In all laws, as in France, partition is forbidden.

The commune has to provide the protective Forest staff. It also appoints those who manage the local Forest operations, but must select persons who have passed the necessary Forest examinations.

The superior Forest inspection and control are supplied by the State officials. The Government bears the cost of this, but the commune pays all expenses of local management, working, and protection.

APPENDIX B.

NOTE ON THE EUROPEAN LAW REGARDING FORESTS WHICH HAVE A PROTECTIVE CHARACTER IN MOUNTAIN DISTRICTS, &c.

In Europe, the subject of the Conservation of Forests in mountain countries and other places of danger, and where the existence of forest is a protection against landslips, torrents, avalanches and the like, has a great importance; because a large number of such forests are either private property, or belong to Cantons or communes. There is no hesitation in subjecting these to legal control, in the interests of the public.

The French law at the outset states, 'that private forest-owners will enjoy their property fully, subject only to the provisions of the Code.' Those provisions will be found in Articles 117-124 and Articles 136 and 219. The last is the really important one. Under it, the clearance of forest (*défrichement*) is not allowed without the proprietors giving four months' previous notice at the office of the Sous-préfet. For under certain circumstances, the Forest Department may record an *objection* to the clearance. Article 220 states the circumstances under which the Forest Department can file this objection; it is when the preservation of the forest "is recognised as necessary";—

(1) For the maintenance of the soil on mountains and slopes.

(2) For the defence of the soil against erosion and being flooded and overborne (*envahissement*) by streams, rivers, or torrents.

(3) For the maintenance of the water supply in springs and streams.

[1] So in Austria (Law of 1852, Art. 21).

(4) For the protection of dunes, and the coast, against erosion by the sea, and the spread of sand.

(5) For the defence of any territory in such part of a frontier zone as may be specified by a public order of the Administration concerned.

(6) For the benefit of the public health (*salubrité publique*).[1]

The process of objecting is this: the Forest Department gives warning to the parties interested, and sends an officer to inspect the place and draw up a minute report on the state, situation, and circumstances of the forest. This is communicated to the forest owner, who is at liberty to record remarks on it. This "procès verbal" when filed in reply to the notice, constitutes the departmental act of objection to the clearance. The Préfet in Council now considers the matter, and notice of his decision or opinion is given to the Forest officer and to the proprietor, when the whole proceedings are sent up to the Minister of Finance, who, after consulting the proper section of the Conseil d'État, finally decides the matter. The Minister must give his orders within six months of the Departmental objection being signified, or else the proprietor is at liberty to proceed with the clearance.

The other provisions of the Code (Art. 117-121, &c.) relate to minor matters. Private forest guards must be approved by the Sous-préfet, and must take the oath of Forest Service. Private proprietors may claim to free their forests of rights, by the same means as Government can, by "cantonnement" and money compensation. So too, a private proprietor can keep grazing out of the growing portions of his young forest, and can apply to the Administration to declare what parts of his forest are not safe against cattle and should be kept closed.[2]

A proprietor who makes a clearing after it has been prohibited, is

[1] Certain lands are not considered "forests" for the purposes of this Article; for example, a park or pleasure-ground attached to a dwelling-house, and generally, small plots of woodland, not exceeding twenty-five acres in extent, unless such plots are on the summit or slopes of a mountain, when they are not excepted. An important exception also is that if the wood has been planted within the last twenty years, it is exempt. The idea involved in this rule is, that the forest is not a gift of nature which the proprietor can be asked to use for the benefit of the neighbours as well as himself; he planted the wood, and if he had not done so, there would have been none, so that no one can complain if by cutting it down he merely leaves things no worse than they were naturally (Art. 224, but see p. 252.) All plantations of trees on the tops and slopes of mountains are declared exempt from all taxes (*de tout impôt*) for thirty years, by Art. 226. This is to encourage planting in such situations.

[2] Article 124 gave a right, for ten years after the passing of the Code, to the Marine Department to have a first refusal of oak trees of a certain size whenever cut for sale; this has long since expired.

liable to a fine of at least 500, but not more than 1,500, francs, for every *hectare* cleared (that is approximately, 80 to 240 *rupees* per *acre*), and to be made to replant the cleared places within three years. If this is not done, the Department may, on an order of the Préfet, do the planting by its own agents, and recover the cost from the defaulting proprietor.

