasing lands in the East on headwaters of navigable rivers because of the disastrous results to the public which are following abuse under private ownership. It certainly should not part with title to the same class of lands which it now owns in the West. Every interstate stream presents problems which can be properly handled only through the Federal Government. The Government cannot permit the citizens of one State to be damaged by the action or failure to act of citizens of another State. It is of vital importance for this reason alone that property at the headwaters of interstate streams be retained under Government administration.

4. Not only are the interests of the individual States and communities now fully protected, but in many ways far more is being done for local communities than would be possible under State ownership. In the long run, as the timber and other resources are brought into use with improving markets, the States will receive from the twenty-five per cent. of the gross receipts now allowed them and the additional ten per cent. appropriated for road improvements a larger amount than would come in from local taxes under private ownership.

5. The States are not as well prepared, financially or otherwise, to handle the national forests as is the Federal Government. If the forests were owned by the States and handled in the real interests of the public, there would be substantially the same system of administration as today, at a greater aggregate cost for supervision by a considerable number of independent State staffs of technical men. The financial burden would be far too great for the individual States to assume. The result would be either poor administration and lack of protection, or a sacrifice of the public interests in order to secure revenue to meet the financial needs.

6. The successful application of forestry demands a stable administrative policy for long periods. This can be secured far better under National than under State control.

7. A much higher standard of constructive and technical efficiency is possible under National than under State administration. The value of the forests to the public depends directly on the skill with which scientific knowledge is applied to the task of developing their highest productiveness. Both in ability to carry on the research work required for practical ends and in ability to command professional services of the first order the Government possesses a striking advantage.

8. As largely undeveloped property the forests need heavy investments of capital for their improvement. Their full productiveness can be secured in no other way. The Government is now investing yearly in the forests a considerable part of the appropriation made for them. Even if the States did not seek to make them sources of immediate revenue at whatever sacrifice of their future possibilities, they would be reluctant to expend much for their development.

9. The States both lack the civil service system and standards of the National Government and are exposed to greater danger of being swayed by private interests. In the hands of soplismen demoralization would quickly succeed the present high standards of the Forest Service, while the intimate relation of the forests to the welfare of great numbers of individuals would tend to make their administrative control a highly coveted political prize. At the same time the value of their resources would certainly arouse a cupidity which would be exceedingly difficult to control. Scandalous maladministration might easily follow. The Federal Government is better watched, farther removed from local influence, more stable, and better equipped with a nonpolitical system and machinery.

The underlying purpose of the proposed transfer of the national forests to the States is really not to substitute State for Federal control, but rather to substitute individual for public control. Its most earnest advocates are the very interests which wish to secure such control. The object of the whole states rights movement as it affects the national forests is to transfer to private owners for speculative or monopolistic purposes public resources of enormous value. Retention of these resources under public ownership is needed to protect the people from abuses which are every day being demonstrated on lands over which the public has already lost control. The proposition is one which the people as a whole would repudiate in an instant if they understood what is proposed. The only danger lies in the fact that some legislation adverse to the national forest system may be passed when the public as a whole is ignorant that it is planned or does not understand the meaning. Vigilance in the defense of its interests and intelligence in the perception of the true character of masked attacks upon those interests are of fundamental necessity if the public is to protect itself.

FOOD SECTION.

The Food Section of the National Conservation Congress met in the Palm Room of the Claypool Hotel on the afternoon of October 1st. Dr. H. W. Wiley, late Chief of the Bureau of Chemistry, as Chairman, discussed the cold storage industry and pointed out that cold storage is a great blessing to the country, in that goods are placed in cold storage that they may be more evenly distributed throughout the year. He showed that there is still room for the investigation of the principles of storage and improvement of the industry. The condition of food entering cold storage is most important.

Frank A. Horne, Chairman of the Commission of Legislation of the American Association of Refrigeration, said there has been a remarkable reversal of public opinion in the last three or four years regarding the place cold storage and refrigerating has occupied with regard to the high cost of living.

He declared the cold storage business has been unjustly assailed, and that a series of investigations and hearings had demonstrated beyond doubt that the popular notion and sensational newspaper attacks were entirely unfounded and erroneous. He said these investigations showed that the cold storage warehousemen performed a useful public function in conserving perishable foods, preventing deterioration and waste by means of a scientific method by which the great surplus production could be wholesomely preserved for later consumption.

Before cold storage came into use a period of flush production meant a glut in the market, and large quantities of spoiled and utterly wasted foods. With cold storage at hand the contrary conditions prevail.

At the general discussion on the subject afterward, Dr. Wiley said the attacks made on the cold storage business five years ago were justified by conditions. He said as a result of an investigation of the business, the cold storage men themselves have joined with the Government to improve conditions.

Charles H. Utley, President of the Quincy Market, Cold Storage and Warehouse Company, Boston, said there would be no occasion for cold storage or the use of any other means for preserving food if human food was not to a greater or less extent perishable. If it were not perishable it would be the practice of every individual to conserve a sufficient amount of food as might be required. No better means of preventing waste of food is known at the present time than by the use of cold storage, and the use accomplishes most desirable results, advantageous to both consumer and producer, by the conservation of food, which is just as desirable as the conservation of our natural resources.

Dr. William A. Evans of Chicago, discussed the capacity of milk for doing harm even when it looks, tastes and smells right. He said milk is a great carrier of disease germs, and that for this reason it should be

produced close to the point of distribution. The nearer the baby gets to the cow the more natural it is. Certified milk is all right when it is really certified by a noninterested person, but properly pasteurized milk is probably the safest for babies.

Dr. H. E. Barnard, Food and Drug Commissioner of Indiana, referred to the fact that Indiana was the first State to pass a cold storage law. He introduced resolutions pertaining to the conservation of food, which were unanimously adopted. The resolution follows:

Whereas, The conservation of the food products of our country is of the greatest importance to our people, in order that they may have available the maximum supplies of wholesome food; and

Whereas, The subject is deserving of serious consideration, so that production may be encouraged and waste decreased; and

Whereas, The important function of the process of refrigeration is enlarging and diversifying the supply of perishable foodstuffs, as applied in the preparation, transportation and distribution of these goods, thereby giving consumers a larger and more wholesome supply, preventing deterioration and waste, is recognized as being desirable and necessary; therefore, be it

Resolved, That any legislation or administration restrictions or regulations that may be required to properly control the business and protect the public health should be uniform in the several states of the Nation, and be it further

Resolved, That the Congress recommends that the succeeding food committee of the National Conservation Congress be specially charged with the duty of studying the questions involved in the production, collection, sanitary preparation, transportation, preservation and marketing of perishable foods, and to report its findings to the succeeding Congress to the end that such report may be made the basis of measures to better conserve the perishable foods of the people, to improve the quality of such foods, increase their production, and to promote such relations between the producer, handler and consumer as will bring about a more nearly uniform price through each year.

FOOD CONSERVATION BY COLD STORAGE.

By F. G. URNER, Editor, New York Produce Review.

The conservation of food may be considered from two points of view—first, the safeguarding and preservation of the food currently produced; second, the maintenance of those elements of fertility upon which continuous production depends, and the improvement of methods of production to the end that maximum yield may be realized from the labor and material expended. Both considerations are of the utmost importance in the present conditions of changing relation between the domestic supply of food and the needs of nonproducers. In both progress toward higher ideals is dependent upon an increase of knowledge, and worthy of such educational forces as can be brought to bear by a wise government. In both directions the United States Government, through the Department of Agriculture and otherwise, is endeavoring, by investigation, study and the dissemination of ascertained fact, to foster progress for the common good.

In the United States the development of food production to keep pace with the needs of a population increasing at a rate beyond all precedent, has been crude and wasteful. Beginning with virgin soils the stores of primitive fertility have been drawn upon with little regard for their steady depletion. Methods of careful and conservative agriculture that have been forced upon older communities have been largely ignored until comparatively recent years, when an appreciation of the near approach of the inevitable results of waste has turned forceful educational efforts toward a reformation—efforts which, however, have been handicapped by the necessity of overcoming the prejudice of ignorance and long established habit of carelessness.

Considered broadly, the question of conservation of food is far-reaching and extends to innumerable details. It is the purpose in this paper to discuss simply some of the general principles underlying the subject from the first mentioned viewpoint—the safeguarding and preservation of the food produced—particularly in respect to preservation by cold storage.

It is hardly necessary to enlarge upon the general requirement of food preservation. In northern latitudes, where months of production are, in respect to a large part of the food supply, followed by months of nonproduction, this necessity is evident not only to maintain a satisfactory variety of food but to secure a sufficient quantity. In the United States differences of climatic conditions, although giving an almost continuous production of certain vegetable foods, do not serve to furnish an uninterrupted supply of fresh products of many staple kinds, nor are they sufficient to remove the necessity for utilizing the productive power of the colder regions far beyond the consumptive needs during the comparatively brief seasons of harvest. The practice of food storage from the season of natural production through the season of nonproduction is, of course, to some extent, as old as life itself; but the methods of preservation have shared in the improvements that have characterized a modern civilization. And the development of these advanced methods has brought into the question of food preservation new problems, some of which it is the purpose in this paper to discuss.

Methods of food preservation may be broadly divided into two classes—first, those which accomplish their purpose by changing the physical condition of the food, as by drying, or cooking and hermetical sealing; and second, those which preserve the articles in such manner that, when used, they shall be practically in their original condition. The latter methods depend for their effectiveness upon the provision of such environment as will check or retard the forces of deterioration or decay, and it is in the ability to provide such conditions by an artificial control of temperature and humidity that the preservation of food in apparently unchanged physical condition has been greatly extended.

So long as food products were chiefly preserved from the seasons of production, or maximum production, to the season of nonproduction by the use of somewhat primitive means, and largely by producers themselves, or by methods familiar to the household, the food so held was accepted by the people as a matter of course and recognized necessity. Canned and dried foods were, and are, used with general satisfaction as such; and such staple fruits and vegetables as could be carried in their original condition through the winter months were consumed with a general knowledge of their age, but with a full appreciation of the necessity for such holding and of the comparative excellence of the held goods. Butter and eggs also, when held by producers themselves, even by primitive and inefficient means, were accepted by consumers in seasons of natural scarcity with resignation as to their comparatively poor quality under a general knowledge that nothing better could be expected at prices within common reach.

These conditions remain unchanged today in respect to those forms of preserved food whose character is evident either because of their change of form or because of a popular knowledge that the articles, though indistinguishable from fresh products, must have been held from a crop harvested long ago. But the development of preservation by effective artificial control of temperature has brought some new elements into the situation.

Cold storage has enlarged the number of food products preservable in their original condition and created a new industry; it has largely removed the function of this class of food preservation from the scattered individual producers to large central establishments and thrown the business of accumulating and conserving surplus more fully into the hands of tradesmen. It has permitted the preservation of flesh foods in a raw state which were never before so preservable; and it has so improved the quality of stored products whose current production never ceases entirely that in many cases the held goods cannot be distinguished from the fresh production.

These facts have led to a popular apprehension that cold storage, being utilized largely by nonproducers and necessarily upon a speculative basis, is made a tool for extortion or unjust profits; also that deception is practiced, in respect to foods whose production never ceases entirely, by the substitution of stored food for fresh; and exaggerated statements as to the length of time foods are held in storage have brought in question their wholesomeness and created a popular prejudice.

It is important to know the facts in these particulars so that the true function of cold storage in the preservation of food may be understood, especially because legislative restriction of the industry has been effected in some States and is under consideration in others, as well as in the

Federal Congress, in the enactment of which mistaken views have resulted and may further result in public injury.

COLD STORAGE ECONOMICS.

