

Sir Dietrich Brandis, a German botanist turned forester, had a profound impact on the introduction of scientific forest management and a national forest service to the United States without ever stepping foot in the New World. His correspondence with leaders of the American forestry movement, especially with his former student Gifford Pinchot, was voluminous, detailed, and widely influential.

FORESTRY BY CORRESPONDENCE

*AN 1897 LETTER FROM DIETRICH BRANDIS
TO GIFFORD PINCHOT*

The following letter from Dietrich Brandis to Gifford Pinchot, written over four days from February 14–18, 1897, came during a tumultuous time for conservation and the establishment of national forests in the United States.¹ By this time, presidents Benjamin Harrison and Grover Cleveland had

created 17,564,800 acres of forest reserves by the authorization given to the president in the Forest Reserve Act of 1891.² The growing issue was that no framework was defined for managing or allowing use on these lands. Western development interests considered the reserves a threat and their patience was waning as no grazing, mining, timber harvesting, or road construction could be permitted on these reserves. As this letter traveled from Bonn, Germany, to Washington, D.C., and into Pinchot's hands, western interests exploded in anger when on February 22, 1897, President Cleveland set aside an additional 21,279,840 acres as forest reserves, just ten days before he was to leave office.³

The recommendation for the so-called Washington Birthday Reserves came from the National Forest Commission, which had been established one year earlier by the National Academy of Sciences at the request of the Department of Interior Secretary Hoke Smith. Smith had invited the commission to explore what would be needed to protect, administer, and manage the forest reserves, and to suggest specific legislation.⁴ Although the commission made recommendations for the additional reserves in

January 1897, the final report was not submitted until May. At the heart of the debate among commission members was the type of structure needed to administer the reserves and provide for their protection and management.

Pinchot, the commission's secretary and its only trained forester, thought that a great opportunity was lost when the commission did not suggest a way to manage the forest reserves along with its recommendation for additional reserves. He blamed Charles Sargent, the chair of the commission, for this blunder, and became even more disenchanted when Sargent pushed his view into the final report that the forest reserves should be protected by the military and not professional foresters, as Pinchot advocated.⁵

Because he felt the preliminary report was so flawed, Pinchot wrote to his mentor Dietrich Brandis, whom he had met in 1889, asking him about how to construct an effective government forest service. Pinchot could not have selected a more qualified forester to mentor him. Sir Dietrich Brandis is universally considered the father of tropical forestry. Born in 1824 in Bonn,

BY STEVEN ANDERSON

Germany, he received his doctorate in botany from Bonn University in 1849. After teaching there for six years, Brandis took the position of Superintendent of Forests in the Pegu province of Burma, then under the British government at the height of its empire. He introduced scientific forest management and promoted sustainable forestry throughout Burma and India. Brandis' work included the determination of teak volume, rate of growth, identifying rate of harvest, and developing forest protection plans against pests and fire. He also introduced timber purchase rules, harvesting rules, and the establishment of managed teak areas called conservancies with officers who were appointed as conservators. After seven years in Burma, Brandis became Inspector General of Forests in India, a position he held for 20 years. He formulated new forest legislation and helped establish research and training institutions, including what is now the State Forest Service College at Dehra Dun. After retirement Brandis continued to work on Indian forestry issues. At age of 75, he started his principal botanical work, *Indian Trees*, which covered 4,400 species.⁶

Just as he had been the force behind the training of European foresters such as Berthold Ribbentrop, William Schlich, and Carl A. Schenck of Germany, Brandis "had a guiding hand in shaping many of the men whose fortune it became afterwards to shape the general policy of forestry in the United States."⁷ In addition to Pinchot, these included Henry Graves, Overton Price, Frederick E. Olmsted, and T. H. Sherrard.⁸ He also influenced American forestry policy through voluminous correspondence with those involved in the early conservation movement in the United States including Franklin B. Hough, Bernhard E. Fernow, Carl Alwin Schenck, and Charles Sargent.⁹ Brandis' impact on Pinchot's professional insights and aspirations was profound: "Whatever good fortune I may had in forestry I owe in very large part to the kindness of Sir Dietrich in taking charge of my preparation for the forest work, and in keeping in touch with me until his death," Pinchot recalled.¹⁰

Brandis' detailed letter to Pinchot was typical of the German forester's correspondence with the younger American, and was, as Pinchot noted, "completely characteristic of his general willingness to take pains. It covered no less than twenty large pages written in his own hand and divided into eleven topics by headings in red ink."¹¹

The letter not only reflects the relationship of the two men but also portends the limits of the mentor relationship. While Brandis described a preferable administrative hierarchy, he clearly



Gifford Pinchot, at the time of his graduation from Yale in 1889. While still at Yale, he declared that "forestry is my meat," even though at the time he had little idea of what it really involved. He then went on to study forestry in Europe under the tutelage of Dietrich Brandis.