These provisions of the law are general; besides them there are the special laws for "reboisement" and covering with turf and herbage (*regazonnement*) denuded mountain areas, which are printed together with the Forest Code in the Departmental pocket edition.

It will not be necessary to do more than glance at the provisions of the older law of *reboisement*. The first enactment was contained in a law of July 28th, 1860, and a subsequent law of 1864. These first laws[1] had some rather complicated provisions for publishing by the Executive Government a "declaration of public utility," and then the 'périmètre,' or area selected to be operated on, was declared, after an enquiry by a series of authorities, among whom was a Special Commission. It seems that this discussion included the question whether the work was needed at all, and whether there was any danger: this it was improper to allow, since the interested parties and the Government should settle the matter, before any notification is issued at all. Various provisions were made in cases where private or communal owners of land in the declared *périmètres*, undertook to do the work themselves.

There was at first much opposition to the law; and it was urged that in a great many cases it would be as well (or better) not to create forests (*i.e.*, *reboise* the lands), but to restore the *grazing* ground, *i.e.*, the soil would be consolidated by restoring its covering of turf and herbaceous plants; this of course could be done with much less restriction on the communes, and in a much shorter time, than reboisement. A further law for "regazonnement" was then passed in 1864. Any périmètre formed under the law of 1860 might, on application of the commune, be reconsidered, and the order for its reboisement altered by the substitution, in whole or in part, of *regazonnement*. These laws now stand repealed by the law of 14th April, 1882.

The new law deals with the areas declared under the law of 1860—64, in the following way. It gives the Forest Department three years to consider the whole subject, the areas being meanwhile maintained *in statu quo* (Art. 16). Within this period, the Forest

[1] They were not quite the first; there was an attempt in 1805 (4th Thermidor, an. XIII.) to protect mountain forests with reference to the torrents in the Hautes Alpes. This enactment is still printed in M. Puton's Manual of the Codes.

Department are to consider what lands it is desirable to retain as *périmètres* under the existing law, and it is to publish a list accordingly. All lands not shown in the list, will then revert to the unrestricted enjoyment of the proprietors. A further period of five years is fixed (Art. 18) for the settlement of all claims which may arise consequent on the expropriation, according to the terms of the new law, of the lands which are selected (and which, under the old law, may not have been completely expropriated).

The law of 1882 deals with the entire subject of mountain slopes and their preservation, under *four* different conditions or stages of necessity.

(I.) In cases where the *danger is actually existing*—the soil already ruined, and torrents formed—works of restoration will be necessary. This necessity will be declared by a special law in each case passed by the Chambers (Art. 2), and determining the area to be treated.

The passing of such a law will be preceded,—

(1) By an enquiry in each commune concerned;

(2) By a deliberation of the Municipal Councils of each commune;

(3) By a reference to the Council of the *Arrondissement*, and of the Conseil Général;

(4) By a further reference to a special committee under the presidency of the Préfet, consisting of certain members of the Councils, two members to represent the interested commune, one engineer, and one forest officer.

This discussion *cannot touch the question of the necessity for action* and the existence of the danger (as it could under the old law), for these points have been settled by the passing of the "law" for the undertaking of the work. Objection can only be taken to the extent of the périmètre and other subsidiary matters. The necessary maps and plans are deposited for inspection: the préfet notifies the fact of the law being passed, to each interested commune or institution.

The works on the périmètre are undertaken by the State, and the area is acquired as State property, either by amicable arrangement or under the law of expropriation (Art. 4). Private persons, communes, &c., will, however, be allowed to avoid expropriation and undertake the works themselves, if they can come to suitable terms with the Government: and they may form 'associations' with a certain legal status, in order to carry out works which would perhaps be beyond the power of any one estate by itself.[1]

[1] The details of procedure, as to how private persons are to signify that they will carry out works, and when their refusal may be assumed; how the works are to be carried out on lands expropriated; and how an account is to be sent in

(II.) When there is *not this actual existing danger*, but only a necessity to preserve the forest, so as to *prevent* the possibility of danger, the law allows (Art. 5) that public aid may be given (by gratuitous gifts of seed, plants, &c., or by money grants, or by executing particular works), in order to promote works of plantation, amelioration of the pasturage, or consolidation of the soil. The Art. 224 of the Forest Code, which ordinarily excludes plantations made within the last twenty years by the proprietor from the rule which restricts the total clearance of forest land, is declared not to extend to any reboisement made under this law (Art. 6).