It is a self-evident proposition that, in respect to foods the production of which is seasonal, the ability to preserve a part of the yield to the period of nonproduction lessens waste and permits a material increase of production, thus increasing the available food supply. It is also evident that, supposing all the food produced to be marketed and consumed, an increase in the supply of food tends to a lowering of its average price. Apart from inevitable variations due to climatic conditions the production of particular foods increases or diminishes according to the relative profit realized from that production; and it is evident that a profit sufficient to induce production can be realized upon a much greater output if the period during which consumption is possible can be extended. A maximum production of any food can be realized only when the period of its availability for consumption is constant; and it follows that the maximum production of foods whose yield or greatest yield is seasonal, can be realized only by preservation of a part of the production for use during the season of natural dearth or deficiency which ends only with the beginning of the following period of maximum production.

Upon these simple truths rests the economic utility of cold storage preservation. Practically its benefits in the conservation of food, and in the encouragement of maximum production, are to be gained only through the opportunity for profit, and while the business of carrying foods from seasons of abundance to natural scarcity is open to all it is naturally conducted chiefly by the tradesmen who are permanently engaged in food distribution, and who are most familiar with trade conditions and the varying relations of supply and demand.

An important fact bearing upon the practical use of cold storage preservation as a feature of the distributing business is that no profit can be expected by holding products beyond the succeeding period of maximum production, when prices naturally fall to the lowest point. The variations in selling prices at that period are never sufficient to cover the cost of carriage of goods from a previous season and the lessened value of long stored products in comparison with fresh. There are occasional market conditions which have induced the holding of perishable foods in cold storage beyond twelve months in the effort to lessen a loss, but they are rare and exceptional, so much so that a legal restriction of the period of permissible holding to twelve months would have very little effect upon the inducement to utilize cold storage from a commercial standpoint. But so far as the purely economic interests of consumers are concerned it would appear that no restriction of the period of per-

missible holding of food in cold storage is either necessary or desirable. The inducement to hold is profit, and profit can be realized only by selling into final consumption. And when goods can be carried to a later date and sold at a higher price it is evidence that the relative scarcity which results in that higher price would have been more stringent had the goods not been so carried. In respect to the time of selling stored foods, therefore, the interests of consumers (as a whole) and of owners of the food, would seem to be identical; for it is the increased public need which results in the higher price, and profit, considering storage operations as a whole, depends upon a correct judgment as to that need.

There seems, therefore, no means by which tradesmen dealing in raw foods can utilize cold storage preservation for their own benefit at the cost of a public injury, but that, on the contrary, the profitableness of holding surplus depends upon the performance of a public service.

The ideal function of cold storage preservation is to carry just such amount of surplus from the time of greatest yield as can be consumed during the later period of relative scarcity at just sufficient advance in value as will cover the cost of carriage and afford a maximum satisfactory profit for the conduct of the business and the necessary investment of capital. But it is impossible that this ideal can be uniformly realized. Even if the operations of storage accumulation and withdrawal for market were uniformly governed in the light of the fullest possible knowledge and with the best of judgment, it would be impossible always to determine the quantity to be stored and the normal price thereof so that later deficiency at corresponding prices would be exactly offset. For the extent of later shortage can never be certainly known and the extent of demand at any particular prices is variable and uncertain. As a matter of fact, these operations of storage accumulation and later output, being carried on by thousands of individual and independent dealers, in the dim light of imperfect knowledge, even as to important statistical facts that might be known, can never result in ideal effects. Sometimes the quantity of certain foods stored at the prices paid proves to be excessive and a part of the surplus, toward the approach of the next flush season, has to be thrown upon the markets at heavy losses; sometimes the quantity put away is insufficient to offset the later scarcity and a part of the surplus, carried late, realizes for larger profits than normal. But these conditions are, to a large extent, inevitable, and while they show that the ideal function of cold storage preservation can not always be realized, they do not materially lessen its value. When a series of years is considered it will be found that the average profits are comparatively small in relation to the risks and the investment involved. And even when, during the flush season of accumulation, prices are sustained above the normal level by an amount of accumulation that later proves excessive, consumers get the surplus later at correspondingly

lower prices. The reverse is also true, that when the quantity held is deficient, leading to relatively high prices in a part of the season of natural scarcity, a greater previous accumulation, sufficient to prevent so much advance, would have resulted in higher prices during the previous flush season.

The view that the economic effect of cold storage is to increase production and to lower the yearly average price of food whose production is variable is evidenced by such statistics as are available. In the manufacture of butter, for instance, the months of greatest production are from May to August, inclusive, and the months of usual deficiency are from November to March. In the New York market the average price of creamery butter from May to August during the period from 1880 to 1892, before cold storage preservation was generally used, was 21.9 cents. During the same months in the period from 1902 to 1911, when cold storage facilities were largely available, the average price was 23.4 cents. But while this comparison shows an average advance of one $1\frac{1}{2}$ cents during the four months of normal accumulation of surplus the effect upon prices during the normal season of shortage was very apparent; for in the months November to March in the period 1880 to 1892 the average wholesale price was 34.3 cents, while during the same months in the period from 1902 to 1911 the average for fine fresh creamery was only 28.9 cents, and the average for fine storage creamery 26.7 cents.

THE QUALITY OF COLD STORED FOODS.

The quality of all perishable food products varies according to the methods of their production and the care taken of them during transit from producer to consumer. The more perishable foods, being produced in a very wide territory by a vast number of producers, and usually transported over long distances, are found in distributing markets to be of extremely irregular quality and condition. Usually qualities are best in the seasons of maximum production, and while goods put into cold storage are also of irregular quality most of those intended for long holding are selected, handled and packed with especial care. The effect upon perishable foods of holding in cold storage is various. It is less in respect to those carried hard frozen, as meat, fish, poultry and butter, and upon durable vegetables and fruit, as potatoes and apples, than upon animal products that cannot be frozen, as eggs in the shell. Yet in all perishable foods commonly carried in cold storage, quality, as judged by popular standards, is preservable up to the limit of usual commercial necessity, in a highly satisfactory degree. The more durable fruits and vegetables, carried in properly corrected and controlled atmospheric conditions, after months of holding, are often indistinguishable in point of quality, from those marketed soon after their harvest. Butter carried frozen for months loses very little of its original flavor and character.

Poultry, also, if of fine quality and condition when frozen, may be so held for a long period without noticeable deterioration. Eggs in cold storage gradually lose the peculiar freshness of a new laid quality, but under proper conditions they remain sound, sweet and acceptable when carried at about 30 degrees temperature for at least nine or ten months. Scientific investigation conducted by the research laboratories of the United States Department of Agriculture has given no evidence of any effect of an unwholesome character upon the quality of perishable foods held in cold storage up to the limit of usual commercial practice when the products were sound and wholesome when stored.

The cold storage of surplus and the sale thereof in the markets adds not at all to the irregularity in quality of our food supply. On the contrary, the average quality of the supply is improved, for, without the facility of refrigeration, freshly marketed products would inevitably be poorer; they are now often poorer than similar goods of much greater age properly carried in cold storage. Furthermore, the length of time perishable foods are carried in cold storage is, within reasonable limits, no criterion of their quality. Perfect products, properly refrigerated for months, may be, and often are, superior in all the elements of quality to imperfect goods, freshly marketed or held only a short time. Again, because of the very widely spread sources of our food supply, the necessity for collection at innumerable points and transportation over long distances it is hard to say what goods are "fresh." Even when collected at interior points, transported to distant markets and put into consumption with usual promptness perishable products are often two to four weeks in the transit from producer to consumer, and often under more or less unfavorable environments.

Under these circumstances it is seriously to be doubted that there is any real ethical foundation for the recent demand that, in the sale of perishable foods, there must be a stated distinction between so-called "fresh" and stored products, or for the feeling that consumers asking for broiling chickens in the winter, for instance, are deceived if furnished with acceptable goods frozen six months before. And this doubt is intensified, no matter how scrupulous we may be in standing for truth and fair dealing, when it is considered how difficult will be the enforcement of laws compelling such distinction in commodities of irregular quality and condition whose age and previous environment cannot be known by examination, and in respect to which a comparison of quality is often in favor of the older goods.

The writer's conclusion from the foregoing considerations, based upon a long and disinterested observation of the practical use of cold storage preservation, is that artificial refrigeration furnishes the most important of all modern factors in the conservation of perishable foods, leading to an increase in their production, and to a consequent lowering of average

prices. Also that governmental attention to the industry would be more usefully directed toward providing for continuous and frequent statistical information of the rate of food accumulation and output, to the end that operators may be guided by the largest possible knowledge, rather than toward any undue restriction of the industry or the imposition of costly and difficult requirements which, though seemingly designed to prevent deception, are, upon analysis, found to be unnecessary and impractical.

NATIONAL ASSOCIATION OF CONSERVATION COMMISSIONERS.

This Association, consisting of Conservation commissioners and other persons connected with various departments of State development, held two sessions during the Conservation Congress. Several important subjects were considered, but most of the time was given to a discussion of the work done by certain departments connected with public service.

The first session considered State Surveys, their work and co-operation. As a result of this meeting an agreement was reached as to the order or sequence of the surveys, the object being to secure for the States the largest returns from each survey. The sequence of the surveys and the leading points to be emphasized, as decided by the commissioners, are as follows: (1) topography, (2) structure, (3) drainage, (4) ground water, (5) local climate, (6) soil, (7) plant and animal life, (8) social and industrial conditions. This order is thought to be most helpful so far as the surveys are concerned. It is also the natural order. It was plainly shown that several States have wasted time and money in taking up the various surveys in a way that does not develop these relationships. For instance, some States have started industrial and agricultural surveys before they have mapped the geology, topography and water resources. Such an order does not bring the best results. Furthermore, it is wasteful.

Several prominent directors of State surveys took part in the discussions of this session, among them being Dr. George W. Field, Dr. A. H. Purdue, Dr. F. W. DeWolf, Professor Kay, Dr. C. E. Bessey, Dr. C. H. Gordon, Dr. Frank W. Rane, Prof. George A. Loveland and Hon. J. E. Beal. Among the other speakers were Hon. George Coupland, Mr. Ellis, W. E. Barns, Henry A. Barker, H. E. Hardtner and Dr. H. H. Waite. Dr. David White, of the United States Geological Survey, gave valuable suggestions.

At the second session of the commissioners, the forest laws of Louisiana were discussed by Hon. H. E. Hardtner, ex-Chairman of the Louisiana Conservation Commission. Following this was a general discussion of forest laws and forest management. Hon. W. E. Barns, of the Mis-

souri Conservation Commission, gave a talk on the improvements of lumbering in the South. Prof. Earl O. Fippin of the Agricultural College of Cornell University, Ithaca, N. Y., read a paper; subject, "The Soil Survey as a Means of Agricultural Improvement." This paper was followed by discussion, in which the value of the soil surveys as it relates to State development, was brought out with considerable detail.

The officers elected for the ensuing year were: President, Dr. G. E. Condra, Lincoln, Neb.; Vice-President, Dr. George W. Field, Sharon, Mass.; Secretary, Henry A. Barker, Providence, R. I.

ACCIDENT PREVENTION SECTION.

On October 2, 3:30 o'clock, the section on "Accident Prevention" held a large and enthusiastic meeting in the Auditorium of the German House. The presiding officer was Mr. M. W. Mix, of Mishawaka, Ind., President of the Manufacturers' Bureau of Indiana. At this meeting the following resolution was adopted:

Resolved, That we appreciate the efforts now being made by manufacturers of machinery for use in industrial plants to so far safeguard their machines as to minimize the danger of personal injury to workers; and that as manufacturers and individuals interested in accident prevention we recognize the difficulty, and in some cases even impossibility, on the part of purchasers of individual machines to properly attach safeguards; and realize that the original manufacturers of the machines by reason of their wide experience and efficient engineers, are better able to develop and provide proper safeguards for all machinery; and that it is the sense of this meeting that any efforts along this line are highly commendable and will be appreciated by all interested in the Conservation of human life.