COURTESY OF GREY TOWERS NHS.

suggested that "it may at first be convenient to employ a military force" to protect the forest reserves and that "besides any Military Officers who may be selected...it will help to make better progress in the beginning, if a few competent German young forest officers are engaged to fill vacancies." Pinchot did not pursue either course. He recognized that Brandis' conception of the forest problems in the U.S. were limited by "his lack of direct personal familiarity with all the conditions here." But Pinchot also felt "great responsibility" to the relationship: "If we had to differ from his point of view...we took care always to be very sure we were right before taking action."¹²

In balance, while head of the new Forest Service, Pinchot adopted more of Brandis' recommendations than he dismissed. He followed the general hierarchy for the Forest Service that Brandis had outlined, including embracing the term "ranger." He eventually accomplished Brandis' recommendation in the letter to "to take in hand" one district in order to demonstrate that harvesting could be effectively regulated. After hearing of Cleveland's proclamation of the new reserves, Brandis suggested in a subsequent letter, "The Black Hills Forest in Dakota and Wyoming seems to be the most suitable to make a beginning of regular management."¹³ In further correspondence he pointed out to Pinchot that "there is a certain demand for the mining and agricultural population in the vicinity. The forests therefore may be profitably worked at once."¹⁴ Following the passage of the Organic Act in June 1897, Pinchot encouraged the Homestake Mining Company to submit an application for a timber harvest on the Black Hills Forest Reserve. In 1899, it became the first regulated timber harvest on the forest reserves.¹⁵

Perhaps one of the most influential parts of Brandis' letter was his warning to Pinchot of the possible "dishonesty and corruption" of staff who are working in far away places. Pinchot knew this all too well, as he had been critical of the corruption in the General Land Office and the Department of Interior that was supposed to be protecting the reserves. Brandis shared that the only safeguard was "to foster among the members of the State [meaning "federal"] forest service, a healthy feeling of professional pride



In 1890, Gifford Pinchot joined Sir Dietrich Brandis and his students on their excursions through German and Swiss forests. Pinchot wrote at the time, "What I should be as a forester without Doctor Brandis makes me tremble." Brandis is in the center holding the staff, and Pinchot is to his left, wearing the cap.

and confidence, an 'esprit de corps,' such as exists among Officers of the Army and the Navy. The indispensable condition for the growth of such a spirit is a thorough professional training, both practical and theoretical. The growth of that spirit may be furthered by a free interchange of experiences and opinions upon professional matters." To encourage that development, the Pinchot family underwrote the creation of the first graduate program in forestry at Yale University, with its summer camp on the family estate in Milford, Pennsylvania, at which forester camaraderie was

nurtured and from which a professional élan sprang. Pinchot also organized the Society of American Foresters to foster the "free interchange" of ideas and professional experiences.¹⁶

Years later, Pinchot happily acknowledged the historic nature and formative power of Brandis' 20-page letter, and his debt to his mentor's ideas. As he wrote in *Breaking New Ground*: "I suspect that not only the unequaled morale of the Forest Service but also the existence of the Society of American Foresters may have had their points of departure in that remarkable letter."¹⁷

LETTER FROM DIETRICH BRANDIS¹⁸

BONN, GERMANY FEBRUARY 14–18, 1897

Dear Mr. Pinchot,

Yours of 2nd inst.¹⁹ requests my opinion regarding the organization of a Forest Service in the United States.

The main point which I wish to impress upon you is that any organization which it may be possible to establish must be developed gradually from comparatively null beginnings.

APPOINTMENT OF CHIEF FOREST OFFICER

Should Congress really decide to take action, and should the next President and his Ministries be favorably disposed, then I presume, one of the existing Departments will undertake the business, either

the Department of Agriculture, or that of the Interior. Under the Minister concerned there must be an Officer invested with large powers, to whom the work of organizing the new business must be intrusted. I understand that the action now contemplated will be limited to those forest lands, which are under the control of the Federal Government.