It must of course much depend on the angle of inclination, the elevation, the nature of the soil, and other circumstances, what sort of work for restoration will suffice—whether replanting or turfing, or growth of herbaceous plants. Sometimes alternate belts of meadow land and wood prove useful. A system of "*fruitières*" has been established in connection with *gazonnement* works, which I understand to be reserves or nurseries for the production of seeds of forage plants on the large scale, and of roots for cattle feeding. The object of this and other devices of the kind, is to reduce as much as possible the inconvenience caused by the necessary exclusion of grazing.

(III.) Yet a third stage is provided for. Where it is sufficient merely to stop or regulate grazing, without taking up a périmètre for regular reboisement operations, the land can be subjected to protective closing against grazing (*mise en défens*). This can be done "in mountain lands and pasturage belonging to Communes" whenever "the state of degradation in which the soil is, is not sufficiently advanced to necessitate actual works of restoration" (Art. 7). The existence of this state of things is determined by a decree of the "Conseil d'État." (based on official Departmental report). An inquest is held (previous to this decree) by the same series of Councils, &c., as before; and this inquest fixes the period of closing (up to a limit of ten years); the limits and situation of the lands to be dealt with, and the award of compensation to proprietors for "*privation de jouissance.*" The sum paid goes partly to the municipal

showing what the cost has been; (this sum an owner will have to refund, if he claims the restoration of the land), and all other matters, are contained in the "Règlement d'Administration Publique" for carrying out the law (prepared under Art. 23). The procedure under the law is somewhat elaborate, and it certainly is far too much so for any Indian district. The fact is that ignorant municipalities might, and I believe do, or did, give very great trouble, and put every obstacle in the way of reboisement work. Such a law, so restrained by the elaborate procedure for consultation and revision of every project, before the orders for the work can issue, would certainly be inefficacious, but for the progress of public opinion, and the fact that in many cases the périmètres have got so bad that the necessity for action has become obvious even to the most unreasonable: above all there is the example that successful works set to the communes in the country round.

fund of the commune, partly to the inhabitants of the commune whose rights are suspended. At the expiry of the ten years, if "the State" desires to prolong the protection, it must expropriate the area should the owners so require (Art. 8). The State can execute (during the *mise en défens*) any work which will aid in the consolidation of the soil without changing its character. The ordinary Forest-law penalties are applied in cases of infringement (Art. 11).

(IV.) A fourth stage is also contemplated, *viz.*, when neither there is an actually existing state of denudation or danger from torrent action, &c., nor a prospective danger, nor such a degree of deterioration as would demand a closing of the area; but simply when the *pasturing of cattle ought to be regulated so as to preserve* the grazing ground from deterioration (Art. 12). The communes which this provision affects, are to be specified in a list (prepared by the Forest Department) as directed in the "Règlement" under Art. 23, and revised from time to time. These communes are to submit annually to the Préfet, a statement showing the communal lands subject to pasturage; the *number* and *kind* of cattle which have to be allowed to graze; the beginning and end of the season of grazing; and other conditions necessary to secure the desired result. If they neglect to submit a scheme (*projet de règlement*), or if the Forest Department do not approve of the proposals as sufficient, and the communes decline to introduce the necessary amendments, the Préfet is given power to enforce a proper scheme of management (which must be recommended by a special committee assembled for the purpose of deciding the matter (Art. 13). Certain penalties of the *ordinary criminal law* are applied in case of a breach of these regulations.

German Legislation.

In PRUSSIA a law was passed in 1875,[1] applying to all forests which have a "protective" character. Practically, as State and other public forests are already under the forest *régime* (which is not affected by the law in question), this law chiefly affects private forests.