Resolved, further; That a copy of this resolution be sent by the President to every machine manufacturer with a request for his co-operation.

CONSERVATION OF WATERS.

Report of the Standing Committee on Waters. W. C. MENDENHALL, Washington, D. C., Acting Chairman.

To the public the Conservation movement seemed to rise suddenly in the last few months of 1908 and the early part of the year 1909, but what the people of the United States was really witnessing then was not so much the origin of a movement as its organization. Through a generation before that time Government bureaus, individuals, and associations here and there had been methodically assembling facts, and those who were familiar with these facts had been reaching conclusions that were oftentimes disturbing in their tenor. These individuals and groups were brought together, their conclusions were given publicity of a most effective type, and what had been scattered and disorganized recognition of a vital problem was given solidarity and nation-wide recognition by the acts of President Roosevelt and Gifford Pinchot in organizing the

National Conservation Commission and calling the Conference of Governors. The Forest Service, the Reclamation Service, and the Geological Survey had locked up in their archives the results of decades of research by their representatives, and these results supplied the facts which were the stimulus and the basis for the Conservation movement. Since that first great meeting, the Conservation Congress, giving official expression to the movement and formulating its doctrines and its platform, has served as a medium for the exchange of ideas among those who are engaged in one or the other of its manifold activities, for the subject-matter of Conservation is as comprehensive as the materials with which humanity deals. Furthermore, the term itself has been impressed upon the public mind. It has passed out of the category of a cult for the few, and has been taken up by statesmen and politicians, scientists and divines, commercial organizations, manufacturing associations, and has even invaded the realm of diplomacy. This proves merely that the seeds were well sown by those who were sponsors for the movement. Their work, the task of focusing public attention upon a theretofore neglected but vital series of problems, was superlatively well done.

Years have passed since that time. It is appropriate that we review the results of those years as it was appropriate in 1908 to make our first inventory of the primary subject-matter of Conservation, namely, our natural resources. The period of initiation, difficult but well performed, is past. There remains a task that will never be finished—the equally difficult and the infinitely slower process of applying the principles of Conservation to our every-day activities. Such an application must be practical, reasonable, and gradual so that modes of life and industrial habits in which change is to be affected can be given time and opportunity to adjust to that change. How well have we, the workers in the ranks for these principles, performed our task? In what fashion has the movement been carried on? What real and creative steps have been taken in the public interest to reserve for future generations without unnecessary suppression of opportunity for the individual in the present or denial of his needs, that share in our natural wealth which should be so reserved?

I shall confine myself to a brief and casual review of that phase of the Conservation movement which deals with the one resource—water. Even in dealing with this one item in the subject-matter of Conservation, I shall have to leave aside for treatment by others, and indeed by other organizations than this, that phase of the problem of the waters which deals primarily with transportation and its allied problems of river improvement and water-way construction. There still remains a broad field, for water is the universal resource. Doctor McGee has estimated that the ultimate control of population in the United States will be exerted by the limitations in its water supply. We cannot say that this

limit in population, even though it be placed at from five hundred to one thousand million people, is one that does not concern this generation, for we feel very keenly now in our arid and semi-arid sections the handicap which lack of water places upon our growth. Irrigation and dry-farming methods are attempts to overcome this handicap and forces us to realize that the ultimate growth predicted by Dr. McGee can be reached only through the most careful husbanding of the most universal and important gift of nature—water.

Because the human body, like all other organic structures, is largely water and because all of its nutritive and renewing processes are exercised by the function of water as the solvent of other foods, it has a primary value to man superior to that of any other substance. Its secondary value, scarcely less important than the primary and closely related to it in character, is as an aid in the production of nearly all things which man uses. In the humid regions, the supply is sufficient naturally so that the necessity of water is ordinarily given no more thought than the necessity for air, although without either we should instantly perish. Man's use of water in crop production, hence, is automatic and unconscious in the eastern United States, but in western part, and especially in the arid districts, he at once becomes conscious of its importance because plans and crops fail without it. He establishes engineering works and conducts it to the land in order that food may be grown upon the land. Here, in the pioneer stages of settlement, comes the first great waste. Water was and too frequently still is carelessly used in irrigation. An equivalent of twenty or twenty-five feet in depth has been applied annually to the land where four or five feet is ample. The excess is sheer waste and in its application the land is ruined. Canals are often carelessly constructed and half of their carrying capacity leaks out before the tract to be irrigated is reached.

As settlement increases and demand becomes more intense, these conditions are improved. Their improvement in our own arid West and Southwest began under the pressure of necessity before the Conservation movement was given a name, but that improvement nonetheless represented the application of Conservation principles and the movement centered attention upon this and similar wastes, made men more generally conscious of them, and stimulated preventive measures. This stimulus, acting upon the public mind, aided many of the Government bureaus that for years had been combating such waste. The Department of Agriculture has a Bureau of Irrigation Investigations, which has systematically studied irrigation methods in the West and Southwest and has published many valuable reports calling attention to the losses of water in irrigation and suggesting methods for its prevention. The Geological Survey in its series of water-supply papers has repeatedly warned communities of the injuries and economic waste resulting from bad manage-

ment of water supplies. The Reclamation Service, represented in its foundation a branch of Conservation, established and made a practical working idea. Since its foundation it has systematically continued the great work begun by the passage of its organic act in 1902, and is reclaiming, by careful and economic methods, millions of otherwise waste acres in the public land States. It has reached the point where the building of impounding reservoirs and of the canals by which the impounded water is conducted to the lands has been brought to practical completion on many of the projects so that its task is transformed into one of inducing settlement, of inculcating principles of economic irrigation practice in the minds of the farmers; of increasing the duty of water and therefore its usefulness, to the maximum; and of reclaiming through the establishment of drainage systems, lands which have been ruined by over-irrigation under the old systems absorbed by the reclamation projects. This movement is a part of, has aided, and has in turn been aided by the propaganda. It is practical Conservation of a high type.

I should like to diverge here for a moment to a collateral phase of Conservation activity which indirectly bears upon reclamation by irrigation. Our coal land laws provide for the sale of those parts of the public domain underlain by coal deposits at prices of not less than \$10 or \$20 per acre. Prior to 1906, this law was interpreted as evaluating coal lands on the basis of the thickness, quality and depths of individual beds, and basing sale prices upon these values. Through the fruition of this policy, coal lands are no longer sold at the minimum legal price unless they have minimum values. If coals are of sufficiently good quality and exist in sufficient thickness, they may now be sold at \$40, \$50, \$100, \$200, or even \$500 per acre. A recent sale in the Rock Springs district, Wyoming, of one section of land at prices ranging from \$370 to \$410 per acre, netted the Government one quarter of a million dollars more than would have been received under the old policy of sales at minimum prices. This increment of a quarter million goes, like all other receipts from sales of public lands, into the reclamation fund and is there used in the application of water to the arid lands in the West. The Conservation phase of the present coal land policies is thus closely related to the question of waters and their use. The valuation of this natural resource and the sale at valuation prices was one of the collateral movements which stimulated and led to public recognition of the need of Conservation. It is a thoroughly practical application of Conservation principles and is an excellent example of governmental activity in this direction.

In one of the arid valleys of southern California in which irrigated lands bring prices of from \$500 to \$3,000 per acre and in which the limit to the number of acres to which such values are affixed depends wholly upon the quantity of water available, there has of course been earnest

study of every possible means by which this quantity could be increased or made to serve a larger acreage. Here, in 1909, an interesting, practical step in Conservation was taken. Prior to that period water users in this valley who derive an important part of their supply from underground resources which, because of excessive drafts, were becoming depleted, had adopted the unique device of spreading flood waters which would otherwise escape to the sea and be lost, over the rough alluvial lands at the base of the mountain slopes in order that they might there sink and replenish the underground resources. The lands best adapted to this purpose had remained public lands because of their rough and uncultivable character, although adjacent to them were privately owned lands worth many hundreds of dollars per acre. In 1909 a law was passed by which these public lands were set aside for use in the distribution of these flood waters. They are now, and will remain, a permanent public reserve devoted to the conservation of water supplies and the increase of the quantity available for irrigation in a region in which water for this purpose has perhaps a higher value than in any other part of the United States. Here again is an example of practical Conservation work accomplished through the co-operation of private and governmental agencies.

The passage of the so-called Weeks bill in 1911 likewise marks a great advance in the direction of Conservation legislation. This is the bill which provides for the creation of an Appalachian forest reserve by the purchase of privately owned lands in the Appalachian Mountains. Its administration is in the hands of a commission whose active agents are the Forest Service and the Geological Survey, and one of the features of the bill is the clause which provides that the Geological Survey must affirm that the purchase of the lands will favorably affect the navigability of the streams on whose headwaters they lie, before the purchase can be made. Thus the conservation of waters is involved as well as that of the forests and of lands through the prevention of erosion. Those of you who for years advocated such a bill and assisted in its final enactment will agree with me, I believe, in the statement that its passage would not have been possible without the preliminary education of public opinion accomplished by the great pioneer advocates of the Conservation principles.

There is and will continue to be need for revision of the laws under which the administrative officers of the Government work to the end that these officers may administer our public resources more economically, more effectively, with less waste and therefore more thoroughly in the public interest. The enactment of laws does not anticipate the need for their enactment. There must always be widespread recognition of that need before public opinion crystallizes into statute. For, after all, the enactment of a law is nothing more nor less than the recognition on

the part of our lawmakers of a public necessity which you and I as citizens force upon their attention. Until new laws can be secured, the task of the administrative officer is to administer with the greatest efficiency possible those laws that do exist. Under the stimulus of an active public opinion an interpretation may be given old laws which will enable them to fit the newer and changed conditions, for no enactment is absolutely rigid in its terms. An example of this adaptation of a law long upon our statute books to the passing of pioneer conditions in the West and the substitution for them of those changed conditions that result from augmented population, is that of the coal land law to which your attention has been called. The statute has not been altered since its passage in 1873, but coal lands are being sold under it now at prices which are based upon real values instead of at the lowest possible price under the law, as was true prior to 1906.

Under the stimulus of the changed character of public opinion, which has resulted from Conservation agitation, all of our public land laws are being carefully scrutinized to determine whether they do not admit of an interpretation and of an administration that is more in consonance with Conservation principles than the interpretation and administration of the past. Among the statutes thus scrutinized is the Carey Act, a law only less vital to the West than the Reclamation Act. In general it provides that public lands may be transferred by the Federal Government to the State in which they lie if that State will enter into a contract for their irrigation, by the terms of which they will eventually be delivered to bona fide homesteaders in tracts of suitable size. Undoubtedly, there have been instances in the past of careless administration of this law. The Federal Government has considered that its responsibility to the settler had ceased when the lands were turned over to the State in trust to him. The State, in turn, has considered that its responsibility ceased when the contract with the irrigating company was signed, and this company has been left free to deal with its actual and prospective settlers in a fashion that was intended too frequently to bring profits to a promoting company rather than water upon arid lands. It has thus happened that settlers, depending upon the State and through the State upon the Federal Government for protection of their interests, have found when the time came to apply for patents to their lands that although they had paid to a company large sums for water supplies, the water was not delivered, the land could not be reclaimed as the law required, and they were therefore unable to secure patent to it; but the irrigating or promoting company to which their funds had gone had disappeared and was inaccessible under the law. The genuine farmer, who at the sacrifice of hard-earned funds and years of labor was intended to be the beneficiary of this law, became instead its victim. This condition is believed to be past. The Federal Government and many of the States

are now exhibiting a keen recognition of their responsibilities and of scrutinizing with the utmost care the water supply of each proposed project, the practicability of the engineering features of that project, and the financial standing and responsibility of its backers. A recent interesting example of this changed attitude occurred in one of the Western States, which in the past has administered this law carelessly, but I am glad to record is now exhibiting due care in meeting its responsibilities. In this case, literature issued by the promoters came to the attention of the Department of the Interior. In this literature statements were made to prospective buyers as to the available water supply and as to the acreage to which it would be applied that were known from the departmental records to be highly misleading. The attention of the Governor of the State was called to this condition of affairs by an emphatic letter from the Secretary of the Interior. The State in turn called upon the promoting company for an explanation. The representatives of the company hastened to Washington for a hearing. As a result of that hearing, the acreage segregated in the project was promptly reduced, the company was forced to agree to cease its sale of water rights to private lands until the rights of the Government lands to which it was inviting settlers were satisfied, and thus the situation so full of menace to prospective settlers was promptly corrected. Other examples of this type of action which represents closer, more careful administration of old laws might be multiplied. Each of them marks a step in the application of the principles for which the Conservation Congress stands.