ONE FOREST DISTRICT TO BE TAKEN IN HAND AT ONCE

It will then be necessary to decide, which forest district should be taken in hand first. It will be best to select a forest district, stocked, partly at least, with marketable timber, so that lumber

operations may commence at once. These operations, however, must, as a matter of course, be undertaken very cautiously, at one place only, and they must from the beginning be effectually supervised. They must be regulated by a preliminary rough working plan intended to ensure a sustained, and if possible an increasing annual yield from that forest district. The collection of the data to frame this preliminary working plan will be a difficult business, and will demand the entire services of an experienced forester. It must be done rapidly and cannot be expected in all respects to yield accurate results. The safeguard in such cases is to fix the quantity to be cut annually, or the area to be cut over annually, much below the supposed possibility of the forest district.

Before however Lumber operations are commenced, these things must be settled:

- I. The State must be made, beyond all doubt, the absolute proprietor of the land and of the forest standing on it. A notification therefore must be published, declaring the forest district to be a State Forest. That notification must invite all persons who may hold themselves entitled to any rights of user within that forest district, to submit their claims by a certain date.
- II. The boundaries of the area thus declared a State Forest must be demarcated, in the first instance by means of temporary boundary marks, which eventually must be replaced by permanent marks.
- III. The Forest district must at once be placed under efficient protection, and if possible, fires must be kept out from the commencement.

APPOINTMENT OF FOREST RANGER

All this implies, that the forest district selected must at once be placed under a competent local office with the needful establishment. This Officer it will be convenient to style *Forest Ranger*. When all this has been accomplished, operations may be commenced in a second forest district, and in this manner gradually the entire area that may be under the control of the Federal government, may be taken in hand.

MATTERS TO BE PROVIDED BY SPECIAL LEGISLATION

In all new undertakings on the part of Government, it is well to delay legislation, until more experience has been gained. Certain matters however will have to be provided for at once by a special enactment. Of these the most important are:

1. The declaration by the Federal Government of a State Forest must be recognized by law.
2. The notification inviting claimants to prefer their claims by a certain date, must have legal force, claims preferred after the date notified being null and void.
3. The Officer entrusted with the examination and the settlement of these claims, and with the commutation, by money payment, by the grant of land or otherwise, of such rights of user as may have been proved by claimants (whom you had better at once call Settlement Officer), must be invested with definite power and it must be provided, under which circumstances and up to which date appeals may be preferred from his decisions. The Tribunal, to whom such appeals will

lie, must be named and be invested with special powers, making their decision absolute and final.

4. The procedure in the examination and settlement of claims, of the forest settlement officer and of the Tribunal empowered to hear and finally to decide appeals from his decisions, must be settled.
5. After an area has been declared a State Forest by competent authority, no new rights of user can be acquired by prescription or otherwise. No land can be sold or granted in a State Forest and no proprietary rights can be acquired by [squatters(?)].
6. Certain acts, unless sanctioned by competent authority, must be declared penal, and punishments must be provided for them. At the outset it will be best to limit the provisions under this head to what seems most urgently required, such as:
 - a. Kindling a fire within the limits of a State Forest and outside within a certain distance from its boundary.
 - b. Driving sheep, goats or other cattle into and inside a State Forest
 - c. Cutting trees, shrubs, etc. within a State Forest.
 - d. Removing timber and other produce from a State Forest and moving it within a State Forest.
 - e. Entering areas set apart for the regeneration of the forest and specially marked by competent authority.
 - f. Injuring or moving boundary marks.
7. The local Forest Officers, Forest Rangers, Foresters and Forest guards must be invested with the power of Police Officers.

Provisions to the above effect you will find indispensable, as soon as you commence work. In the present communication I have only enumerated them. The framing of an enactment containing these provisions will be a difficult piece of work.

