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FOREST FIRE PROTECTION AS A
STATE ENTERPRISE

J. Alfred Mitchell

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FOREST FIRE PROTECTION AS A STATE ENTERPRISE

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PART I.

Importance and Need of Forest Fire Protection.

The protection of forests and forest land from fire has long been recognized as essential to the practice of forestry. Of late years the rapid depletion of the country's timber supply, and the increasing burden of idle cut-over land, has made it an economic necessity. It is coming to be recognized, also, as essential to the protection of wild life and to the preservation of areas needed for outdoor recreation.

The best statistics available, while admittedly incomplete, show that an average of 40,000 odd fires burn over nearly 13 million acres annually, and result in an immediate property loss of nearly 18 million dollars. To this must be added soil damage and the economic losses resulting from the laying waste of otherwise productive land and from the destruction of a natural resource, both present and potential.

Fundamental Differences Between State and Private Protection.

The interest of the State in forest protection differs materially from that of the private timber land owner. Where the latter is interested primarily in the protection of his own property, the State's chief concern

is the safety and economic welfare of the community. The state may be a timberland owner but the chief justification for state effort is the public welfare.

Another difference between state and private effort arises from the fact that the state has to deal primarily with land over which it has little or no control. The private timberland owner, also, is responsible only for a specific and comparatively limited tract, while the state's responsibility is state wide. On the other hand the state has certain authority and powers which the private individual lacks.

Responsibility for Forest Fire Protection.

There are three main theories in regard to the responsibility for protecting forests and forest land from fire; the theory of state or public responsibility, the theory of the forest land owner's responsibility, and the theory of personal responsibility for fire.

According to the proponents of the first theory, that of state or public responsibility, the owner pays taxes and hence is entitled to protection for the property taxed. It is further argued that, as the public and posterity are the chief beneficiaries of timber conservation and perpetuation, the public should pay for it. Also, that as the timber land owner himself is not responsible for most of the fires he is entitled to protection at public expense. Other arguments are that bad fires are the

result of weather and other conditions over which the land owner has no control; that the individual has not the authority to take effective measures to prevent and suppress fires, and that owing to the magnitude of the task only the state is able to organize and handle it adequately. The responsibility of the state for the safety of life and property is also given in justification of state effort, police and fire protection provided in cities and towns at public expense being cited as a precedent.

Those who argue that the responsibility should rest on the timberland owner claim, that as he or his estate are the direct beneficiaries of protection, he should pay for it; that protecting private land at public expense is class legislation; that most fires are directly or indirectly the result of woods operations from which the owner of the timber benefits; that as the chief beneficiary of a natural resource, which he had no part in creating, the owner of timberland owes it to the public and to posterity to protect it and insure its perpetuation.

The supporters of the theory of personal responsibility for fire argue that since both the public and the timberland owner suffer, the person who starts a fire should be held responsible, not alone for any loss that may result, but for the expense of fire suppression.

All of these theories have some merit, but as is usual in such cases the truth, or at least the practical solution of the problem, lies between them. Thus a fourth theory has developed, that of joint responsibility. This aims to make the state, the timberland owner, and the party starting a fire, share in fire protection according to their interest in the values at stake, or responsibility for the loss and expense entailed.

For the state to protect private timber land at public expense does savor of class favoritism since a timberland owner may reasonably be expected to protect his own property. On the other hand there is some justice in the argument that the public benefits from protection and should therefore help pay for it; also, that the party who sets fire to the woods should be held responsible.

All things considered, it would seem that the state should contribute to fire protection in proportion to the public interest involved, the land owner in proportion to his personal interest, and the party who uses fire in the woods to the extent of preventing its escape. On this basis state effort is justified as a public service which the people have a right to demand and which they should be willing to pay for.

Principles of Forest Fire Protection.

Fire protection covers two distinct fields, viz: fire prevention and fire suppression. In importance there is little choice between them, since each complements the other and both are essential to effective fire protection. To build up and maintain an organization capable of handling all fires that might occur, if no attempt was made to prevent them, would be out of the question. On the other hand human fallibility and natural causes effectively prohibit preventive measures from ever becoming one hundred percent effective.

Forest fire prevention.

To intelligently consider the subject of forest fire prevention it is necessary to know first the causes responsible for forest fires. The best statistics available for the United States show that for the years 1916 to 1923 inclusive, 17% of the fires reported were incendiary; 16% were due to smokers and campers; 14% each to railroads and to land clearing or meadow burning; 8% to lightning; 6% to lumbering, and 7% to miscellaneous causes ranging all the way from fire crackers to burning buildings. The remaining 18% reported were of unknown origin. If we pro-rate the unknown fires on the basis of known causes it would appear that nearly 90% (88% to be exact) were man caused, and hence in most cases preventable.

Carelessness is responsible for the bulk of our forest fires. Failure to take adequate precaution, accidents, and maliciousness are responsible for most of the rest. To effectively prevent forest fires, therefore, it is necessary to impress on those whose activities entail the risk of forest fires the necessity of care in the use of fire. This may be accomplished in a variety of ways; by education, by publicity, by propaganda, and by the enactment and enforcement of proper laws.

There are many forms of human endeavor, legitimate and necessary in themselves, that entail the risk of forest fires. These call for special precautionary measures such as, adequate devices on fuel burners of all kinds to prevent the escape of fire; the establishment of protective strips and zones around possible sources of fire and around property subject to fire damage, etc.

There will, however, always be people who cannot be reached through education. Hence the necessity for restrictive laws and regulations and penalties for maliciousness, and for neglect or refusal to take necessary precautions. There will also always be times and places of special hazard when or where it will be necessary to restrict or prohibit activities likely to result in forest fires.