If the first use of water by man is in the direct sustenance of life and its second is for the production of food supplies through irrigation, perhaps its third most important use is the development of power for all of those manifold purposes tending toward the amelioration of life and the increase of its comforts, for which power may be used. Cities are lighted; street cars are moved; ores are smelted; manufacturing plants are supplied with their motive power; homes are heated; and water is pumped for irrigation by the use of hydroelectric power. No question has been the subject of more bitter controversy than that of the control of this tremendous resource. It has been energetically sought on the one hand by those who seek opportunities for profit and desire that no control be exercised over those opportunities by the power of the State. On the other hand, public opinion, working largely through its State and Federal representatives, has demanded that this resource whose magnitude can be but rudely estimated, and whose future value but guessed at, be so controlled that communities depending upon it shall not be unduly taxed for the purpose of piling up private profits. Here again, both public opinion and Federal officers have repeatedly urged the enactment of new laws which will make possible the exercise of reasonable control in the public-interests and at the same time properly safeguard capital which

must be invested in order that the resources now wasted may develop and become useful. Bills have been introduced and debated in Congress; conferences have been held with representatives of the public and of capital, but the plans thus far considered have brought no fruition in amended legislation, although some excellent bills are under consideration and it is believed will soon become law. Here again, the task of the administrative officer is to so interpret and apply the laws now upon our statute books, pending the enactment of others more satisfactory, that development may continue and the rights of the public of this generation and the next be at the same time duly safeguarded. Here also there has been progress in the interpretation of law. The responsibility for the administration of the laws for the development of water powers in the national forests lies in the Forest Service where it is admirably exercised in the public interest. The law which provides for the development of powers on the public domain, whether within or without the reserves, is a permissive law, one that authorizes the department having jurisdiction to permit the development of these water powers under general regulations to be fixed by the Secretary. After a thorough study of the situation, the Forest Service on December 28, 1910, issued certain regulations providing for the development of powers under this permissive law, the permit being by the terms of the law itself subject to cancellation at any time and the regulations under it providing for moderate charges upon the developing company. With these regulations in force in the national forests, and no similar procedure provided for on the public lands outside the forests which are under the jurisdiction of the Interior Department, applicants for the privilege of developing water powers which lay in part within and in part without the forest reserves found themselves under two jurisdictions without any provision for uniform procedure. The problem as to the precise amount of control that could be exercised on the Interior Department lands under the act of 1901 has not been solved until recently; but as a result of this final solution, there were approved by Secretary Fisher on the 24th of August, 1912, regulations controlling the issue of permits for power development outside of the national forests that are in substantial accord with those heretofore in force within the forests. These regulations provide for the exercise of the authority of the Secretary in a definite, uniform, and systematic manner that much more fully safeguards the rights of the public than the policy heretofore pursued in relation to public water powers. The situation, therefore, seems to be as well safeguarded as it can be under the present statutes, at least so far as hydroelectric powers on other than navigable streams are concerned, and this end has been accomplished not by new legislation, which we all recognize as badly needed, but by a proper interpretation and acceptance of responsibility under old legislation.

An incidental phase of the effort to administer a law which provides for no definite tenure of lands having power values has been the constantly repeated attempt of interests desiring to acquire valuable water powers to secure them under the irrigation laws, those laws having great advantage from the commercial viewpoint of providing for a grant instead of a revocable permit. Application after application has been filed with the Department of the Interior in which it is stated solemnly that the rights of way are desired for purposes of irrigation, when it is perfectly obvious to the engineering advisers of the Secretary that the power value is the dominant value and that if the waters are used for irrigation at all, it will be merely in order to effect a technical compliance with the law under which they are acquired. Refusal to approve rights of way of this type have been followed by appeals and by emphatic protests on the part of the applicants. These protests take various forms. Among them are attempts to influence public opinion through various congresses similar to this Congress, and other attempts to secure the enactment of special legislation which will grant to the applicant that which he is unable to secure through the administrative officers. In a particularly interesting case of this type recently acted upon by the Department of the Interior, the acting Secretary expressed the present policy of the department in these emphatic terms, which I am sure will appeal to every member of this Congress. He said:

I consider it the imperative duty of every supervisory officer of the Government upon whom any duty devolves to conserve the paramount interests of the people, to protect these natural power sites from exploitation under any law which successfully invoked would turn them over to private interests charged with a perpetual easement against the United States.

One other type of administrative action in connection with the conservation of water resources has recently been inaugurated which may well be brought to the attention of this Congress. This is a new exercise by the President of the power of withdrawal conferred upon him by the so-called withdrawal act, approved June 25, 1910, and amended August 24, 1912. By this action those lands in arid States upon which small water supplies essential to the control of the adjoining range are situated are withheld from entry. Those of you who are acquainted with the range industry of Wyoming, Utah, Arizona, and New Mexico realize that the use and control of the ranges are exercised not so much through the ownership of the range lands themselves as through the ownership of small tracts which include the springs and other watering places that alone make the ranges accessible and of value. Literal war has been waged between rival stock interests in parts of the West over the control of springs. Large interests have frequently forced their rivals to abandon the range in a particular area by acquiring through the application of scrip or by a real or pretended exercise of homestead

rights the lands on which the springs that alone give value to the range are located. Laws have from time to time been considered which will provide properly for the disposition of those remaining parts of the public domain that are chiefly valuable for grazing purposes. It is recognized that the homestead and desert land laws are inappropriate for the acquisition of range lands in that they do not provide for a sufficient acreage to make the stock industry possible. If the time shall come when such a law is placed upon the statute books, and at that time all of the water supplies adjacent to the ranges shall have been acquired by private interests, the Government will be unable to dispose of its range lands even under a favorable law except to those who already control the water supplies which are the key to the situation. Recognizing this important condition and desiring likewise to provide for fair play between rival stock men on the remaining public lands, the President, upon the recommendation of the Secretary of the Interior, has inaugurated the policy of withholding from entry lands upon which these desert watering places exist, and in pursuance of this policy the first desert water hole withdrawal was made in March, 1912.

It will be realized from this brief review that the process of translating the Conservation doctrines into action is well under way. Before and since the First Conservation Congress met, Federal bureaus have advocated practical measures for the proper use of our natural resources, water among them. With the enlightenment of public opinion dating from the organization of the National Commission and the meeting of the Governors the work has been greatly facilitated. It is advancing now not only through the medium of the unorganized effort of individuals, associations, and isolated bureaus and divisions in the public service, but by the organized efforts of an enthusiastic body of supporters. Laws embodying its principles have passed, proposed laws inimical to those principles have been defeated, old laws have been re-examined and reinterpreted to accord more fully with Conservation doctrines in the public interests. Party platforms are no longer complete without a Conservation plank and indeed it may almost be said that a new party has been founded upon the Conservation idea. On the whole the country and this Congress have ample ground for optimism in considering the great advance that has been made.

WILD LIFE PROTECTION.

Report of Standing Committee, Dr. W. T. HORNADAY, New York City, Chairman.

The Committee on Wild Life Protection wishes to call the attention of the Congress to the enormous losses that are being inflicted upon the farming and fruit-growing interests of the United States through the destruction of insect-eating birds. While the main facts of the situation are known to many persons, the mass of the people of the United States

are sound asleep on this subject. The 5,000,000 men and boys who are slaughtering our birds are levying tribute on every American pocketbook. An immense number of birds of great economic value are being slaughtered annually, and many of our most useful and valuable bird species are on the toboggan slide toward extermination. The destruction of our insect-eating birds means a great increase in the armies of destructive insects, a great decrease in our agricultural products, and a great loss to consumers and to farmers. The value of the birds destroyed as "game" and for "food" is declared to be not equal to one-thousandth of the value they would save to the national wealth, if permitted to live.

The committee will distribute a campaign circular containing a table of figures showing the annual losses to the people of the United States by insect pests. Those figures were taken from an official report published in the "Yearbook of the Department of Agriculture." The farmers who grow cereal crops lose about \$200,000,000 per annum. The fruit-growers lose \$27,000,000 per annum. Hay loses \$53,000,000; cotton, \$60,000,000; and truck crops, \$53,000,000.

The committee's circular gives the cost of certain insects per species to the people of the United States. For example, the codling moth and curculio apple pests cost the American people \$8,250,000 a year for spraying operations, and \$12,000,000 per year in annual shrinkage in the apple crop. The chinch bug wheat pest sometimes costs \$20,000,000 per year, and the cotton boll weevil the same amount. The tree insect pests damage trees and timber to a total of \$100,000,000 a year.

Your committee contends that the American people *do not realize* that scores of species of the birds that sportsmen and pot-hunters are regularly allowed to shoot for sport are of *immense value* to agriculture. How many men are there out of every thousand who know that at least thirty species of shore birds feed upon noxious insects, and are immensely valuable to our agricultural industries? The gunners who shoot legally are destroying 154 species of birds that legally are classed as game birds, even in the North.

Very few Americans out of every thousand know the *immense value* of our song birds, swallows, woodpeckers, blackbirds, quail, doves and nighthawks in destroying countless millions of noxious insects.

THE LOGICAL CONCLUSION.

In view of the decrease already accomplished in the general volume of the bird life of America, in view of the enormous losses annually inflicted upon the people of this country by the ravages of insects, and in view of the destruction of wild life that now is furiously proceeding throughout all America, the McLean bill, now before Congress, to provide Federal protection for all migratory birds, becomes the most important wild life measure that ever came before the Congress of the United States in any

form. In view of the annual losses to the wealth of this country that will continue so long as the McLean bill fails to pass, it is impossible for any one to put forth one good reason, unless it be on purely technical grounds, against that measure. By the inexorable logic of the situation, any man who opposes the enactment of a law for the Federal protection of migratory birds becomes by that opposition an enemy to the public welfare. The bills introduced in Congress by Representatives Weeks and Anthony have dragged long enough. They provided for the protection of migratory *game* birds, only. Now it is time to strengthen their proposition, as Senator McLean has done, by providing also for the protection of all the migratory insectivorous birds.

Unless the people of America wish to shut their eyes to their own interests, and pay out millions of dollars annually in the form of increased cost of living, they should arouse from their lethargy and put up to Congress such a demand for the passage of the McLean bill that it will be enacted into law at the next session of Congress. It is Senate Bill No. 6497, and on the Senate calendar it is No. 606. We can not afford to wait until 1914 or 1915; and Congress has full power to act next winter.

How many people in the North know that the negroes and poor whites of the South annually slaughter millions of valuable insect-eating birds for food? Around Avery Island, Louisiana, during the robin season (in January when the berries are ripe), Mr. E. A. McIlhenny says that during ten days or two weeks, at least 10,000 robins are each day slaughtered for the pot. "Every negro man and boy who can raise a gun is after them!"