ORGANIZATION OF THE STATE FOREST SERVICE

The preceding remarks will have made it clear that the Organization of a State Forest Service will require the following classes of Offices:

- I. **Directing and inspecting Officers.** There must be one responsible Officer immediately subordinate to the Minister who will take charge of the forest business, who you may call Commissioner of forests, Director General or Inspector General of Forests, whatever designation may appear suitable. At the outset he must have one or several competent Assistants and the needful Office establishment. Eventually, when a number of forest districts have been organized, it will be convenient to have under him a number of Conservators of Forests, say one to control the management of all forest districts situated in one State, but this expansion of the organization need not be thought of at present.
- II. **Executive Officers.** These, it has already been suggested, should be called Forest Rangers. Each Ranger will have complete charge of one forest district of manageable size. At the outset Rangers will be directly subordinate to the Chief Officers, eventually some of the senior and more competent Rangers will be promoted to Conservators, and each Conservator will have a number of Rangers under his control. In the case of large Ranges, it may be convenient to appoint Assistant Forest Rangers.
- III. **Protective Forest Officers.** Foresters and Forest guards. In the place of these it may at first be convenient to employ a military

force in some of the State Forests, as has already been done in some of the reservations.

IV. Forest Settlement Officers. These must be men with legal experience. If the whole business expands, it may be convenient eventually to attach them permanently to the forest service, with the prospect of eventually being appointed Conservator, after having served some time as forest ranger.

I repeat, that these suggestions are offered on the supposition that this organization is only intended for the Forests under the control of the Federal Government. When a successful commencement has been made in the management of some of these lands, then doubtless those States, which have the means of acquiring forest lands within their limits, will imitate the action taken by the Federal Government, and will establish a Forest Department of their own.

OFFICERS, WHENCE TO BE PROVIDED AT THE COMMENCEMENT

It will now be well to say a few words regarding the measures that may become necessary in order to provide Officers for the Federal Forest Service. Here also I beg to urge most strongly the advantage of proceeding gradually. The Forest Service must develop gradually from small beginnings.

A competent man for the appointment of Chief Forest Officer will be necessary from the beginning, and at the outset he ought to have an Assistant. The work to be accomplished by him will often necessitate his absence from Headquarters; he will have to superintend personally the organization of the business in the first forest districts that will be taken in hand. And during his absence or during the absence of his Assistant, either one or the other must be present at Headquarters.

For each Forest district that may be taken in hand, a Forest ranger and one Assistant ranger must be appointed as well as the needful protective establishment, unless it should be determined to employ a Military Force for that purpose.

The Chief Forest Officer and his Assistant ought to be men who have received a thorough professional training and have had experience in the management of forests.

This is also necessary, as a rule, in the case of Forest Rangers, and there must be a few additional men with professional training and experience in forest management, available for special duties, such as the examination of forest districts, and to assist Forest Rangers in the preparation of the rough preliminary working plans, which at the outset are to regulate operations.

For the duties of Forest Settlement Officers a few young men with legal training; who have studied for the Bar or for the Judicial Service, should be selected by the Chief Forest Officer. Only men of active habits, who have a liking for rough camp life in the forests, should be selected, and for those among them, who may be found suitable for the work and who may wish permanently to remain in the forest service, arrangements should be made to make it worth their while to do so. Any men of this class, who may be available at the beginning, should be employed under the direction of the Chief Forest Officer on special duty until the time comes, that they can enter upon their work as Forest Settlement Officers. Such men may be employed to examine forest districts intended to be taken up as State Forests specially with the view of determining in a preliminary manner the extent to

which the State may be regarded to have property rights in those lands, and the limitation of those rights that may be claimed by private parties. Among men of this class the Chief Forest Officer will probably select those who are to assist him in drafting the Bill to be presented to Congress that is to regulate the management of the State Forests.

Regarding the Legislation proposed for this purpose, it would be a very great advantage, if as a preparatory and purely temporary measure, and enactment could be passed by Congress, empowers the President to issue an Ordinance; having the force of law claiming his tenure of Office, and containing those provisions enumerated above, which are necessary for the constitution, effective protection, and good management of the areas which may be declared as State Forests during his tenure of office.

Time and experience would thus be gained for the preparation of the Bill, to be hereafter submitted to Congress, and mistakes in this important branch of legislation would be avoided.