Forest fire suppression.

Just as care in the use of fire is the secret

of effective fire prevention, so is prompt action the secret of effective fire suppression. That all fires are small when they start is axiomatic. While small most fires are readily extinguished. As they get larger the difficulty of controlling them increases and if allowed to burn too long they may get beyond the possibility of human control. Hence the necessity of early detection and prompt action - looking to their control and suppression.

Of equal importance to prompt action is the necessity that the action taken be effective, which means that the fire must either be extinguished by direct action or completely surrounded by a barrier that will prevent its further spread. Stopping a fire in one direction is not enough, as the wind may change or the fire creep around the barriers raised. Gaps in the line through which the fire may escape may be equally fatal. Although natural barriers are useful they are seldom sufficient to completely stop a fire, at least without unnecessary loss unless supplemented by artificial means.

Effective action means also that not only must a fire be completely surrounded by an adequate barrier, but it must be guarded until completely extinguished. As used to be said of the Indian, the only good forest fire is a "dead one". Putting a fire under control is not enough. It must be com-

pletely out before it is safe, since a falling snag, or a bit of wind may undo all that has been accomplished in putting a fire under control unless some one is at hand to take immediate action. Many of our worst fires are the result of leaving unguarded a fire that was "thought to be safe".

To sum up then the three essentials of effective fire suppression are, early detection, prompt and effective action, and complete suppression.

Steps in the Development of State Effort.

State effort today, along the line of forest fire protection, is the result of growth and evolution. At first, in practically every state, the work has been largely educational. This in some cases has been due to a lack of funds for direct protection, in others to failure to realize that anything more was necessary. Education, however, is the logical first step since in every state it has been necessary to sell the idea of forest protection to the public before fire suppression could be made effective. Where this has not been done the work has been badly handicapped and the results of protective effort have been more or less unsatisfactory.

No amount of educational effort, however, will wholly prevent forest fires, nor will it stop them once they get started. Hence the necessity for organized protection. The second step in the develop-

ment of state effort therefore is to build up an effective protection organization. The chief purpose of such organizations in most states has been to stimulate and supplement private and local effort, although in a few cases the state has attempted to assume the entire responsibility for forest fire protection.

Having provided for educational work and organized protection, one more step remains to be taken to make state effort fully effective, viz: active enforcement of the fire laws. Although such laws are on the statute books of most states they are seldom generally enforced until the public has been brought to a realization of the necessity for it, and an organization has been provided to follow them up. Law enforcement, therefore, is the third step in the development of effective state effort.

PART II.

Legislation.

State effort is necessarily based on legislation. A brief review of the various state laws on the subject will therefore show the present status of forest fire protection, and the forms of organization prevailing.

Forest Fire Laws.

Early legislation.

In Colonial times there were laws prohibiting the firing of woodlands, marshes and prairies, or the use of fire in them at certain seasons of the year. Similar laws were enacted by many of the states during the early days of the Union. Old laws of this character are still on the statute books of Alabama, Florida, Georgia, Illinois, Iowa, Kansas, Nebraska, North Dakota and South Dakota. Another measure that found favor with early legislators, and is still to be found in the laws of Alabama, Arkansas, Delaware, Florida, Georgia, Illinois, Michigan (north of the 44th parallel of latitude), Nebraska, Nevada, New Mexico, North Carolina, North Dakota, Oklahoma, Oregon, South Dakota, and Tennessee, is a provision requiring notice to neighbors in advance of firing the woods, marshes or prairies, as a means of escaping a penalty or full liability for damages caused.

The laws of Idaho, Montana, New Jersey, and Pennsylvania (in the vicinity of gas or oil wells), also specifically provide that any fires set in the open must be watched.

Closed seasons and burning permits.

The more recent laws usually fix a closed season, during which the setting of fires in the open for clearing land or for other purposes is forbidden unless a permit for burning has been previously secured from designated local officials. The closed season varies in different states according to the occurrence and duration of the fire season. New York (within the "fire towns"), and New Jersey apparently require a permit at all times of year. Maine, New Hampshire and Minnesota require a permit unless there is snow on the ground. Michigan and Wisconsin leave the declaration of a closed season to the local township boards. Other states specify the closed season by dates. The states having the permit system in one form or another in their laws are Connecticut, Idaho, Maine, Massachusetts, Michigan, Montana, New Hampshire, New Jersey, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Washington and Wisconsin. The laws of California provide that a permit may be issued as evidence that the necessary precautions have been taken to prevent the escape of fire, but the securing of such a permit is not required.

Most states, among them Connecticut, Massachusetts, Minnesota, Montana, Rhode Island, and Oregon, make certain exceptions to the general requirements governing burning during the closed season, such as allowing the burning of materials along railroad rights-of-way, and of domestic or agricultural refuse when due precautions are taken, or when at a safe distance from woodlands.

Regulations as to camp fires.

Special provisions in regard to camp fires are in effect in most of the forest land states. In California, Connecticut, Idaho, Kansas, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, South Dakota, Tennessee, Vermont, Washington, West Virginia, Wisconsin, and Wyoming, it is unlawful to leave a camp fire, at least during the closed season, without completely extinguishing it. The laws of Alabama, California, Colorado, Connecticut, Delaware, Kentucky, Maryland, Minnesota, Ohio, Oregon, New Mexico, and New York also require that all inflammable material be cleared away for a prescribed distance before a fire is set in the open.

Restrictions on hunting, smoking, etc.