There are seven States in which the robin is regularly and legally being killed as game! They are Louisiana, Mississippi, Maryland, North Carolina, Tennessee, Virginia and Florida.

There are five States that expressly permit the killing of blackbirds as "game": Louisiana, South Carolina, Tennessee, District of Columbia, Pennsylvania.

Cranes are killed and eaten in Colorado, Nevada, Nebraska, North Dakota and Oklahoma.

In twenty-six States doves are regularly killed as game—much to the loss of the farmers.

The bobwhite quail is a great destroyer of the seeds of noxious weeds. In our fauna he has no equal. And yet this fact is ignored. Throughout the North and most of the South that species is mercilessly shot, and as a result it is fast *becoming extinct*. In New York State it will soon be as extinct as the mastadon, unless given a ten-year close season at once. Its value as a plentiful game bird is gone.

The shore birds are *fast becoming exterminated* by sportsmen and pot-hunters who kill them for food, "according to law." The Eskimo

curlew is totally extinct, and other species are fast going over the same road. Nothing in this world will save this group of birds except a law for the Federal protection of migratory birds, such as the McLean bill, now before Congress. The way the whole group of shore birds is being exterminated is nothing less than a crime. And yet, at least thirty members of this group are of a great value to all of us, because of the great numbers of crop-destroying insects that they annually consume.

THE DUTY OF THE HOUR.

The *only way* in which all these valuable migratory birds can be saved to us is through the strong arm of the National Government, and a Federal law for the protection of *all* migratory birds! Protection of game birds alone will not answer. Too many other birds are being killed for food, especially in the South.

The Wild Life Protection Committee urges all delegates to take home with them the burden that rests on every good citizen regarding the enactment into law of a satisfactory measure for the preservation of the insect-eating birds. If any opposition should arise on account of the feature of the bill which covers the ducks, geese and swans, and other migratory wild fowl, the committee is quite willing that those birds should be stricken out of the bill entirely, in order that the protection of the crop-saving birds may be secured. It is believed that no sensible person can possibly raise any objection to the protection of the insectivorous birds by the passage of the McLean or Weeks bill, in case the water fowl are left out. It is, however, regarded as extremely necessary that the shore birds should be included because of their immense value to agriculture.

In concluding, the committee urges all delegates to take this matter up with your members of Congress, and urge them to vote for, and work for, whatever bill may finally be agreed upon as best calculated to protect the insectivorous birds, and be free from objections regarding its constitutionality. A number of able lawyers have decided that it will be wholly within the spirit and letter of the Constitution of the United States for the Federal Government to protect all insectivorous birds through a law of Congress.

VITAL RESOURCES OF THE NATION.

DR. HENRY STURGIS DRINKER, President of Lehigh University, a Delegate from the State of Pennsylvania, from Lehigh University, and from the American Forestry Association.

What subject is there to which the constant attention of Conservationists, of patriotic men and women, could be better devoted than to the care of the vital resources of the nation—the care of the lives of all our people, not of a selected few, the teaching and the impressing of the

lessons of steady life, of sobriety, of continence, and of due rest and recuperation from the wear and tear of our American life. Surely we have good reason to be proud of the intelligence and activity of our people, formed as they are of the intermingling of many peoples, with a resulting product as a nation that is markedly free from in-breeding and its usually unsatisfactory outcome.

I think it was Mr. Lieber, in the course of his gracious and cordial opening address of welcome to the Congress, who referred to our duty to endeavor to alleviate the condition of the sweat-shop and mine workers, but is there not another and equally great duty of which we are habitually more neglectful? What is our duty, the duty of society, to those self-sacrificing, altruistic men, devoted to public service, men such as Dr. Wallace, Mr. White, Mr. Farquhar, who devote themselves to and ably lead great movements like this Congress for the betterment of conditions among our people—men who are not only captains of industry, but generals in the army of public service, and leaders and exemplars in the pursuit of public duty? What should we, as a body, say to them and to others like them (for, thank God, America owns a great army of good men like them), who uphold the good cause of public service? They become in leading these great movements, in a measure, the custodians of the public welfare, but—"Quis custodiet ipsos custodes"? Who shall watch these very guards, and see that they conserve the intelligence, patriotism and energy, that goes out from them to public welfare, that it may not be prematurely exhausted? Surely we should take measures to have them feel how the Nation values them as a public asset, and how they owe it to their country as well as to their homes to heed and to preach to others the wise words of dear old Mark Twain, who (writing from Naples in 1867) sent us these words, pregnant with the lesson of the higher Conservation :

"We walked up and down one of the most popular streets for some time, enjoying other people's comfort, and wishing we could export some of it to our restless, driving, vitality-consuming marts at home. Just in this one matter lies the main charm of life in Europe—comfort. In America, we hurry—which is well; but when the day's work is done, we go on thinking of losses and gains, we plan for the morrow, we even carry our business cares to bed with us, and toss and worry over them when we ought to be restoring our racked bodies and brains with sleep. We burn up our energies with these excitements, and either die early, or drop into a mean and lean old age, at a time of life which they call a man's prime in Europe. When an acre of ground has produced long and well, we let it lie fallow and rest for a season; we take no man clear across the continent in the same coach he started in—the coach is stabled somewhere on the plains and its heated machinery allowed to cool for a few days; when a razor has seen long service and refuses to hold an edge, the barber lays it aside for a few weeks, and the edge comes back of its own accord. We bestow thoughtful care upon inanimate objects, but none upon ourselves. What a robust people, what a nation of thinkers we might be, if we would only lay ourselves on the shelf occasionally and renew our edges."

As the official call for this Congress stated, we have in previous meetings dealt with four great subjects—our forests, waters, lands, and minerals, but in taking for its theme this year the subject of “Vital Resources,” the Congress is studying the very life of the Nation, is seeking to benefit our people not only by the conservation of our material natural resources, but to do good to them by bringing home the duty of life Conservation in our whole Nation; and what greater task can patriotic men and women devote themselves to than this, and what words can epitomize the sentiment underlying this service better than those in Sophocles’ “Oedipus,” where it is said:

“Methinks, no work so grand
Hath man yet compassed, as with all he can
Of chance or power, to help his fellow-man.”

CONSERVATION OF THE SOIL.

Hon. JAMES J. HILL, of St. Paul, Minn.

Just as all industry depends upon the production and increase of the fruits of the earth, so all other forms of Conservation must be held subordinate to the preservation of the productivity of the soil. To preserve and defend the public health, to see that human beings are brought into the world and kept there under favoring conditions, and to lengthen their term of life will but add to the total of human misery unless they are well fed and housed and clothed. For this, as for the material of all their varied activities, they must come back in the last analysis to the soil. Earth is the mother not only of mankind but of all human industry.

In the years during which the necessity of this most imperative form of Conservation has been the subject of my thought and the theme of most of my public utterances, much has been accomplished. The interest of the public is awake. It is not necessary any longer to urge a Conservation movement, but rather to direct the energy already enlisted in its behalf into wise channels. While the farmer is still subject to some unfavorable legislative discrimination, we know that his prosperity must be made a first object before prosperity can visit others. The progress of the farm is put first in many schemes of public improvement where, a few years ago, it would have been mentioned perfunctorily if at all.

Education in agriculture has made much progress. The number of institutions teaching agriculture increased more than sixty per cent. in nineteen months. They had ten per cent. more students in agriculture in 1910 than in 1909, and more than eight times as many students taking the teachers’ course in agriculture. Colleges and high schools give place to some form of agricultural instruction; and the necessity of fostering soil Conservation is recognized today as never before.

What we need to do at once belongs rather to the practical than to the theoretical side of Conservation. There is little reason to doubt that the farmer of the future should be a highly intelligent man, commanding from his acres crops that are far beyond those of today in their abundance. But the present generation may and should do far better for itself, in its own time, while it is also preparing the way for the more careful and productive agriculture which should follow.

I use intentionally the words "careful" and "productive" instead of the word "scientific," as applied to soil treatment and crop raising, because they express the simple and easy processes within the reach of men of the present generation as well as the new; because they avoid a misleading implication that attaches to the word "scientific." It is true that the best methods of soil treatment and crop growing are scientific; but they require only that form of popular science which is within the comprehension and use of every farmer.

The essentials of soil Conservation have been known for centuries. They were practiced in Babylonia, just as irrigation was resorted to there on a splendid scale. They have been the property of the Chinese for four thousand years, and maintained there a dense population in spite of croppings so frequent and severe that it would seem impossible for any soil to stand such treatment without exhaustion. The latest bulletin of the best agricultural institution is scarcely more instructive or helpful than a study of the "forty centuries of agriculture" included in the experience of these skilled and laborious people of the Orient.

The soil is a living thing, and must receive the treatment due to all organic and vital beings from which we expect service or tribute. The first requisite is that the individual man learn with what manner of soil he is dealing. There is now an agricultural college or experiment station within the reach of every farmer in the country. Some are and all should be equipped for a scientific analysis of all soils submitted to them. From this the cultivator may learn the first two things indispensable to any intelligent conduct of his industry: First, to what crops his land is best adapted; second, what elements of fertility have been drawn from it so lavishly that they need to be restored. This information having been given by competent authority, every farmer may do all the rest for himself.

There is no secret and no mystery about the processes involved. If farmers will rotate their crops, fertilize plentifully and intelligently, keep live stock to diversify their industry, refresh the land and utilize waste products, and cultivate thoroughly and frequently, the problem of soil Conservation is solved. The earth has been kept as productive for thousands of years as it was when it produced its first crop of cultivated cereals wherever these few and simple conditions have been observed. If seed is carefully selected, after a test for germination, and the practices

mentioned are followed, there is no reason why the yield per acre of the principal crops of the United States should not equal those of England, Germany or many other countries which produce twice as much as we do with far inferior natural advantages.

Dr. Knapp, of the Department of Agriculture, said: "It has been found that the best seed bed added 100 per cent. to the average crop on similar lands, with an average preparation; planting the best seed made a gain of 50 per cent.; and shallow, frequent cultivation was equal to another 50 per cent., making a total gain of 200 per cent., or a crop three times the average. With better teams and implements, this crop is made at less cost per acre." A bulletin of the Bureau of Plant Industry, at Washington, says: "It is possible within a few years to double the average production of corn per acre in the United States, and to accomplish it without any increase in work or expense." It declares that twice twenty-six bushels, which is about what we now get, is a fair crop where these conditions are observed, three times twenty-six bushels a good crop and four times twenty-six bushels frequently produced. A similar increase in other farm growths is just as possible.

In a high sense this is conservation of the soil, because it shows the way to make one acre do the work of two or three or four. It is conservation of the soil in a still better sense, because the land, when so intelligently and considerably treated, instead of "wearing out," not only maintains its productive power indefinitely but actually increases in fertility and value. These are facts which all history attests. They are facts which the most recent scientific research supports. The work before the promoters of the Conservation movement today is one not of discovery but of education. It is to assist in bringing home the truth to the minds and embodying it in the daily practice of the present farm population of the United States.

This tremendous task can be accomplished only by local demonstration and the force of practical example. Small model farms should be operated, preferably consisting of a few acres selected from ordinary neighborhood farms and treated intelligently, in every State, county and township. We have made a beginning of this work in the Northwest; and the results, though not yet completely enough ascertained for tabulation until the tale of threshing and marketing is ended, are as amazing as they are encouraging. Some of the States are providing for traveling instructors and supervisors in agriculture, following the policy successfully adopted in the most enlightened countries of Europe, thus raising the level of agricultural practice and educating the millions who are beyond the reach of the institutions where formal instruction is given to the young. It is imperative that we reach the older people, and the large percentage of the children of the farm who never get beyond the district school, if we are in earnest in the work we have undertaken.