EMPLOYMENT OF MILITARY OFFICERS

From what has here been explained, it will be evident, that apart from the Officers with legal training, from 4 to 6 professionally trained and experienced Officers will be required at the outset, before any useful action can be taken. Should the number of such Officers required at the outset not be available in the United States, then it will have to be considered, whence to take them. Further on it will be explained, that a system must be set on foot at once, under which young men may be induced and may be enabled, to obtain that professional training that will qualify them to enter the United States Forest Service. This system however obviously cannot furnish candidates at the outset. For the first 3 or 4 years therefore special arrangements must be made. During this period, if good progress is made, a member of forest rangers will be taken in hand, hence a much larger number of competent Officers may be required during the first 3 or 4 years, and the question arises. Perhaps it may be found possible to do what was done in India, in order to obtain Officers before candidates became available under the system organized in 1866 (to send annually a number of young Englishmen, specially selected to France and Germany for their professional training), and before the Indian Forest School at Dehra Dun was established.

In those days a large number of Military Officers were selected for the Forest Service in the different Provinces of the British Indian Empire. The names of Colonel Pearson, who was the first to establish protection against fire on a large scale, of Colonel Bailey, who organized the Forest Survey and was afterwards the first Director of Dehra Dun Forest School, as well as that of General Seaton, who established the system of Teak Taungya²⁰ plantations in Burma, are familiar to all those who have paid some attention to the history of forest management in the British Indian Empire. But besides these, I could name a large number of Military Officers who, under the guidance of competent men, have done excellent work in the early days of forest management in India.

These Officers were at first employed on probation, and those only were retained in the service permanently who were found suitable. The others returned to military duty.

At the same time a number of Medical Officers of the Army were employed in the forests. It will suffice to mention names of Dr. Hugh Cleghorn and of Dr. J. Lindsay Stewart, who have both done excellent service, the former as Conservator of Forests in

Madras, the latter as Conservator of Forests in the Punjab.

Should the plan of employing a number of Military Officers in the forest service be decided upon, two things must be distinctly understood. The selection of the Officers must be made with great care, and they must in the first instance be employed on probation. Secondly, those who are found to be suitable and who wish to enter the forest service, must do so, not as a temporary measure, but permanently; their ambition must be, to rise in the Forest Service.

A FEW EXPERIENCED FORESTERS FROM GERMANY MUST BE ENGAGED

However, besides those men with professional training and experience in forest management, who may be available in the United States, when the start is made, and besides any Military Officers who may be selected, it will be a very great advantage and it will help to make better progress in the beginning, if a few competent German young forest officers are engaged to fill vacancies.

The same thing was done in 1866 for the Indian Forest Service. At that time I had worked 10 years in organizing matters, first in Burma and afterwards in several provinces of North India. On the occasion of my first furlough in Europe, I urged two measures: one, the selection annually of a number of young Englishmen to be sent to India, after undergoing a course of professional training on the continent of Europe, the other selection of two forest Officers from Germany, to be engaged under contract on liberal conditions. I had made up my mind, only to take picked men, and only to take very young men. I took great pains in the selection, and was greatly favored by circumstances. Dr. Schlich from Hesse-Darmstadt succeeded me, when I left India in 1883, and when he left India in 1886, in order to organize the Forest School at Coopers Hill, Berthold Ribbentrop from Hanover became the successor of Dr. Schlich. Without the eminent services of these two men, forest business in India could not have made the progress that has actually been accomplished.

A similar proceeding I would strongly recommend for the forest service in the United States.

PROFESSIONAL TRAINING OF CANDIDATES FOR THE FOREST SERVICE

I now proceed to indicate the measures, which will have to be taken, in order to secure for the future a regular annual supply of men with the necessary professional training. The best preparation in my opinion for a young man, anxious to enter the Forest Service in the United States, consists of three distinct courses: First, the candidate must master the first principles of Law and of Political Economy, as well as the branches of Mathematics, of Geology, Chemistry, Botany and Zoology, which form the scientific foundation of his profession. Second, he must have worked with his own hands on American forests in timber operations, in planting and other forest work. When this has been accomplished, then must follow a two years' training in Europe, partly practical, partly theoretical. For this course of training special arrangements will have to be made, and my recommendation is, that they be made in Germany and in some forest districts of Eastern Switzerland, and for this purpose, Candidates must have good knowledge of German. This knowledge, apart from the present proposals, is indispensable, as the German forest literature is out and out the richest, the most varied and the most complete of all.

Under these arrangements, a young man, who has acquired the scientific knowledge required in Mathematics and Natural Sciences, would spend say one year in American Forests and two years in those of Germany and Switzerland. More it seems needless to say on the present occasion. The organization of this part of the business will require great care, for on it will depend the future progress of systematic forestry in the United States.