In Connecticut, Maine, Massachusetts, New Hampshire, New York (within the "fire towns"), Oregon, and Washington, the Governor may, during periods of

drought, suspend the hunting season and prohibit the building of fires or the discharge of fire arms within forested regions. Many states also prohibit the use of combustible gun wads and provide a penalty for the careless setting of fire with matches, cigarettes, cigars, etc. Connecticut, Idaho, Louisiana, Minnesota, New Hampshire, New Mexico, New York, Ohio, Oregon, and Washington are examples.

Liability for damage.

Under the common law any one who wilfully or negligently sets a fire on the land of another, or allows one to escape from his own land, is liable for damages in the event of injury. In many states, however, the common law has been supplemented by statutes declaring that such persons shall be liable for all damages, and in several states for multiple damages, as in California, Michigan, Missouri, Nevada and Oregon. In practically every state, also, there are now penalties for the wilful and malicious firing of woods, marshes or prairies, while in most states it is unlawful to negligently permit a fire to spread to the property of another.

Special provisions.

Special provisions making it unlawful to set a fire on the land of another, without permission of the

owner, except to check a fire already burning, exist in California, Connecticut, Maine, New Hampshire, New Jersey, New Mexico, Ohio, Oregon and West Virginia. An exception is made in Oregon in the case of camp fires on uninclosed land unless due notice has been given by the owner forbidding the setting of fires. In California, Montana, New Mexico, New York, Ohio, Oregon and Virginia, allowing fire to escape through lack of reasonable precautions is specifically made a punishable offence.

In Maryland, New Hampshire, and New Jersey, persons discovering fires are required to extinguish or report them, while in most states land owners are required to make reasonable efforts to suppress fires occurring on their land, or at least to prevent their escaping.

Special measures to prevent the setting of fires along highways exist in Connecticut, New Mexico, New Jersey, North Dakota, and South Dakota, while the Minnesota law provides for the establishment of safety zones which must be kept free from inflammable material and certain kinds of growth about towns and villages in the forest region. Numerous special provisions have also been enacted, such as prohibiting the sale or use of fire balloons, and the carrying of lighted torches or fire

brands in the woods. In this connection might also be mentioned provisions regulating the use and equipment of traction engines and other portable steam boilers in and near woodland. California, Connecticut, Louisiana, Massachusetts, Montana, New York, Oregon, and Virginia have such provisions. Washington also requires that all dead trees within a radius of 25 feet of engines used in logging must be cut down, and watchmen kept on duty for two hours after the operation of such engines ceases.

Slash disposal.

Logging operations. Slash resulting from logging operations has long been recognized as a dangerous source of destructive forest fires, and a number of states have enacted legislation tending to reduce or eliminate this hazard. For example, the New York law requires that, within the "fire towns", all evergreen tops shall be lopped to a point where they do not exceed three inches in size, unless the Conservation Commissioner shall authorize a different disposition. The Minnesota law requires that all slash shall be disposed of as directed by the State Forester. The new Idaho law requires that all slash shall be piled and burned unless otherwise authorized by the State Forester. The Montana law requires that all slash shall be burned within one year after logging.

Highways, etc. The disposal of slash along highways, railroads, boundary lines, etc., is required in a number of states that do not require general slash disposal. Thus Connecticut requires disposal of slash along highways, Massachusetts along highways, rights-of-way of various kinds, and around sawmills. New Hampshire along rights-of-way, around camps and mills, and along boundaries of adjoining forest land, while Maine, New York, North Carolina, Pennsylvania and Virginia have similar provisions of this character, although in Pennsylvania they apply only to the oil and gas-well region and in New York only to the "fire towns." Many states also require the disposal of slash resulting from the construction of railroads, trails, etc., through forest land.

Without requiring the disposal of slash under all circumstances, California, New Jersey, New Hampshire, Ohio, Oregon, Pennsylvania, Vermont, and Washington, require either slash disposal or adequate protection. The laws of Oregon, Washington, New Jersey and Vermont provide that inadequately protected slash constitutes a public nuisance that must be abated by or at the cost of the owner. In California and Ohio specific areas which endanger adjoining property may be declared nuisances, while in Pennsylvania this may be done under authority of a general nuisance law. In Michigan the forest officials are authorized to enter on private land and

dispose of inflammable material that constitutes a fire menace, but the law does not place the cost of disposal on the land owner as is the case in other states.

Regulations concerning railroads.

Legislation designed to reduce the fire hazard resulting from the operation of railroads and to fix the responsibility for railroad fires dates from the advent of the railroad locomotive in America. Early laws making railroad operators liable for fire damage caused by locomotives often declared the occurrence of a fire to constitute prima facie evidence of negligence in the operation of the locomotive. These laws were followed by others affording railroads an insurable interest in the property for which they were held responsible. Some of the earlier laws made railroad operators liable, irrespective of the question of negligence, as in Iowa, Massachusetts and New Hampshire, and in more recent years Arkansas, Ohio and Virginia.

The settlement of the Great Plains and the prairie states of the Middle West was followed by the enactment of laws requiring the removal of grass and other inflammable material and the plowing or burning of fire guards along rights-of-way. The rise of the forestry movement at the close of the 19th century was marked by the enactment of laws of this character in timbered regions.

Spark arresters, etc. During the same period laws requiring spark arresters on smokestacks and devices to prevent dropping of live coals from fire boxes and ash pans also became common. Such laws are now in effect in Alabama, California, Colorado, Connecticut, Delaware, Idaho, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Montana, New Hampshire, New Jersey, New York (within the "fire towns"), Ohio, Oregon, Pennsylvania (in oil and gas producing regions), Virginia, Washington, West Virginia and Wisconsin.