To this practical side of soil Conservation this Congress should give its hearty approval. It should urge upon the people of every community the adoption of the demonstration tract and the local instructor, with as much earnestness as it has championed the saving of forests and the reclamation of arid lands. Ten per cent. of the money now expended in formal instruction in the institutions where agriculture is taught, or supposed to be taught, would put every farmer in touch with the man who could and should help him in the treatment of his land as readily and surely as the doctor helps his family when they are sick. It would be more than repaid every year in the value of the crop increase. It would be repaid over again in the healing of sick soils, the renovation of old lands, the preservation undiminished in every acre of our arable area of those elements of fertility without which plant life languishes, and the wilderness and the desert in a few generations sweep away the traces of man's unworthy occupation. It is well worth the hearty and undivided support of public-spirited men. For without just such Conservation the time will come when our country will be unable to support its own people; the diminishing percentage of its population engaged in tilling the land will still further decline; and it will scarcely be worth while to consider how best human life may be prolonged and made sturdier and wholesomer physically by vital Conservation, because it will lack the sustenance that it can no longer draw in sufficient quantity and quality from nature's withered breasts.

WAR, THE POLICY OF WASTE—PEACE, THE POLICY OF CONSERVATION.

Mrs. ELMER BLACK, New York City.

In advancing some arguments bearing on that broad assertion permit me at the outset to express my satisfaction that the questions this Congress has set itself to consider have come to be recognized as among the most urgent of all the world's humanitarian problems. For the peace movement and the Conservation movement are as closely interrelated as, in the pacifist view, the interests of the entire human race are mutual and not antagonistic. The advance of your program is the advance of ours; both are essential to the progress of mankind.

I do not suppose any one will cavil at my plea that when we talk of natural resources we must not merely include inanimate things—timber, minerals, lands, oil and waters—but the brain and sinews of the people as well.

An observant traveler in the United States, asked recently what he considered the greatest asset of the American nation, replied: "The American nation itself, with its self-reliance, ingenuity, the blended genius resulting from race fusion, and the boundless belief in its ability

to reach any goal it sets out to attain." With that contention in mind, I would at once emphasize the fact that neither the material resources of the world nor these higher resources of human equipment can be utilized or developed to their full complement till the profligate policy of international strife is purged from the activities of mankind.

I venture to assert that no war can be waged today that can be justified ethically or economically. With the bringing together of the civilizations of the world, the development ever closer of the bonds of communication, and the institution of the International Court of Arbitration, the last excuse of the war makers has disappeared. No nation today need go to war if the cause it advocates is just. When the plea of "questions of national honor" is advanced it will usually be found that the case behind the plea is so faulty as to entail risk if presented to the judgment of an impartial tribunal, or that there is the secret reason of a desire for aggression in order that some other nation may be robbed of territory.

But assuming for the sake of argument that this latter case can be justified on the ground of imperial advancement and the "survival of the fittest"—a conclusion I do not in reality concede—I still contend that war is a ghastly blunder, inevitably inflicting such loss to the treasuries alike of victor and vanquished that both are laden with debts so great that generations yet unborn are foredoomed to carry an unnatural charge.

It requires no casuist to demonstrate that such a policy is detrimental to human progress and diametrically opposed to thrifty administration. If we think for a moment of what might be accomplished if the war expenditures of nations were devoted to the proper development of the world's bountiful stores of wealth, the advancement of health and science and the promotion of communal betterment, the imagination reels at the vista of progress that is opened up.

Let us take a few comparisons. The Panama Canal, uniting two oceans and bringing into closer contact the peoples of East and West, is being constructed at a cost of \$400,000,000. Against that accomplishment set down the blood and treasure poured out in reckless waste in the Crimean, South African and the Russo-Japanese wars. On the one hand we have a constructive policy in which the nation's toil and money is conserved and invested so as to operate at compound interest for the benefit not only of American citizens but also of the whole human race. On the other hand, there is a destructive and prodigal policy that has disappointed in after days even those most closely concerned with the crimson fruits of victory.

Speaking of the Crimean War, Lord Salisbury, the late Premier of England, said in his cynical way, "We put our money on the wrong horse."

The South African War cost no less than \$1,331,655,000 and added no less than \$795,880,000 to the national debt of England. The flower of British manhood perished on the veldt that the Dutchmen of the Transvaal might be forever relegated to the strata of the subjugated. Yet today, a few short years after that deadly struggle, South Africa is united; the Dutch are enjoying self-government, and, in fact, are politically in the ascendant over their nominal rulers.

Russia lost her entire fleet, wrecked her army and set the forces of internal discontent seething once more within her boundaries. Japan, the nominal victor, so poured forth her wealth that even her amazing vitality is shackled by the bonds of financial stringency. Today both are suffering from the gigantic, blundering conflict—and in the end are compelled peacefully to agree to recognize their respective interests in Northern Asia.

England's naval expenditure amounts to nearly \$250,000,000 a year, and every ten years great costly Dreadnoughts are thrown on the scrap heap—a total waste. Now England has spent on irrigation in India \$150,000,000, and I would ask your attention to the fact that this expenditure has not only brought health and prosperity to hundreds of thousands, reduced the dangers of famine and made the desert blossom as the rose, but there is a profit on the capital invested of six and three-quarters per cent.

Taking that as a specimen of contrasts, one is amazed at the mental spectacle of the immense strides that could be made in the world's prosperity if the expenditure on war and preparations for war was devoted to the Conservation and development of natural resources. The armed peace in Europe in thirty-seven years has cost \$150,000,000,000. Yet there are resources waiting to be developed for the benefit of the struggling millions who are crushed beneath the iron heel of Mars; there are reeking human rookeries in the cities of Europe that are a menace to the human race; there are schemes for waterways that would open up wealth practically untapped, to the end that productive machinery might be set in motion for the continual benefit of nations yet to come.

When a Dreadnought fires a single shot from its big guns as much money is dispersed into the air as would pay a workman's wages for three years or secure a clever student's college course for a full twelve months. For every cruiser scrapped in naval frenzy a fully staffed scientific laboratory could be run for years in conflict against man's mortal enemies, the disease bearing bacilli. For years the inventive faculties of the world have been turned to the production of implements of death and destruction. In a saner age of Conservation and peace this concentrated genius will be focused on the preservation of life, the clothing of the desert with verdure, the elimination of space, the improvement of communications,

the harnessing of natural forces to the service of man that even today are seen but as through a glass, darkly.

The world is spending every year eight billion dollars on militarism. The expenditure of that ocean of treasure leads nowhere but to the slippery slope of bankruptcy. It creates nothing by which future generations will benefit or of which any but the superficial can be proud. It robs the treasury of the busy bees of commerce and industry and withdraws from active participation in constructive affairs seventeen million men, the strongest and best types, whose brain and muscle should be used for the advancement of their kind. Women, in consequence, as in Germany, have often to undertake work for which nature did not equip them, and so a double wrong is wrought upon the human race.

If the interest only on the money spent on militarism were used on education, 32,000,000 more students would be accommodated at college every year; or the housing problem of every land could be solved as if by a magic wand, to the immeasurable conservation of human health and vigor.

During the South African War the "Investors' Review" of London said: "In one short eighteen months the war party now sitting on our necks has dissipated more money than the working class managed to accumulate out of their wages during the whole sixty-four years of the reign of Queen Victoria."

Chancellor Lloyd-George, as recently as the last budget, said in the House of Commons that the money spent on building Dreadnoughts in England in one year would add a dollar a week to the income of every workingman's family in Europe.

The United States, though not yet in the same parlous plight as the European nations, is heading in that direction, and devotes the enormous proportion of seventy per cent. of its national expenditure to preparations for war. That is to say, every year we waste more than would construct an epoch-making Panama Canal.

Were it possible immediately to reconstruct the scheme of things so that reason ruled, there would be no need to cry aloud for the development of the barren lands of our continent. Waterways would be extended, irrigation works would carry the life-giving fluid to arid areas that need but that to release their dormant fertility, herbage and fruit would spring from regions now productive of only scrub and cacti, and the reforestation of natural timber land would cause the birth of new resources formerly despoiled by the ignorance and greed of man.

But, some may say, surely these shipyards, barracks, Dreadnoughts, and war equipment circulate money and employ millions of men. That, I contend, is a common fallacy a little thought will dissipate. Money being but the tool used in the purchase of labor or the product of labor, is

in itself of no account. But the building of a Dreadnought to fire away the product of labor in thin air is to bring all that has gone to prepare for that achievement to nought. The chain of production is broken; henceforth mankind is so much the worse off for that loss of money, labor and its products. But in the true conservation of resources, the labor and its products employed in peaceful and constructive enterprises achieve benefits that flow on continuously in an ever-widening stream, till the entire humanity is made to feel the blending of each man's labor in the commonweal.

Brain, sinew, time, energy and material resources are being thrown into the melting pot of war, yet but for that very war the evolution of the human race would be eons further on.

Every time a war scare sends the exchanges of the world's capitals into panic, deadly injury is done to the commerce of the entire globe. Ruin has not to wait for the actual outbreak of hostilities. The wolf of war has but to bare his fangs in menace to cause a premonitory slump to spread devastation through the ranks of the investors. Yet instead of meeting, as the delegates of this Congress are meeting, to debate the best methods of insuring national and international thrift, in statesmanlike preparation for the future needs of the human race, many powerful minds are spending their time devising nightmares with which to scare humanity into ruinous expenditure.

I venture to predict that in the future it will be found that the chief instrument of Conservation has been established already in the arbitration court at The Hague, and generations yet to come will say of its founders, "They builded better than they knew."

Meanwhile the omens are favorable for the causes of peace and Conservation. The object lessons are there for all the world to see. I have mentioned the Panama Canal in the Western Hemisphere as an instance of constructive Conservation. The Eastern Hemisphere also has its encouragement. Right in the reputed cradle of the human race some of the world's most brilliant engineers are executing works that will unchain rivers and cleave through mountains to the end that on Mesopotamia's broad lands the Garden of Eden shall be re-established.

I rejoice to know that this movement towards Conservation nowhere has attained greater volume than in our own land; for with our advantages it seems to me that we are specially equipped for the ennobling task of removing obstacles from the path along which our race must tread in the accomplishment of its high destiny.

THE CONSERVATION OF NAVIGABLE STREAMS.

Mr. JACOB P. DUNN, Indianapolis.

The objects of the conservation of natural resources divide naturally into two classes. The first relates to the development of lands in private ownership, such as the encouragement of forestation and renewing the fertility of the soil, in which the interest of the State is the indirect one of increasing the supply, or cheapening the cost of products that are of material benefit to the entire community. The second relates to the preservation and utilization of public property, such as forest lands and mineral resources, in which the State has the direct interest of securing special revenues, whereby the burdens of taxation may be reduced, and of promoting the public welfare by furnishing facilities for commerce and industry. To this second class belongs the conservation of navigable streams, and this subject has already been brought prominently before the public by the discussion of proposals for improvement of the navigation of the Mississippi River and its tributaries. But this Mississippi project has a vastly greater significance than the general public has fully considered; for it means that hundreds of streams that are now navigated only in a small way, or not navigated at all, will later be made navigable in a practical and useful way.

Moreover, this subject is of special importance to the great region formerly included in the territory northwest of the Ohio River, including the present States of Ohio, Indiana, Illinois, Michigan and Wisconsin, because the Ordinance of 1787, by which that territory was created, expressly provided that: "The navigable waters leading into the Mississippi and St. Lawrence, and the carrying places between the same, shall be common highways, and forever free, as well to the inhabitants of the said territory as to the citizens of the United States, and those of any other States that may be admitted into the confederacy, without any tax, duty, or impost therefor."