DIFFICULTIES TO BE GUARDED AGAINST

If I am correctly informed, one of the objections which earnest public men in the United States entertain against the organization of a State Forest Service is the apprehension, that it may give opportunities for dishonesty and corruption amongst the members of that Service. True, their work is done in places out of the way and difficult of access. And the result of their operations does not manifest itself immediately. If a bridge or other structure is badly constructed, or built of inferior materials, the mischief is discovered, either at once or after a few years. If a forest has been injured by unjust management or by excessive cuttings, the result does not manifest itself, except after a long series of years. The experienced forester, it is true, may discern the mischief at once, but to prove it to the satisfaction of the Judge, may often be difficult. A reckless or careless Forest Ranger may be an extremely popular man, because he has supplied the trade with an abundance of excellent timber, and he may earn the admiration of the uninitiated, because the financial results of his operations have been brilliant. These difficulties are real, and the only safeguard to foster among the members of the State forest service, a healthy feeling of professional pride and confidence, an "esprit de corps," such as exists among Officers of the Army and the Navy. The indispensable condition for the growth of such a spirit is a thorough professional training, both practical and theoretical. The growth of that spirit may be furthered by a free interchange of experiences and opinions upon professional matters. It has been explained, that all operations in a State Forest must be governed by a well considered working plan. The main provisions of this working plan must be the result of free personal discussion between all Officers concerned, the Ranger and his Assistant, the Officers attached to him, to collect the data for the preparation of the working plan, and the Chief Forest Officer, until a number of Forest Rangers are placed under one Conservator, when this Officer will take the lead in this matter within the districts under his control. These discussions must be open to all foresters who may be able to attend. There must be no secrecy in professional matters, everything must be above board and open to all competent to understand it.

The management of large forest estates necessarily involves considerable money transactions. From the beginning great care must be bestowed upon the establishment of a good system of accounts, and it will have to be considered, whether a special Comptroller of Forest accounts should now be appointed, and under which Department of the State he should be placed. Abstracts of the annual accounts of State Forest management, as well as abstracts of the annual reports, exhibiting the quantities of timber cut and sold in the different ranges, should be regularly published.

The position of State Forest Officers should be secured, all, including the Chief Officer, should hold their appointments, while efficient and zealous for the public good, without reference to political changes. Their pay and allowances should be fixed on a

liberal scale, and suitable pensions should be provided after retirement. All arrangements should be framed, with the view of making an appointment to the State forest service a prize to be coveted by the best among the young men of the United States.

ESTABLISHMENT OF A NATIONAL FOREST SCHOOL

Eventually, when a number of forest ranges have been put into proper order, when their protection and good management is assured, the professional training now recommended to be given in Germany and Switzerland, may then be given in the United States, and then it will be time to establish a Forest School at a suitable locality within easy reach of those forest districts. At present, without a sufficient area of properly managed School Forests, the establishment of a Forest School would be premature, and I cannot recommend it.

Systematic forestry was developed first of all in Germany, here the experience gained is oldest, and forest management has here been brought to the greatest perfection, not everywhere upon one system. On the contrary the result aimed at has been attained by a great variety of systems, which have been adapted to the peculiar circumstances of each district. The experience gained in the different countries of Germany forms, as it were, a solid foundation whereupon to build the different systems of management, that will have to be established in the forests of America. Hence systematic forest management in the United States will necessarily at first be an exotic plant. Upon this point there ought to be no feeling of national jealousy. As soon as the substantial benefits derived from systematic forestry have commenced to show themselves, that feeling will, I feel sure, disappear and I consider it by no means impossible, that a larger number of experience German Forest Officers, than those suggested to be sent for at the outset, will eventually be sent for, in order to accelerate progress and to place the establishment of a National Forest School upon a perfectly solid basis. When this has been accomplished, systematic forestry will no longer be an exotic plant, but will take high rank as a most important National Institution.

I shall feel obliged by your submitting this letter to the Chairman of the Forest Commission, Professor Sargent, with my best regards. Should it be printed, I should be glad to have a few copies.