In most cases the laws providing for the use of spark arresters require that they be maintained in satisfactory condition, and usually impose a penalty for their non-use or for failure to maintain them in satisfactory condition. The Louisiana law gives the Conservation Department of that State broad powers to make and enforce regulations as to the kind of equipment used. In other states the kind of equipment that must be used is specified by law.

Inspection. In several states, Massachusetts and Michigan for example, laws have been enacted requiring or permitting the inspection of locomotives and the condemnation of defective equipment by state officials.

Disposition of live coals and ashes. The dumping of live coals or ashes along the right-of-way within or near forest land has been responsible for a good many fires. Legislation prohibiting this practice has, there-

fore, been enacted in a number of states, including Idaho, Louisiana, Maine, Massachusetts, Michigan, New Jersey, New York, Pennsylvania (in oil and gas regions), Washington, West Virginia and Wisconsin. Similar regulations apply to thrashing engines in California and Michigan.

Rights-of-way. The removal of inflammable material from the rights-of-way of railroads, at least once annually, is required in Colorado, Connecticut, Idaho, Illinois, Kentucky, Louisiana, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Mexico, New York, North Dakota, Ohio, Oregon, Pennsylvania (in oil and gas-producing regions), Virginia, West Virginia, Wisconsin and Wyoming. In a number of these states the laws in question were not directed primarily at the prevention of forest fires and the requirement as to clearing is not limited to forest lands. Pennsylvania has no specific law in this connection applying to railroads, but requires that clearing be done where necessary under the authority of a general nuisance law. In Ohio, recently enacted legislation enables the State Forester to require clearing of dangerous stretches of rights-of-way under a special nuisance provision. If a railroad fails to comply with the law, in Missouri the adjacent owner may clear off the material and collect double the cost. In Ohio he may collect simply the cost. In Oregon clearing may be

done by the State Forester, or the adjacent land owner, and the cost collected from the railroad. East of the Cascades in Oregon, rights-of-way must be mowed annually. In Oregon, Wisconsin and Wyoming, railroad operators may be relieved, by specified State officials, from such clearing in places where it is considered unnecessary as a means of protection.

Fire breaks. In Colorado, Minnesota, Montana, New Mexico, South Dakota, and Wyoming, the construction of fire breaks adjacent to railroad rights-of-way is authorized or required. Recent legislation in Connecticut, Louisiana, Massachusetts, New Hampshire, Rhode Island, and Virginia, provides that railroad operators are or may be authorized, under the supervision of State officials, to enter private lands adjacent to their rights-of-way for the purpose of removing inflammable material. New Jersey had a law which provided for the construction of fire breaks outside of the railroad right-of-way where necessary, without compensation for damage to the land owners. This law, however, was declared unconstitutional.

Rights-of-way patrol. A patrol of railroad rights-of-way may be required during dangerous seasons in Maine, Minnesota, New Hampshire, New Jersey, New York, Pennsylvania (in oil and gas regions), Washington, West Virginia and Wisconsin.

Responsibility for suppressing fires. In a number of states, including Connecticut, Louisiana, New Hampshire, Ohio and West Virginia, railroads are required to take steps to suppress any fire occurring on or near their rights-of-way. Some states also require that forest protection officials be notified immediately of such fires.

Precautions to prevent the spread of fire from railroad rights-of-way maintenance operations are also specifically required by law in a number of states.

Use of oil burners. The use of oil for fuel automatically exempts railroads and logging operators from many requirements otherwise imposed. In many states its use is encouraged by specific exemptions. New York has even gone so far as to require the use of oil-burning locomotives during periods of fire danger within the Adirondack Preserve.

Organization of State Forestry Departments.

States having protective organizations.

At the present time 39 states have recognized forestry as a state activity, namely, Alabama, California, Colorado, Connecticut, Georgia, Idaho, Illinois, Iowa, Indiana, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Dakota, Tennessee, Texas, Vermont, Virginia, Washington, West Virginia and Wisconsin. All of these have established State

forestry departments or designated some State department or official to handle forestry work. Only 29 states at the present time, however, are actively engaged in the work of forest fire protection. Of the states named above, Colorado, Georgia, Illinois, Indiana, Iowa, Missouri, Kansas, Nebraska, North Dakota and Oklahoma are without protective organizations. The other twenty-nine are all directly or indirectly engaged in fire protection and are now receiving assistance from the Federal Government under Section 2 of the Weeks Law.

Area in need of protection.

There is immediate need for organized protection in Arkansas, Delaware, Illinois, Indiana, Florida, Georgia, Mississippi, Missouri, Oklahoma and South Carolina, while in many of the states now organized the limited funds available permit protection of only a portion of the forest land needing it. Throughout the country it is estimated that there are 317,250,000 acres of forest land, exclusive of National Forests, in need of protection. Of this only about 190 million acres are now protected - and much of this inadequately. The area needing protection in the states cooperating with the Federal Government, together with the estimated cost of protection and a statement of funds available, both State and Federal, for the current fiscal year is shown in the following statement dated September 20, 1924.