The list of circumstances under which action may be taken, is given here for the sake of comparison with that in the Indian Act. Forest has a protective character and its destruction may be prevented when,—

(*a*) The soil is sandy, and consequently neighbouring fields, public works, and watercourses (natural or artificial) may become covered

[1] Jahrbuch des Preussischen Forst, 1876, No. 8. There is a French translation (which I have used) in the *Revue des Eaux et Forêts*, Vol. 16, p. 240.

or choked with sand which would be let loose by any destruction of the forest which binds the soil and covers its surface.

(*b*) Where, as a consequence of erosion of the soil, or the formation of ravines and torrents on denuded summits and slopes of mountains, subjacent properties, roads, or buildings, are menaced with injury, or with being buried beneath landslips and falls of stones, or even with being carried away by the landslip itself.

(*c*) Where, if forests on the borders of rivers and watercourses were destroyed, the neighbouring estates would be liable to damage from floods; or where works of any kind are protected by forest from the effects of the rush caused by the sudden melting of ice and snow.

(*d*) Where the clearing of forest growth would diminish the water-supply in streams and rivers.

(*e*) Where such clearing might, in country of an open or generally bare character, or in the neighbourhood of the sea coast, expose villages and their cultivated lands to the action of storms.

In all these cases a proposal may be made, and a decision on it given, with the object of regulating,—

(1) The manner of cutting and working the forest (exploitation).

(2) The execution of planting works.

(3) The construction of accessory works, such as dams, weirs, spurs.

The proposal can only be entertained when the loss to be guarded against, is shown to be greater than the loss to the forest proprietor from suffering the restrictions and carrying out the works proposed.

The various parties who have the right of initiating the proposal before the proper public tribunal, are enumerated. The proposal has to be examined, and one of the members of the tribunal (or even an expert unconnected with it), is appointed as Commissioner to draw up a project stating the particulars of regulation, and the works required in the case. This project is then deposited, so that interested parties may study it and send in objections if they wish to do so. Objections, if any, are decided on by the tribunal. The question, however, whether danger does or does not exist (if this is disputed) may be gone into as a preliminary before the project is prepared.

If the project is accepted and interference takes place, the forest proprietor is indemnified for his loss and for his expenditure on planting and other works. The party making the proposal is responsible for the indemnity, and for the cost of making and keeping in repair the necessary works; but in cases of danger—(*a*), (*b*), and (*c*), (above mentioned) the proprietors of all the estates menaced must contribute in a proportion fixed by the law. In all

cases, the forest-owner must contribute to the expense of works of protection, in a proportion also fixed by the law.

The BAVARIAN law of 1852 (Art. 35) provides that private forest may, as a rule, be cleared, if the object is to devote the land to agriculture, to make it into a vineyard, or re-stock it with a superior class of forest trees; but this is not to be done if the forest is "protective" (*Schutzwald*). Article 36 specifies three kinds of protective forest,—

(1) *All* forest on summits and steep slopes of mountains;

(2) Forest which protects against falling stones ("stone-shoots" I might call them—sudden discharges of masses of loose stones), avalanches, and landslips.

(3) Forest belts which protect against shifting sands, and against the destructive action of rivers and streams.

No form of working by clearing entire blocks (*Kahlhieb*) is allowed in any protective forest; nor must the forest be "devastated" *i.e.*, worked in a destructive and wasteful manner (*verwüstung*). Blanks and insufficiently stocked places must be planted up.

The AUSTRIAN law of 1852 in some respects resembles the French law. No forest can be absolutely cleared away without permission. State forests can never be cleared save with special State sanction in certain grave and exceptional cases, as in time of war, &c.

No forest must be "wasted" so that it will gradually cease to exist as forest and timber growth become impossible.[1]

Private owners may be compelled to re-stock blanks in their forests if these have a protective character. One forest must not be cut down so as to expose another to the action of wind and storm; a belt twenty *klafters* wide must be left. In all forests at a great elevation, or on steep slopes, and wherever there is risk of the soil giving way, the forest must only be cut in narrow strips, which must be immediately re-stocked. Timber forest near the limit of tree vegetation must always be cut by the selection method (jardinage—plänterhieb,[2]) as this does not expose a large area of soil at once.