Believe me,
Most truly yours,
D. Brandis



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NOTES

1. Dietrich Brandis to Gifford Pinchot, 14–18 February 1897, Gifford Pinchot Papers, Manuscript Division, Library of Congress, Washington, D.C.
2. USDA Forest Service, *The Principal Laws Relating to Forest Service Activities* (Handbook No. 453. Washington, D.C.: GPO, 1974, 1993), 5. The authority for creation of Forest Reserves, renamed National

Forests in 1907, was provided for in an act commonly referred to as the Creative Act or Forest Reserve Act of 1891 (Ch. 561. 26 Stat. 1103: 16 U.S.C. 471). The one sentence amendment to the General Land Law revision Act stated, “Sec 24. That the President of the United States may, from time to time, set apart and reserve, in any State or Territory having public land bearing forests, in any part of the public land wholly or in part covered with timber or undergrowth, whether of commercial value or not, as public reservations, and the President shall, by public proclamation declare the establishment of such reservations and the limits thereof.” Also see: Terry L. West, “Reserve Act and Congress: Passage of the 1891 Act,” in *Centennial Mini-Histories of the Forest Service* (Washington, DC: USDA Forest Service, FS-518, 1992), 27–29.

3. Gifford Pinchot, *Breaking New Ground* (Washington, DC: Island Press, 1974), 107.
4. James G. Lewis, *The Forest Service and the Greatest Good: A Centennial History* (Durham: The Forest History Society, 2005), 19–20; Harold K. Steen, *The U.S. Forest Service: A History*, Centennial Edition. (Durham, NC, and Seattle, WA: The Forest History Society and University of Washington Press, 2004), 31; and Pinchot, *Breaking New Ground*, 89–90.
5. Char Miller, *Gifford Pinchot and the Making of Modern Environmentalism* (Washington, DC: Island Press, 2001), 136; and Steen, *U.S. Forest Service*, 32, 51.
6. As yet, there is no thorough and well written English-language biography of Brandis. S.S. Negi’s thin and poorly translated *Sir Dietrich Brandis: Father of Tropical Forestry* (Dehra Dun: Bishen Singh Mahendra Pal Singh, 1991) is the only English-language biography of Brandis to date.
7. Gifford Pinchot, “Sir Dietrich Brandis,” *Proceedings of the Society of American Foresters* 3 (October 1908): 59.
8. Henry S. Graves, “Gifford Pinchot—Eighty Years Young,” *Journal of Forestry* 43(8) (1945):547–553.
9. Negi, *Sir Dietrich Brandis*, 100–04.
10. Pinchot, “Sir Dietrich Brandis,” 55.
11. Pinchot, *Breaking New Ground*, 106.
12. Pinchot, “Sir Dietrich Brandis,” 59.
13. Brandis to Pinchot, 27 March 1897, Pinchot Papers.
14. Brandis to Pinchot, 8 July 1897, Pinchot Papers.
15. Richmond L. Clow, “Timber Users, Timber Savers: Homestake Mining Company and the First Regulated Timber Harvest,” *Forest History Today* (1998): 6–11.
16. For more on the role of Yale’s summer camp in creating esprit de corps, see: James G. Lewis, “The Pinchot Family and the Battle to Establish American Forestry,” *Pennsylvania History* 66 (Spring 1999): 143–165; and Edith Nye MacMullen, “Planting the Seed: The Origins of the Yale Forest School,” *Forest History Today* (Spring 1999): 11–16.
17. Pinchot, *Breaking New Ground*, 107.
18. Dietrich Brandis to Gifford Pinchot, 14–18 February 1897, Gifford Pinchot Papers.
19. Short for “instant,” meaning, February.
20. “Taungya” is a system of forest plantations in which peasants are allowed to cultivate crops for the first few years between the seedlings of forest plantations. See *Taungya: Forest Plantations with Agriculture in Southeast Asia*, ed. by Carl F. Jordan, Jiragorn Gajasen, and H. Watanabe (New York: Oxford University Press, 1992). When Brandis took charge of Burma’s teak forests, they were controlled by Karen tribes. He adapted their “shifting agriculture” system and introduced the “taungya” system, in which Karen villagers provided labor for clearing, planting, and weeding teak plantations. In return they were allowed to plant crops for the first few years between the trees. As the teak trees grew, villagers were moved to new land and the process was repeated. As a result of this process, many villagers became dependent on the state forestry service and local resistance to the state takeover of forests decreased.