These words show that the word "navigable" was not then used in its present common acceptation. When we speak of a navigable stream we commonly mean one that can be navigated by steamboats, but there were no steamboats in 1787, and all of the commercial navigation of this region at that time was by means of canoes and the small vessels known as bateaux and pirogues. That this navigation was what was intended is conclusively shown by the reservation of "the carrying places," i. e., the stretches of watershed between the headwaters of the streams of the two drainage systems over which both the boats and their loads were transported bodily. This meaning has usually been adhered to by the courts (2 Mich. 219; 19 Oregon, 375; 33 W. Virginia 13; 20 Barbour, N. Y., 9; 14 Ky., 521; 87 Wis. 134), and the general rule is that any stream that will carry commerce, even by floating logs, is a navigable stream. (51 Illinois, 266; 42 Wis. 203.)

The United States Government followed out this theory consistently. By the act of Congress of 1796, for the survey and sale of the public lands of this region, it was expressly declared that "all navigable streams within the territory to be disposed of by virtue of this act shall be deemed to be and remain public highways." As such their beds were always excluded from the lands surveyed and sold. The government surveyors did not include any of the larger streams in their surveys, but "meandered" them, and when the land was sold, it was sold in fractional sections, running to the meander lines. The beds of the streams and the land bordering them was thus reserved as public property, and when the several States were formed and admitted to the Union, the title was transferred to them from the general government. It is of course to be remembered that Congress has ultimate power over navigable streams, but it is well established law that a State has plenary power over navigable streams that are entirely within its borders, at least until Congress acts.

The acceptance of this provision as to navigable streams was made a prerequisite to the admission of Indiana to the Union by the enabling act of 1816. It was formerly accepted by ordinance of the constitutional convention of Indiana in 1816. And yet Indiana stands today in the unique position of being the only State in the Northwest in which the public rights thus established have been nullified, or at least clouded, by an absurd decision of the Supreme Court of the State, made in 1876. (54 Ind. 471.) Inasmuch as this case deals with White River in Marion County, and as this stream at this point furnishes a typical illustration of the whole subject, I will call your attention to it in detail.

Prior to this decision, every department of the government of Indiana fully recognized the binding force of this compact with the United States, and accepted as conclusive the United States surveys in the determination of what streams were navigable under that compact. The bed of White River in Marion County was not included in these surveys, and it was never sold by the United States or by the State. The Legislature of Indiana always recognized this rule, and always applied it to White River in Marion County." The act of January 17, 1820, declared White River navigable as high as "the Delaware towns," meaning presumably to Muncie, and made it and the other streams named "public highways," making it a penal offense to obstruct "any stream declared navigable by this act," except only that mill-dams might be erected under certain conditions, by persons who had "purchased from the United States the bed of any stream by this act declared navigable." This law was never repealed, but was modified by the act of February 10, 1831, which declared White River navigable as high as Yorktown in Delaware County. This last law is notable as recognizing that a stream need not be navigable at all seasons, for it prohibited any obstruction that would "injure

or impede the navigation of any stream, reserved by the ordinance of Congress of 1787 as a public highway, at a stage of water when it would otherwise be navigable.”

Indianapolis was located on this stream because it was navigable for the water-craft then in use. The Legislature of 1825, on petition from the people of Indianapolis, made Alexander Ralston a commissioner to survey the stream, and report on the probable expense of keeping it free from obstruction. He made the survey that summer, and reported the distance from Sample's Mills, in Randolph County, to Indianapolis, 130 miles; from here to the forks, 285 miles; from there to the Wabash, 40 miles, and that for this distance of 455 miles the stream could be made navigable for three months in the year by an expenditure of \$1,500. He found two falls or rapids, one of eighteen inches, eight miles above Martinsville, and one of nine feet in about one hundred yards, ten miles above the forks.

On this report, the Legislature on January 21, 1826, passed a law to improve the navigation of White River as high as Sample's Mills, in Randolph County, directing that all persons liable for road work living within two miles of the stream, in the counties bordering on the stream, be called out to improve the stream as a highway. This law was made general by the act of May 31, 1852, which empowered county boards to declare streams navigable, and to work them as highways; and this act is still continued in force by the act of April 15, 1905. (Burns' Stats., Sec. 7672.)

The act of January 28, 1828, appropriated \$1,000 for improving the navigation of White River as high as Anderson, in Madison County. The act of January 23, 1829, "relative to navigable streams declared highways by the ordinance of Congress of 1787," prohibited any obstruction of any stream or river "which is navigable, and the bed or channel of which has not been surveyed or sold as land by the United States." So the law of 1852 made it a penal offense to obstruct "any navigable stream, the bed or channel whereof may not have been surveyed or sold by the United States." (Rev. Stats. 1852, Vol. 2, p. 432.) This is continued in force, in the same language, by the act of April 15, 1905. (Burns' Stat., Sec. 2650.)

The executive department never questioned the correctness of this rule, and some of the Governors took a great deal of interest in the matter. After the general introduction of steamboat navigation, Governor Noble was ambitious to add that to the ordinary commerce by flatboats and keel boats, and in 1828 he offered a reward of \$200 to the first captain who would bring a steamboat to this point, and also to sell his cargo free of charge. In pursuance of this a small steamboat from Cincinnati was actually brought up the river to Indianapolis in 1831. The early courts also recognized the rule that the survey and sale of the

bed of a stream was the conclusive test of its navigability, under the law. (3 Blackf. 193.) The State asserted actual ownership of the bed of the stream in this county, and for years maintained an agent at the Washington street crossing to sell sand and gravel from it on the State's account.

In the face of all this, when the question came before the Supreme Court, in 1876, the court, by Judge Perkins, without any real examination of the law or the facts, said: "The court knows judicially, as a matter of fact, that White River, in Marion County, is neither a navigated nor a navigable stream"; and as to the bed not being surveyed or sold he said: "The idea that the power was given to a surveyor, or his deputy, upon casual observation, to determine the question of the navigability of rivers, and thereby conclude vast public and private rights, is an absurdity." On this assumption he proceeded to wipe the "vast public rights" out of existence. A little examination would have shown him that the surveys were not irresponsible acts of the surveyors, but official acts in pursuance of law, under the direction of superior officers, and confirmed and ratified not only by those superiors, but by the United States and the State of Indiana. (54 Ind. 471.)

The court abandoned the reasoning of this case two years later, when it held that the Wabash River, in Warren County, was "a navigable stream, the bed of which has neither been surveyed nor sold." (64 Ind. 162.) But it cited the decision of 1876 as authoritative in another case in 1900 (155 Ind. 477), and this again without any examination of the law or the facts. It is worthy of note that the United States Government has uniformly declined to recognize this decision as law, and as late as 1899 refused to be bound by it. (Indianapolis News, November 7, 1899.)

Fortunately, opportunity has arisen for a reconsideration of this question in a case arising in the Kankakee swamp lands (State vs. Tucs-bury Land Co., Starke Circuit Court). In the northern end of Indiana, particularly near the Kankakee River, there was a large amount of swamp land which was not included in the United States surveys nor sold by the United States. This was transferred to the State many years ago, and part of it was reclaimed and sold by the State. In 1891 reclamation was entered on a large scale by removing the ledge of rock at Momence, Illinois, which dammed the Kankakee, and caused most of those swamps. As soon as these lands were drained, adjacent owners set up claims to the thread of the stream as riparian owners, and a judgment was obtained in the Starke Circuit Court upholding such claims. If valid this means that the great expense to which the State has gone in reclaiming the lands is money thrown away.

As soon as he learned of it, Governor Marshall, who is very practical in his statesmanship, directed the Attorney-General to take steps to secure a reversal of the judgment or appeal it, and a new trial has been

secured in the case, which is to be heard shortly. The Kankakee is one of the most noted of the streams referred to in the Ordinance of 1787 as "navigable waters," which are reserved forever as "public highways," and there should be no riparian rights in it.

There is certainly good reason to expect a reversal of the Indiana decision, if not by our Supreme Court, by the Supreme Court of the United States, for two special reasons: (1) The question of the navigability of a stream is not primarily a judicial question, but one of public policy to be determined by the legislative department, and both Congress and our State Legislature have consistent records for the navigability of these streams. (2) In this case the navigability is a matter of solemn compact between the State and the United States; and as the constitutions of both prohibit any law impairing the obligation of a contract, it is hardly to be assumed that the courts would undertake to annul a contract of this character.

Unquestionably White River, like most of the other streams of Indiana, is not as practically navigable today as it was eighty years ago, and for two very simple reasons. First, at that time the only timber that got into the river was trees on the bank that were thrown in by the banks caving, and these were usually held to the banks by their roots. But after settlement began every freshet carried quantities of logs, rails and boards down the river, to form drifts; and these in turn caused the formation of sand and gravel bars. Second, when the land was cleared and cultivated, the ground washed much more readily than it did before, and much greater quantities of sand and gravel were carried into the river to form bars. These bars constitute the chief obstruction to practical navigation now.

But by a change in recent conditions of life, these bars furnish the means for making the river practically navigable. Within the last two decades there has grown up a special demand for this sand and gravel; and especially has this demand been increased by the call for good roads; for washed gravel is one of the best materials available for road-making, and by these streams, nature has distributed it very widely over the State. This demand has developed the industry of removing sand and gravel from the river beds by means of suction pumps, and since 1897, when it began, this industry has reached proportions that are not generally known to the public. At Indianapolis there have been six steam pumps working for several years. They are mounted on scow boats, fifty to sixty-five feet in length, and twenty to twenty-five feet in width, and by centrifugal suction power, draw up a mixture of sand, gravel and water through eight-inch pipes. The pipe entrance is screened to prevent the entrance of stones over four or five inches in diameter, in order to avoid clogging the pipe.

These six pumps take out 180,000 cubic yards of sand and gravel in

a year, at a cost of 20 to 25 cents a cubic yard. The material is separated by passing over screens into two grades of sand and two of gravel, and is sold at a good profit for street improvement, roofing, asphalt mixture, concrete, mortar and locomotive sand. Formerly Lake Michigan sand was shipped here in considerable quantities, but now the demand is fully met by this local industry. The pumps take out the material for a depth of about fifteen feet, and in the course of their work they have made about three miles of Indianapolis river front practically navigable for any kind of river craft. The boats can easily be run to any point on the river and used for removing bars at any place. At present the proprietors of the boats are paying the adjacent landowners for the privilege of taking out material that rightfully belongs to the State, and of which the public ought to have the benefit.

The practical situation is this: Indiana has an almost inexhaustible supply of the best and cheapest road material known, which rightfully belongs to the State. By using this material it will make actually navigable hundreds of miles of waterways that are now of no use in commerce. It is quite common for the unthinking to joke about the absurdity of making small streams navigable, but there is nothing absurd about it. Over half a century ago Indiana constructed 453 miles of canal, at an average cost of \$15,000 a mile, which has since been practically abandoned, not as is generally supposed, because of the competition of rail roads, but because it was high line canal, and was built up, in part, instead of being dug out, and without proper precaution for making it water-tight. The State was not alone in its experience. There are in the United States over 1,950 miles of abandoned high-line canal, that cost over \$44,000,000. But there are also plenty of low-line canals in practical and profitable operation.

The mistake that was made in Indiana was in not utilizing the natural water-courses. At an expense of less than \$15,000 per mile, White River can easily be made navigable for steamboats from Indianapolis to its mouth, where there is actual steamboat navigation now. The fall in the river is only 269 feet in the 285 miles, or less than a foot to the mile. The tested flow of White River at this point is over 1,000 cubic feet per second. With not to exceed half a dozen dams, and the principal bars pumped out and put into roads, the thing is accomplished. Not only is there nothing impracticable about it, but it is as certain to be done, in the not distant future, as it is that the sun will rise tomorrow morning. The advantages of water communication with the great coal and building stone region of the State, as well as direct connection with the Wabash, Ohio and Mississippi Rivers, is too obvious for discussion. With our Supreme Court decisions put on a rational and just basis, there is nothing to prevent a speedy accomplishment of the work.

