

planting projects were being established. The Bureau of Forestry furnished limited quantities of seeds of teak, molave, lum-bang, ipil-ipil, and tuai, while rangers were instructed to secure large numbers of narra cuttings for the schools in their districts.

In quite a few high schools and normal schools in the United States short courses in forestry are given in connection with the subject of physiography, showing the influences of forests on rainfall, climate, erosion, and soil improvement. In such a course the Bureau of Forestry can coöperate to a great extent. In the course in economics also, this Bureau can contribute much to the study of conservation of natural resources, and the effect of forest products upon the economic independence of a nation.

BUREAU OF LANDS AND THE BUREAU OF EDUCATION.

By WALTER E. JONES, Assistant Director of Lands.

There is not a more important factor for the success of the Bureau of Lands than a complete dissemination of the knowledge of laws and regulations governing the acquisition of public lands.

Recognizing the fact that the Bureau of Education, through its teachers and pupils, is one of the best mediums for the dissemination of knowledge, not only in regard to the manner in which public lands may be acquired, but also in regard to the conversion of imperfect titles or long possession into perfect ownership, the Bureau of Lands furnished the Bureau of Education several hundred primers explanatory of the Public Land Act. This has made it possible for the teachers and students to read the law and understand it and explain its provisions to settlers and prospective settlers on the public domain.

A considerable source of annoyance in former years has been the deception practised by unscrupulous persons upon people who were ignorant of the law and of their rights. This has been eliminated to a great extent through the gradual education of the people and through the aid which has been given by municipal officials, in gratuitously making out such papers as are necessary for homestead and other applications.

In view of the fact that a large part of the forms and other papers are made out in English, the teachers and pupils can be very helpful to people who are desirous of becoming settlers on the public domain—the teachers through explaining to pupils the laws and regulations regarding the disposition of public lands and the pupils in turn explaining them to their relatives and to the friends of their families.

A large percentage of the students who have gone from the Muñoz School, realizing the great advantages which are given to the small settler by the land laws of the Philippines, have taken advantage of those laws to acquire ground in sufficient quantity to make a small prosperous farm. These examples demonstrate what can be done through care and system. Besides, these students not only bring with them other settlers, but their farms are models for those who are already landowners.

As will be noted from the foregoing, the coöperation of the Bureau of Education in this respect is of great value. The question of landownership and the granting of homesteads to enable the poor to have homes and land of their own is of such vital importance to the economic development of the country that the diffusion of knowledge in regard thereto among the students will be a blessing to the future generations in causing them to avoid the many land disputes which now annoy the farmers.

SCHOOL SITES.

In the construction of barrio or municipal schools under the Gabaldon Act, the Bureau of Lands undertakes to make the necessary survey, plans, and descriptions of the school sites, and helps in the prompt expediting of the titles thereof.

SURVEYING SCHOOL.

Another instance in which is shown the close coöperation that exists between the Bureau of Education and the Bureau of Lands is found in the organization and management of the Surveying School.

The Surveying School was created as a department of the Manila High School, for the instruction of students who have satisfactorily completed the second year of the high-school course. Due to a recent change, the Surveying School is now a part of the Philippine School of Arts and Trades.

An application for appointment as apprentice surveyor is forwarded to the division superintendent of schools who certifies as to the eligibility of the applicant. The application then goes to the Director of Education, who forwards it to the Director of Lands, who makes the selection for the appointment from the numerous applications received.

Appointees are designated as apprentice surveyors and are paid a salary of ₱240 per annum during the first year, and ₱360 the second year, providing the student has qualified in the junior surveyor examination held by the Bureau of Civil Service.

Students entering these classes are required to pursue a

course of study in addition to the surveying subjects which will qualify them for graduation from the high school or the School of Arts and Trades.

On graduation, those students who have qualified in the junior surveyors examination are assigned to duty with survey parties of the Bureau of Lands which are stationed in the provinces and are given a salary of ₱600 per annum, and in addition necessary traveling and living expenses.

The Bureau of Lands details an experienced surveyor to teach the surveying subjects in the School of Arts and Trades, the regular instructors of that school teaching mathematics and other subjects required for graduation.

After assignment to field duty and appointment as junior surveyors, a promotion of one grade per annum is usually granted, provided the employee's services have been efficient and satisfactory. After three or more year's service in the field, junior surveyors should be qualified to pass the civil-service examination for appointment as surveyor, which, if passed successfully, leads to an appointment at ₱1,200 per annum. Promotions subsequent thereto depend upon the ability and efficiency of the employee.

At the present time there are 59 surveyors employed in the Bureau of Lands at ₱1,200 or more per annum who have followed this course of instruction and qualified as surveyors. There are 45 junior surveyors who have been assigned to field duty and are receiving salaries of ₱600 or more per annum.

The first class was started in 1906 and subsequent classes have increased in size each year. The number of students entering the class of 1916 will approximate 50.

The profession of surveying will be of great importance in the Philippine Islands for many years to come, and the subdivision of public lands and the survey of private properties still to be undertaken will require the services of many surveyors. This profession is very interesting, but at times involves great physical exertion. It is a class of work with which every civil engineer must be familiar, as it enters into the solution of practically every engineering problem. The nature of the instruction given in the surveying course and the field experience gained after graduation from the surveying school, form an excellent groundwork for an engineering training.

There is one condition attached to the appointment as junior surveyor; students are required to sign a contract to remain in the service of the Bureau of Lands for four years, and resignations are not accepted during that time.