Forests of private owners are said to have a 'protective character when they require special maintenance and treatment in the interest of the "security of the population and the safety of public and private property" against the various dangers which are enumerated, very much as I have already more than once stated. Private forest in such case may be placed under restrictions (*kann*) by public authority.

[1] Articles 6 and 7. [2] Articles 2—4.

Compensation can be claimed where this results in a restriction of rights and the enjoyment of the property.[1]

In ITALY *all forests*, within certain limits of altitude of situation,[2] are placed under the provisions of the Forest law (*sottoposte al vincolo forestale*). But lands cultivated with vines, olives, and fruit trees, and suitably terraced,[3] are exempt from this rule.

Clearing and grubbing up by the roots (*disboscamento e dissodamento*) are prohibited; but permission may be given to change a forest into *bonâ fide* cereal cultivation, if it is shown that means are provided to prevent any risk. A Forest Committee[4] is to lay down certain principles as to the maximum amount of cutting, the method and locality of cutting, so as to prevent injury to the soil and secure the natural reproduction of the forest. To these the forest-owner is bound to conform.

The Forest Committee is charged with the duty of making a list of all lands that in their opinion come within[5] the terms of law; and provision is made for hearing the parties interested, and deciding objections to the list.

There is a chapter on reboisement work. It is not necessary to give details. It applies to the lands under the Forest law (*vincolati*) according to the terms of the statute. The proposal for reboisement work is originated either by the Minister of Agriculture, or the provincial or communal authorities. The work is carried out at the joint expense of the Government, the province, and the communes interested. The Forest Committee direct the work. The State is

[1] Article 19. A provision is added which I should say was singularly inefficacious, *viz.* that the forest-owner is to *take an oath* that he will observe (he is held responsible for so doing, besides) the special regulations prescribed for the forest placed in *banu*. Inspection is of course provided for.

[2] The forests so situated are described in the law (June, 1877) as "all woods and forests and lands covered with woody-stemmed vegetation (*piante legnose*) (*a*) on the crests and slopes of mountains up to the upper limit of the growth of the chestnut (*Castanea vesca*), and (*b*) those which from their nature and situation might, if they were cleared away and rooted up, give rise to landslips, subsidences of soil, formation of precipices, avalanches, disturbances (to the public detriment) of the flow of water, alterations of the consistency of the soil (*e.g.* bringing about a marshy state of the ground), or damaging local hygienic conditions."

[3] Compare Hazára Forest Regulation II. of 1879, sec. 20.

[4] A committee consisting (*a*) of three members nominated by the Provincial Council; (*b*) of an engineer nominated by the Minister of Agriculture, Industry, and Commerce; and (*c*) an Inspector or Sub-inspector of Forests. The "prefetto" of the province is *ex-officio* president. These committees are a very unfortunate provision: local interests constantly obstruct progress; and the Engineer and the Forest Officer, who know what ought to be done, being only two, are outvoted. It is impossible to manage Forest matters by a sort of debating club!

[5] I do not go into detail, as this list has long ago been prepared; it would naturally exclude some lands that might have been included by older law, and include some that were in 1877 for the first time brought under the terms of the law by the definition above described.

always allowed to expropriate against an indemnity, any of the lands that come under the forest *vincolo*; unless indeed the proprietor make a declaration that he will undertake to do the reboisement work in the manner and within a limit of time, prescribed by the forest committee. Provision is also made that a number of proprietors wishing to act together in restoring a certain area, may form themselves into a recognised legal association (*consorzio*); and if some persons having lands in the middle of the group, will not join, the rest may claim to expropriate him and acquire the land in question, so as to enable them to carry out their scheme.[1]

Lastly, in this review of continental laws, I propose to notice the general law of 1876 for the maintenance of protective forests throughout SWITZERLAND.