State	Area needing protec- tion (M Acres)	:Esti- :mated :cost : per :acre	: Total : cost	Funds available		
				: Fed- : State : eral : Total		
Me.	15,000	\$.028	\$420,000	\$165,500	\$19,875	\$185,375
N.H.	4,300	.028	120,400	48,425	8,425	56,850
Vt.	3,750	.016	60,000	6,000	4,200	10,200
Mass.	3,000	.04	120,000	62,000	8,400	70,400
R.I.	250	.035	8,750	6,310	625	6,935
Conn.	1,500	.03	45,000	19,115	3,150	22,265
N.Y.	14,000	.028	392,000	173,540	19,875	193,415
N.J.	1,800	.04	72,000	75,925	5,050	80,975
Pa.	13,000	.03	390,000	228,375	19,875	248,250
Md.	2,200	.025	55,000	11,110	3,850	14,960
Va.	14,000	.025	350,000	19,875	19,875	39,750
W.Va.	6,000	.025	150,000	28,690	10,500	39,190
N.C.	19,500	.025	487,500	30,500	19,875	50,375
Tenn.	9,000	.0225	202,500	11,700	11,700	23,400
Ky.	7,500	.0225	168,750	10,000	4,000	14,000
Ala.	20,000	.025	500,000	30,000	19,875	49,875
La.	12,000	.025	300,000	40,000	19,875	59,875
Texas	11,000	.025	275,000	18,000	18,000	36,000
Ohio	1,150	.02	23,000	11,000	1,600	12,600
Mich.	15,000	.03	450,000	241,000	19,875	260,875
Wisc.	14,000	.03	420,000	23,000	15,000	38,000
Minn.	20,000	.035	700,000	194,600	19,875	214,475
S.Dak.	50	.03	1,500	7,140	100	7,240
Mont.	4,900	.04	196,000	16,000	13,725	29,725
Ida., N.	3,750	.08	300,000	33,500	17,575	51,075
Ida., S.	1,100	.03	33,000	4,600	2,300	6,900
Wash.	12,000	.03	360,000	30,065	19,875	49,940
Oregon	12,000	.03	360,000	47,705	19,875	67,580
Calif.	13,000	.025	325,000	61,750	19,875	81,625
N.Mex.	1,200	.01	12,000	1,960	800	2,760
<hr/>						
Totals	255,950	.029	\$7,297,400	\$1,657,385	\$367,500	\$2,024,885

Early form of state organization.

In the early days of state forest fire protection it was customary, when a new state activity was undertaken, to create an independent board or office to handle it. This had its advantages, for it not only insured adequate consideration for the activity in question but tended to avoid, for a time at least, the handicap of partisan policies under which many of the older state departments labored. It was natural, therefore, that those who had the success of fire -protection at heart should insist on this form of organization.

Present tendency.

At the present time there is a growing tendency to do away with independent state boards and commissions and to consolidate allied activities. From the standpoint of the efficient administration of state business this is desirable since, in theory at least, it avoids duplication and insures closer cooperation. Whether it is to the advantage of fire protection or not, it is the tendency of the times and must be so recognized.

Prevailing forms of State forest fire protection organizations.

In 27 of the 29 states now engaged in fire protection the work is handled by the State Foresters, or the State Departments responsible for forestry work. The other two states, New Mexico and West Virginia, have

no regular forestry organization. Fire protection in West Virginia being handled by the State Game and Fish Commission, and in New Mexico by the State Land Commissioners.

Of the 27 states handling forest fire protection through the State Forester or State Department responsible for forestry, Alabama, California, Connecticut, Idaho, Maine, Maryland, New Hampshire, Oregon, Pennsylvania, Rhode Island, Texas, and Virginia, maintain more or less independent forestry departments; while Louisiana, Massachusetts, Michigan, Minnesota, New Jersey, New York, North Carolina, Washington and Wisconsin have combined forestry and fire protection work with allied activities in Conservation Departments. In Montana fire protection is handled by a State Forester responsible to the State Board of Land Commissioners; in Ohio by a State Forester attached to the State Agricultural Experiment Station; in South Dakota by a Forest Supervisor responsible to the Department of Schools and Public Lands; and in Tennessee and Kentucky by State Foresters working under the State Departments of Agriculture.

When it comes to the organization of forest fire protection work, it may be said that there are as many systems in effect as there are states, more, in fact, for states which have state lands to protect - as well as private lands, frequently maintain separate organizations for each. The systems in effect may, however, be

divided into a few broad groups, - States which assume entire responsibility for fire protection work; States which share this responsibility with the local communities; States in which the responsibility rests primarily with the local communities, and States which share responsibility for fire protection with the land owners.

States representative of the first group are, Louisiana, Pennsylvania, Michigan, Tennessee and Texas. In these states the entire responsibility for fire protection is assumed by the State, except that the cooperation of private owners is encouraged. By far the largest number of states share the responsibility to a greater or less extent with local communities. Thus in Maine, (outside Forestry District), New Hampshire, Vermont, Massachusetts, Rhode Island, New York, New Jersey, Maryland, Minnesota and Wisconsin, the state usually assumes responsibility for overhead, general supervision, and fire detection (the look-out system and patrol), but shares with the local community responsibility for fire suppression.

In West Virginia the cost of suppression is paid entirely by the counties. In New Jersey, Massachusetts, Connecticut, and many other states, the cost of suppression, and in some cases the cost of patrol also is divided 50-50 between the state and the local communities.

In all cases except West Virginia, where the local community shares in the cost of fire protection, the appointment of local wardens is made by, on recommendation of, or subject to the approval of the local govern-

ing body (county or town). In Wisconsin the local fire wardens are ex-officio township officers. This is also true in Maine (outside the Forestry District), and in Minnesota. The laws of Maine, Minnesota, Vermont and New Hampshire provide for the appointment of local fire wardens in unorganized townships by the state. In Minnesota the local ex-officio warden must be commissioned by the State Forester. The extent to which these local men are subject to State authority differs widely. In Wisconsin they are practically independent, act on their own initiative, and are not subject to the authority of the State officers. In most other states, state officials exercise a certain amount of authority over the local wardens. In general it may be said, however, that the division of responsibility between the state and local authorities is along the line of the division between general fire protection and actual fire suppression, the local officers as a rule being responsible only for actual fire suppression work.