REPORT FROM THE NATIONAL FERTILIZER ASSOCIATION.

Presented by MR. JOHN D. TOLL, Secretary of the Educational Bureau of the National Fertilizer Association, and MR. CHARLES S. RAUH, of Indianapolis, Official Delegates to the Fourth National Conservation Congress.

In the last analysis man must have food. The law of supply and demand becomes operative the minute that a nation is born. Scarcity of food produces abnormal prices. As scarcity increases, the prices become almost prohibitive. The attention of every citizen of this country has been called to the rapid increase in the cost of food products during the last decade. This increase has been due to several causes, among which we may note the following: (1) Increase of population has exceeded the increase in production of foodstuffs; (2) scarcity of new lands to be developed to meet the needs of a growing population; (3) decrease in productivity of some of the formerly productive soils of this country.

Other causes have undoubtedly contributed to this situation, but the one pertinent to the present discussion is that of decreasing soil fertility as it is related to the production of crops. The production of crops depends (1) upon the fertility of the soil; (2) climatic conditions; (3) quality of seed used; and (4) the culture and care given to the crop. Three of these governing factors are under the control of the farmer. Therefore, inasmuch as they are under his control, so also is the supply of food under his control to an equal degree.

According to the latest available statistics, out of 1,755,132,800 acres in the United States, there are 383,891,682 acres of improved land. A considerable amount of this land is being used for the production of crops of various kinds. These crops in 1911 totaled the enormous production of \$5,504,000,000.

The plant food consisting of nitrogen, phosphoric acid and potash which these crops take from the soil is not all returned to the land, and, as a result, we have a yearly drain upon the fertility account of our soils.

The loss of all three essential elements of plant food is being partly met by the wise Conservation and use of barn manure.

The loss of nitrogen in this depletion is also being partly met by the growing of legumes which have the power of taking nitrogen from the air and fixing it in the soil where it is available as plant food.

If any one of these elements is lacking, crop production suffers a decrease in quantity and a deterioration in quality, to wit: If phosphoric acid is the lacking element in soil, the production of ear corn may be large in quantity but the ears are soft and immature, consequently are inferior for stock food or for human food. In the same way a scarcity of phosphoric acid decreases the yield of wheat and causes an inferiority in its quality.

The lack of nitrogen and potash has equally disastrous effects on the production of the crop. It is, therefore, not only a supply of plant food that is necessary, but the balancing of it in order that our soil may produce a maximum crop of best quality. The fertilizer industry is an industry engaged entirely in the supply of these plant food elements. It is, therefore, a direct contributor to the maintenance of the human race, in that it deals in the elements of plant food.

Not only since its inception in 1840 has this industry contributed to the supply of plant food, which in the end means human food, but it has noted the wasteful methods of agriculture being practiced, unconsciously frequent, in many parts of this country, and it has put forth continuous efforts along the lines of educating the American farmer to grow larger yields of better crops, to maintain and increase the fertility of the soil, and increase the average yield per acre.

The fertilizer industry has, through its national association, within the past two years established several movements, the great purpose of which is to assist in the dissemination of knowledge of modern methods of agriculture.

Another line of effort wherein the fertilizer industry has been a direct contributor to the conservation of vital resources is in its great manufacturing plants. To produce the phosphoric acid which is supplied in fertilizers, the industry obtains the barren phosphatic rock from Tennessee, Carolinas, Florida, etc., grinds this material and treats it chemically so as to make the phosphoric acid available. By this means, it supplies to the great crop producing States of this country the element of plant food, which, to a large extent, determines the maturity and quality of crop production.

The industry also takes the waste material of the packing houses, such as bone, offal, blood, etc., dries and grinds it and produces an ingredient of fertilizers which was formerly thrown away. This packing house material supplies nitrogen and phosphoric acid.

Furthermore, the garbage of the cities and towns of this country is collected and reduced to the form of fertilizer ingredient, where it formerly was burned or otherwise destroyed.

Not only is all this done, but the former waste products of the cotton and tobacco industry are similarly reduced to a form of plant food to be mixed with other materials and returned to the soil.

Still further, besides gathering up the waste and otherwise barren products of the country, the industry has developed processes whereby the gases from gas and coke manufacture are collected and reduced to sulphate of ammonia in which form it constitutes one of the nitrogenous ingredients in fertilizers. This ammonia sulphate is used as an ingredient in fertilizers supplying nitrogen.

Of late years the industry has gone even further than this, in that a process has been discovered whereby the nitrogen of the air is harnessed, and the product reduced to such forms that it supplies available nitrogen for plant food.

In assembling and preparing these essential elements of plant food, the industry, as we have pointed out, not only prepares material to return to the soil to supply the elements which have been taken out of it, but it actually provides in deficient soils elements in which they may be deficient, and by so doing makes more productive lands which, on account of their balanced plant food, could not produce paying results before being treated.

The State of Georgia in 1911 spent over twenty million dollars for fertilizers, with the result that they raised more and better cotton than was ever raised in this State before. The State of Maine in the same year used 150,000 tons of fertilizers on their potato fields, with the result that their good potato growers produced from two to four hundred bushels of potatoes per acre. The total State productions exceed 25,000,000 bushels.

The fertilizer industry, we believe, occupies a most prominent part in the problem of producing sustenance for future generations and in conserving the vital resources of the world, inasmuch as it is making a close study of and doing a wonderful work in devising means whereby practically all of the former waste materials of this country may be reduced to available plant food and returned to the soil from which they were taken.

Summarizing, the fertilizer industry, as we have pointed out, is an important factor in the maintenance of the human race, of this and other continents, in that (1) it supplies plant food to balance up the plant food in the soil and to make up the deficiencies which have occurred as a result of continuous cropping; (2) assists in educating the farmers to conserve the fertility of their soils by employing scientific methods of farming; (3) it makes use of waste products of other industries which have formerly been destroyed, and returns them to the soil in the form for food for future crops.

The fertilizer industry, therefore, must be recognized as one of the greatest agencies of conservation of vital resources.

*DR. W J MCGEE: AN APPRECIATION OF HIS SERVICES
FOR CONSERVATION.*

MR. W. C. MENDENHALL, Washington, D. C.

Dr. W J McGee had mastered and advocated the fundamental principles of Conservation long before the majority of those now most active in the movement had come to appreciate the real meaning of the word. He was one of the founders of this movement, was at all times one of

the most stimulating thinkers in its councils, and in him Mr. Pinchot found one of his most loyal supporters and friends. Doctor McGee was the personification of strength and steadfastness in the pioneer period of Conservation, when the meaning of the word was unknown to the multitude, and when the mere suggestion that our natural resources are not inexhaustible but may be depleted to the vanishing point by wasteful use was regarded as a wild heresy. During the preceding sessions of this Congress he was its accepted authority on problems involving that most widespread and universally distributed of our natural resources—water. He has dealt with this resource from the points of view of transportation, of irrigation, and of power, and from the standpoint of biology in which it is recognized as fundamental in all life.

Doctor McGee's mind was of the type of the intellectual pioneer, intensely individual and original. He was masterful in the alignment of facts and stimulating in the recognition and boldness of his expression of the generalizations and far-reaching conclusions to which his marshalled facts pointed. Like most men of brilliant imagination, he was at times impatient of the slow processes of research, or let us say rather that his impatience was with that timidity in reaching conclusions so often displayed by those engaged in research, rather than with the process itself. He believed that the scientist's practical rule of life should be the acceptance, as a basis of action, of the conclusions indicated by such facts as are known, even though those conclusions may not at present be definitely established.

Doctor McGee's death at the Cosmos Club on September 4, 1912, removed from the domain of science and from the forum of public discussion one of its leading personalities. His career embraced an unusually wide range of activities and in each of these he attained distinction. As a geologist he was one of the group assembled by Major Powell during the formative period of the United States Geological Survey, a group which made American geology classic and its leaders world-leaders in their science. In this field McGee's name is associated with the names of Powell, Dutton, Gilbert, Holmes, Emmons, and Hague. Later, with the establishment of the Bureau of Ethnology, into which he followed Major Powell, he became a pioneer in ethnological research, although retaining continually his interest in geologic and geographic problems. At the time of his death and for a few years prior thereto he was the erosion and hydrologic expert of the Department of Agriculture, his immediate connection with that department being through the Bureau of Soils. His last years are distinguished by a number of papers on the subject of Conservation, in which he was so vitally interested; these articles are broad in their scope, thoroughly original and stimulating in their expression, and point out fearlessly some dangers of present practice and suggest methods of remedy. But a few days before his death he completed

the correction of the galley proofs of the last of his papers, faithful to his work and to his duty even while descending into the Valley of the Shadow.

This very brief sketch would not be complete without expressed recognition of the fact that Doctor McGee's attitude in the face of death was in accordance with the best traditions of the science to which his life had been devoted and was as admirable and as deeply stirring and stimulating as any act of his career. For a year or more he had recognized the fact that he was afflicted with cancer and that his days were numbered. He faced this fact calmly and prepared patiently for the inevitable by carefully completing all work on hand and by disposing by will of his body and his brain to his friend and fellow scientist, Dr. Spitska, to be used in the way most likely to be beneficial to humanity. So long as his faculties remained undimmed, he maintained the same keen interest in scientific questions and current affairs that had marked his career at its height. Those of his friends who visited him during the last few weeks of his life heard not a single complaint nor an expression of regret, but found themselves chatting easily with an old and honored friend who gave no indication of the fact that he knew definitely that his career was soon to be stayed by the hand of Death. Thus, rising superior to the weakened, pain-racked body, he met with philosophic calm and sublime courage the final inevitable test. It is not given to man to do more than this.

REPORTS OF STANDING COMMITTEES.

All the standing committees were represented at the Fourth National Conservation Congress and made reports. Members of these committees also addressed the Congress.

Forests: See paper by Prof. Henry S. Graves, Chairman, page 318; also addresses of Mr. E. T. Allen and Major E. G. Griggs, pages 312 and 183, respectively.

Lands: Prof. L. H. Bailey, being unavoidably prevented from attending the Congress, the report of the Lands Committee was presented by Dr. George E. Condra, page 123. See also address of Mr. Charles S. Barrett, page 132.

Waters: Owing to the death of Dr. W. J. McGee, Chairman, the report of this committee was submitted by Dr. W. C. Mendenhall. See page 335.

Minerals: See address of Dr. Joseph A. Holmes, Chairman, page 200.

Vital Resources: See address of Mr. A. B. Farquhar, page 214.

Food: See address of Dr. Harvey W. Wiley, Chairman, page 75. Also see paper by Mr. F. G. Urner, page 327.

Homes: See address of Mrs. Matthew T. Scott, President-General, Daughters of the American Revolution, page 250. Also report by Mrs. Orville T. Bright, of Chicago, Vice-President of the National Congress of Mothers, page 196.

Child Life: See address and report of the Hon. Ben B. Lindsey, Chairman, page 170.

Education: See report of Dr. C. E. Bessey, Chairman, page 66; see also address of Prof. E. T. Fairchild, page 134.

Civics: See address of Mr. Ralph M. Easley, Chairman, page 272.

National Parks: The report of this committee was submitted in writing, signed by Dr. W J McGee, Chairman, and Col. Malcolm H. Crump. See page 182.

General (including Wild Life): Dr. W. T. Hornaday, Chairman, presented the report of this committee. See page 344. Dr. T. Gilbert Pearson gave an address on "Bird Slaughter and the Cost of Living." See page 72.

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