In many Cantons there exist local laws for the preservation of forests, and in some the laws have been well observed for many generations.[2] But even where laws exist, they vary from place to place; while in other parts there were as yet no laws; so that it became highly desirable for the Federal Legislature to agree on a common measure for protection of forests. This was the more important because the destruction of forest produces evils that are felt far beyond the limits of the Canton in which the forest lies. The action of one or two torrents may be the cause of sudden and disastrous floods, which affect the river into which they discharge themselves, and sweep away or overflow properties many miles downstream. A road may be covered with *débris* from a single badly denuded locality, and the communication of half a dozen important towns may be affected by it. Hence joint action was especially desirable.

The law applies to all mountainous Cantons and to such parts of other cantons as are mountainous and as are declared to be subject to the law. In this zone of the federal forest-*régime*, *all* forests whether public or private, are under the "surveillance" of the Confederation, if they have a protective character; and all *public* and *communal* forests are included, even if not strictly speaking protective.

Article 4 describes what "protective" forests are; and in order to

[1] Law of 1877, Art. 14. A number of these provisions are very excellent on paper; but unfortunately, too much is left to the committees, which may have a majority of ignorant and prejudiced persons, who can defeat every proposal for enlightened action. Forest restoration demands foresight and a deliberate consent to put up with some present inconvenience for the sake of future safety; but the form 'ignorance' takes in forest matters is always a shortsightedness which can see nothing but the immediate present. Hence it is that the Forest law has worked so little good in Italy.

[2] Especially the Northern Cantons. See *Revue des Eaux et Forêts*, Vol. XV. (July 1876), p. 233.

complete the series of definitions which I have already given from several European laws for the sake of comparison, I will translate this also :—

"Forests of a protective character are those which—by reason of their elevation, or their situation on steep slopes, on mountain summits, ridges, spurs (*saillies*); or in the catchment areas of streams; in mountain passes, ravines, and along the banks of streams and rivers; or being in a country generally devoid of trees; —serve as a protection against climatic influences, ravages by wind-storms, avalanches, falls of ice and snow, stone-shoots, subsidence of soil (*affaissement*), undermining of the soil by water (*affouillement*), erosion of ravines, and torrents and inundations."[1]

All Cantons are charged with the duty of settling and declaring within three years what forests come under the law and what do not; and they *must demarcate all protective forests* within a period of five years.[2] The Confederation appoints an Inspector and staff to see that everything is carried out according to the law.

Article 9 provides that the cantons shall open schools of forestry or give instruction (*au moyen de cours de sylviculture*), so as to provide for training a number of forest employés.

Article 11 unfortunately leaves it to the authorities of Cantons to allow any part of the forest to be cleared: this is very dangerous; but complete clearing in a protective forest is absolutely prohibited, and also of forests in the neighbourhood of protective forests, if such clearing would compromise the existence of the (protective) forest itself. No exception can be made without sanction of the Federal Council.

As usual, partition of communal forests or their alienation, is prohibited.

All rights of grazing and other forest rights are to be got rid of by compensation within ten years, if they are "incompatible" with the maintenance of the forest in such a state as to fulfil its object. Wood-rights, if they cannot be bought out with money, may be commuted for a "parcel of land of the same nature" elsewhere. (Art. 14).

All rights may be regulated and restricted to being exercised in certain portions of the forest only; or if necessary, they may be "suspended or suppressed" (I presume with compensation under the preceding article).

[1] Protection against shifting sands, or against malarious influences, would naturally not find a place in Swiss mountains.

[2] This unfortunate limit has ensured the failure of the good intentions of the law. It would have been wiser to have fixed no limit at all, or said twenty years instead of the absurdly inadequate five.

No new rights are allowed to grow up.

All forests are to be managed according to schemes of working which are to fix the maximum annual yield. The cantons are to arrange for the protection and exploitation of the forests.

A very necessary provision then follows. Hitherto, the law has only spoken of the protection of existing forests; but there may be many cases where now there is only bare land where there ought to be forest. Article 21 accordingly provides that "lands which might become important protective forests within the meaning of Art. 4," shall be reboised on the requisition either of the Government of the canton or of the Federal Council. If these lands appear to be private property, they must be expropriated under the usual law. The Confederation will aid with its common funds important works of reboisement.

These are the chief provisions of the law which are likely to interest an Indian student.[1]

[1] When I received the text of this law there was still an opportunity, though a short one, for its being altered; but I have not heard of any amendment being introduced.