In Virginia and North Carolina a system of voluntary State and county cooperation has been worked out whereby the State furnishes the overhead and meets the county half way in maintaining a local patrol and protective organization, the responsibility, in this case, for direction of the work being vested in the State. In Massachusetts and certain other Northeastern states, the actual protection work is largely a local enterprise, the State participating by providing a system of fire detection and assisting the local communities and supplementing their efforts

in case of an emergency. In Oregon and Washington and other Northwestern States the work of fire protection is divided between the State and private protective associations, each assuming responsibility for certain regions and maintaining therein the necessary protective organization, but participating pro rata in the cost. In Idaho, until the passage of the recent Forestry Act, the State merely participated as a land owner, the actual protection work being organized and administered by a number of private protective associations, of which the State was a member.

Powers and Duties of Forest Officers.

In general, all duly appointed and ex-officio forest officers have the authority of peace officers, to enforce the forest laws and the regulations of the State Department under which they work. In most States, Tennessee excepted, they are authorized to arrest without warrant persons caught in the act of violating such laws and regulations. In many States they are also specifically empowered to enter on private land and to take such steps as may be necessary to suppress forest fires. In other States this right is given them by a general law providing for non-interference with State officers in the performance of their duties. The law in many States also gives forest fire officers authority to commandeer, for a just compensation, teams and equipment needed in fighting forest

fires, and to require the assistance of able-bodied citizens, in some cases with - and in some without compensation.

In many States logging bosses, federal forest officers, and others whose work keeps them in the woods, may be commissioned ex-officio fire wardens, without compensation, but with the powers and authority of regularly employed forest officers. While as a rule only employes of the State department charged with the administration of the fire laws are authorized to incur expense in the name of the State, provision is usually made to reimburse others for expenses incurred in the suppression of forest fires - where it can be shown that the expense was necessary, and the bills are approved by a duly authorized forest officer.

In addition to enforcing the fire laws and preventing and suppressing forest fires, forest officers are usually charged with the duty of posting fire warnings, cautioning the public in regard to the use of fire in the woods, and prosecuting violations of the forest laws that are brought to their attention.

When slash disposal laws are in effect forest officers are, as a rule, responsible for their enforcement, and in some cases, Minnesota for example, for designating the method of slash disposal to be followed.

The inspection of spark arresting equipment on railway locomotives and logging equipment is also usually

delegated to State forest officers, although most states assign special men to this work. Where burning permits are required forest officers, as a rule, are authorized to issue them, although this power is usually shared with certain local officials.

In some states forest officers are also ex-officio game wardens - as an incidental duty. In others the same officers serve in both capacities.

Financing of State Fire Protection.

Funds for fire protection in the States are provided in a variety of ways, ranging all the way from direct appropriation from the general fund - as in Pennsylvania, Michigan, Minnesota, etc., to a special fire tax on timberland as in the Maine forestry district. Most States, however, provide for the necessary overhead and contribute a part, at least, of the cost of the organization by direct appropriation from the general fund. A few States derive their fire protection funds from special sources, as in the case of Louisiana, which depends on a special license or severance tax levied on standing timber when cut; Alabama, which depends on license tax on forest industries; West Virginia, which depends on receipts from hunting licenses; and Maine, which levies a special tax on timberland ; and Washington and Oregon which, except for overhead, charge back the cost of protection to the land protected. In most States the actual

cost of fire suppression is paid, as has been noted,
wholly or in part by the local communities.

PART III.

Essentials of State Protective Organizations.

No one form of organization can be prescribed that will fit all cases. Conditions vary and so must the form of organization. This is especially true in state forest fire protection work. The habits and mental attitude of the people to be dealt with, also, are important considerations, as are the political conditions under which the work must be done. Even so, all successful organizations have certain essential features in common. These are freedom from political interference, direct and definite responsibility, competent direction, adequate personnel, and proper supervision and inspection. Any form of organization that provides for these and is suited to local conditions will serve.

Naturally the size of the organization, and to some extent its form, will depend on how far the State desires to go in forest fire protection. A form of organization that has proved generally satisfactory, and that is adaptable to different conditions, is as follows:

Administrative overhead.

A continuing, non-partisan board of control representing the various interests concerned, with power to appoint and to remove for cause, the chief administrative officers, and to pass on departmental budgets and policies.

A competent administrative head (preferably a trained forester with experience in fire protection work), removable only for cause, with full authority to direct the work of the department - under the general supervision of the board of control.

A competent deputy or associate chief, to assist in handling administrative details and to alternate with the chief in the office and field.

Field personnel.

Experienced, year long, district wardens for individual counties, groups of counties or natural units, as the situation demands, directly responsible to the department chief for the work of their respective districts.

As many, season long, patrol or lookout men, responsible to the district wardens, as may be needed to maintain an effective fire detection service.

As many, season long, local wardens in each district, responsible to the district wardens, as may be needed to handle the work of the district effectively.

Emergency force.

Carefully selected per diem wardens, subject to call, in each community, to mobilize fire fighting crews and to serve as straw bosses on the fire line.

Carefully selected local fire fighters, under agreement to serve and subject to call at any time.

Clerical force.

Sufficient clerical help to relieve, as far as possible, the administrative and field personnel of office routine and clerical duties.

Additional overhead.

If the organization required to handle the work is large, additional overhead, including both assistant administrative officers and specialists in various lines, will be necessary. In some cases, also, it has been found

advisable to group the districts into divisions, each under a division chief. As a rule, however, wherever the volume of work or the area to be protected permits, direct contact of the district wardens with the head of the department is to be desired, since it simplifies procedure and insures better administration.

As to specialists, those most commonly provided are, one or more railroad inspectors, preferably ex-railroad men familiar with locomotive operation, to handle the inspection of logging and railroad equipment and railroad rights-of-way; a publicity man to handle inquiries, to keep the public informed through the press concerning the activities of the department, and to direct educational work; a special law officer to handle the legal work of the department, and to assist the local men in the prosecution of fire and trespass cases; a special law enforcement officer, for detail as needed, to assist the local force in running down and securing evidence against violators of the fire laws; a specialist on improvement work, to supervise or assist the district wardens in the planning and construction of improvements, such as telephone lines, lookout towers, etc.; and a research assistant to analyze fire statistics and make such other studies and investigations as are needed.

No one state would need all of these specialists, as in most cases the duties of two or more could be com-

bined. Any business requiring a large organization, however, calls for specialists in certain lines and fire protection is no exception.

Combination of fire protection
with other activities.

Where forest fire protection is combined with other activities, as in a State forestry or State conservation department, the same form of protection organization is called for; but in such cases the chief administrative officer would rank as a division chief, responsible to the head of the department. In such cases, too, the district wardens might have other duties, as in Pennsylvania where the State Forest Supervisors serve in this capacity, or in Michigan ~~the~~ where they function as District Game Wardens. Where other duties are involved, however, fire protection must come first - if the protection work is to be effective.

Advantages and Disadvantages of Various Forms
of Organization.

One man vs. a board of control.

As the review of state legislation shows, the responsibility for forest fire protection may be vested in an independent state officer, such as a state forester, reporting directly to the Governor, or it may be delegated to a board ~~of~~ commission. In either case fire protection, or fire protection and forestry, may be the sole activity involved, or one of several for which the officer or board is responsible.

Placing the work in the hands of a single state official has the advantage of fixing responsibility, simplifying the organization, and making for efficient administration. On the other hand the heads of state departments are usually political appointees and subject to change with each change of administration. This militates against effective work and usually results in a vacillating state policy. A board or commission tends to overcome this difficulty and to insure a more stable organization. But unless the terms of office of the members of such board or commission overlap, so that at least a majority of its members carry over from one administration to another, there is little advantage in this form of organization.

To safeguard the various interests concerned, the membership of the board should be made, in part at least, representative of the various interests and industries concerned. The Louisiana law specifies that one member shall be representative of the lumber industry, one of the agricultural interests of the state, while the third shall be the professor of forestry of the state university. Other states have followed this plan, some going as far as to provide specifically for the appointment of the nominees of certain representative organizations. This is a sound policy and, if the interests represented are properly balanced, it tends to insure good administration.

Generally speaking, it may be said that the best

results are secured where the responsibility for fire protection is placed in the hands of a continuing, non-political board or commission, representative of the various interests concerned.

Supervisory vs. advisory boards.

The powers and duties exercised by forestry boards and commissions vary widely. In some states they are merely advisory, with little real authority, while in others they exercise a very direct and effective control over the activities of the administrative organization. Maryland and Michigan have the advisory type of board, while in Louisiana and Tennessee the forestry boards exercise direct supervisory control over administrative policies and activities. As a rule boards of this character exercise their authority through the power to appoint and remove administrative officers, or through a control over the organization's finances, or both.

There is little to be said in favor of a purely advisory board except that it may exercise a beneficial moral influence, and may tend to enlist the interest and cooperation of the agencies and industries represented. On the other hand, an active board, with reactionary tendencies, may be a real handicap to effective administration. Properly constituted, an active board with real powers, is to be preferred since it furnishes needed protection against political interference and unwarranted changes in policy and personnel. Such a board, also, is

a real check on administrative inefficiency and mismanagement. To the extent that a board is independent of the state administration, it tends to relieve it of responsibility for the conduct of state affairs, which may or may not be desirable. But without some guarantee of an efficient and disinterested administration, a continuation of the board idea would seem to be advisable.

Specific vs. general laws.

In some states the form of the protection organization is specified by law in great detail. In others the chief administrative officers only are specifically provided for, the details of the organization being left largely to the board or official responsible for the work. In principle the latter is the best policy, as it allows the administrative officers to work out an organization suited to the needs of the situation. As a rule, however, it is more difficult to get adequate lump sum appropriations than it is to get funds for a specific organization. If an adequate and reasonably flexible organization is specified therefor, there is some advantage in a specific law, although too much detail is a handicap to efficient administration.

Local vs. centralized responsibility.

Many state protective organizations are predicated on the theory of local responsibility. Most states, in fact, place some responsibility on the local communities. While this is sound in theory and desirable in practice

as a means of enlisting local cooperation, it has numerous practical disadvantages. Chief among these is the difficulty of getting the local communities to take effective action. To remedy this condition there has been a growing tendency to place more and more of the responsibility for fire protection in the hands of the state.

Cooperation.

The key to successful forest fire protection is cooperation. No individual, state, or corporation, can hope to handle it alone. In fact, the effectiveness of protective effort may, to a large extent, be judged by the amount of cooperation in effect.

Cooperation may be voluntary or compulsory, direct or indirect, financial or physical. It may involve the public at large, the federal government, other state departments, the local community, or the timber land owner. There is hardly an agency or individual, in fact, that cannot contribute something to the success or failure of forest fire protection, and no opportunity for cooperation is too insignificant to be overlooked or ignored. The opportunities in this direction are legion, and the most successful protection organizations (both public and private) are those that have gone farthest in this direction.

Voluntary cooperation.

More often than not it is the promptness and helpfulness of cooperation that counts rather than the magnitude of the service rendered. Because it carries with

it the good will and the interest of those giving it, therefore, voluntary cooperation is to be desired wherever it can be secured. It is, however, an uncertain quantity. It requires, also, considerable effort to develop it effectively and to keep it alive - since it depends wholly on the sustained interest of the cooperator.

There are always a few individuals, too, who will not cooperate, which throws an extra burden on those who do. More than anything else this has led to the passage of compulsory legislation of one sort or another, often at the insistence of those willing to cooperate voluntarily. The compulsory patrol laws of Washington and Oregon are examples of this, as is also the Maine special forest tax law. On the other hand failure to secure adequate cooperation has led some states, Michigan and Pennsylvania for example, to assume the entire responsibility for fire protection.

That much can be accomplished by voluntary cooperation is demonstrated by the success of the State Forester of Virginia in organizing county forest fire protection in over half of the counties of that state; by the effective work of certain private protective associations; and by the results secured in Tennessee and Texas where the state is dependent on local cooperation for actual fire suppression.

Unless the parties concerned have a permanent interest to protect, however, voluntary cooperation

lacks stability. Thus in Michigan, as the amount of standing timber decreased, the timber land owners became less and less willing to carry the burden of fire protection and finally dropped it, preferring to take a chance on state ~~pro~~ protection for what was left. The protective associations in the west are headed in the same direction. Only where forest land is being managed for continuous production, or where other interests such as recreation or game protection are involved, can continued voluntary protective effort be counted on.

Cooperation of individuals.

Cooperation in fire protection ranges all the way from the assistance of individuals to federal aid in financing state effort. Under the former may be mentioned care with fire in the woods, promptness in reporting fires found burning, assistance in fire fighting, and personal influence with others to these ends. This kind of cooperation is the duty of every citizen and is so recognized by the laws of most states.

Federal cooperation.

At the other end of the scale we have federal cooperation in financing state effort. This was first provided for in 1911 by the passage ~~of~~ by Congress of what is known as the Weeks Law. In 1924 the principles laid down by the Weeks law were reenacted in the Clarke-McNary Act. These laws recognize the interest of the whole

nation in the protection of forest land from fire and the justice of requiring all states, as timber users, to contribute to the protection of the nation's timber supply regardless of where it is situated. Thus the prairie states of the middle west, and the industrial states of the east, are called upon to help protect the forest land of timber producing states. To secure federal aid, however, the timber producing states must at least match the funds allotted them, as well as contribute their share in the form of taxes, to the general fund.

While the efforts of some states at fire protection antedate the passage of the Weeks Law, the effect of federal cooperation has been to stimulate state effort very materially. It has also resulted in a very marked increase in the efficiency and effectiveness of state effort, since the federal government requires the states receiving aid to maintain reasonably efficient and effective protective organizations.

Interdepartmental cooperation.

There are many opportunities for interdepartmental cooperation within states in the matter of fire protection. Such cooperation is specially provided for in many cases. For example, game wardens and state police are usually made ex-officio fire wardens. Some states, as has been noted, have even gone so far as to combine related activities in a single department in an attempt

to insure such cooperation. The effectiveness of inter-departmental cooperation, however, depends primarily on the personal relations and the interest of cooperating officials.

Cooperation of local communities.

Whole hearted local cooperation is an essential to effective state effort. Securing and holding the cooperation of local communities, however, is one of the most difficult problems state protection officials have to solve. This is particularly true in the east and south where local communities enjoy a large degree of independence and where there ~~are~~ is a tendency to resist outside interference in local affairs. Even where the state law imposes certain responsibilities and duties on local officials in regard to fire protection effective action can only be secured by enlisting their interest, since fire protection is only incidental to the office to which these local, ex-officio forest officers are elected. This has led many states to provide for the appointment of special fire wardens by the local governing boards on the recommendation of the state forester, or vice versa.

Cooperation of timberland owners.

Some of the best examples we have of effective forest protection are the result of private cooperative effort. Usually this takes the form of local timberland owners protective associations. Successful examples of such associations are to be found in New England,

West Virginia, Virginia, Pennsylvania, Minnesota, and in the Pacific northwest. Formerly two such associations existed in Michigan.

In many cases such associations have undertaken protection work at their own initiative. In others they have been organized and developed through state effort. In some cases the actual work of protection is handled by the state, the association members paying a part of the cost. In others the associations work independently, with or without state aid.

In the Pacific northwest, where compulsory patrol laws are in effect, the associations usually assume responsibility for the protection of definite areas, the state contributing to the cost in proportion to the area of non-member land protected, and assessing the cost against the land in question. This strengthens the hand of the associations materially and tends to force all land owners in association territory into the associations. In West Virginia the state subsidizes the local associations on a fifty-fifty basis. In Minnesota the associations receive only such incidental assistance from the state as the regular state wardens in association territory can give.

In a few cases individual land owners maintain their own protective organizations with or without state aid. This is feasible, however, only in the case of large holdings. As a rule individual land owners cooperate with

the state by furnishing men and equipment, or by contributing to the cost of protection. In the Maine forestry district this latter form of cooperation is compulsory.

Many other forms and examples of cooperation might be mentioned, but the above will serve to show the possibilities in this direction. In most states the development of cooperation receives all too little attention. While voluntary cooperative effort alone will not solve the states' fire protection problem, properly developed, it will go a long way to make state effort effective.

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