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Origin and Development of Plant Quarantines

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As the year 1930 draws to a close, completing the 26th year of the activities of the Hawaiian Entomological Society, I am mindful of the fact that the outgoing executive officer is, by all rule and precedent, obliged to submit an address, and claiming no exemption from the established order, it devolves upon me at this time to present such a paper. My predecessors or at least a majority of them, being primarily interested in and identified with projects of a systematic nature, have chosen topics relating to systematic work as the subject matter of their discourses. With me the situation is somewhat different. While I am intensely interested in systematics and research, administrative duties so fully occupy my time and attention, that I have been unable to do more than maintain a slight contact with such work. In casting about therefore, for a suitable subject for this occasion, it occurred to me that possibly a brief paper concerning plant quarantine would be acceptable, and as no previous consideration seems to have been given this subject by those having gone before me, it appeared that a Brief Resume of the Origin and Development of Plant Quarantines would be appropriate.

At some period during the beginning of the latter half of the last century there occurred an event or perhaps more properly, a series of events that were destined to be known to future generations as the basis upon which plant quarantine practice is founded. I refer specifically to the transportation to and establishment in widely separated districts of Europe, of the grape phylloxera, a native American insect. The wine-producing interests of Europe, in their search for new strains of grapes to rejuvenate their vineyards had reached out to America in their search for propagating material and all unconsciously carried with their importations an insect that proved to be a veritable scourge to the unresistant vines

of the old world. The pest spread and the scientific bodies of the several countries, the foremost among whom appears to have been the French Academy of Sciences, interested themselves in the problem, in an advisory capacity, and many unofficial measures were devised and tried to no avail. During this time, approximately 1882, an enterprising vineyardist by the name of Darnell of Gelong, Victoria, Australia, paid a visit to France and on his return to his native heath took with him a small parcel of plants and cuttings of desirable varieties of grapes for trial in that country, and also unconsciously, the dreaded phylloxera, which from all written records appears to have firmly established itself in Australia through that small importation.

This problem continued to occupy the forefront in agricultural matters in both Europe and Australia in succeeding years, and the Legislature of the State of Victoria seems to have been the first body politic to recognize the situation as a public menace, and accordingly passed an act in 1877 relating to the phylloxera situation, in which the word quarantine seems to have been first used in an agricultural sense. It was not an act however, so far as I can learn, comparable to the quarantine or plant inspection laws of our day, but was largely a sanitary measure designed to eradicate and prevent the spread of the insect within the confines of their own state. The problem became so serious in Europe, however, in spite of the remedial measures invoked, as to result in what was called the International Phylloxera Convention at Berne, Switzerland, November 3, 1881. The representatives of the various countries assembled, pooled their experiences and recommended legislation to their several governments, which was soon passed and made effective, prohibiting entry from the United States of grape vines and cuttings. This legislation, so far as known, is the first on record in which the movement of planting material between countries was regulated.

The history of the world shows that all far-reaching movements do not have their genesis solely at one time or in one place and horticultural quarantine is no exception to the rule, for in the seventies the agriculturists of the new world, particularly California, were becoming pest-conscious due to the levy on agriculture in that state by the phylloxera, which as has been shown was responsible for legislation in Europe and Australia; the San Jose

scale introduced into the state from the orient and the red scale of the orange, probably brought in with citrus planting material from Australia. The records indicate that the procedure followed in this instance was the same as that of Victoria and Europe, that is, sanitary measures within the state, under supervision of the government, were first tried and no attention was given to the import phase. The ineffectiveness of this method was soon apparent, however, and a number of the leading fruit producers instituted an educational campaign which resulted in a bill being brought before and passed by the California Legislature in 1881, providing not only for the control of agricultural problems within the state, but a strict supervision of all agricultural imports.

At this point, the Kingdom of Hawaii enters the picture. The early settlers appreciating the agricultural possibilities of Hawaii, were casting about for suitable crops with which to develop the kingdom. A number of projects were under way, one of the most promising of which seems to have been coffee. Great interest in this crop was manifested, and at that time it appears to have been one having possibilities of major importance. At any rate, unofficial agricultural explorers returning from the coffee-producing areas of the orient reported a serious disease affecting coffee in several localities and it was considered so important that in 1888 the Monarchical Legislature passed a law which was later signed by King Kalakaua, prohibiting the importation of coffee trees and shrubs into the Kingdom. Incidentally, this order, modified in certain respects, is still in effect.

Following the lead of Europe, California and Hawaii, practically every important agricultural nation in the world, and in many instances, political subdivisions within nations, especially those with maritime contacts have promulgated and are enforcing laws and regulatory orders governing the movement of plant material. It is a practice born of necessity, and while no claims are made as to its complete efficacy, its almost universal adoption indicates that it has fully justified itself economically and is altogether entitled to rank with those other major phases of crop protection, —biological and artificial control.

Plant inspection and quarantine policies, in common with other biological activities have proceeded down through the years from a very crude beginning, when regulations were principally pro-

hibitory and enforced in a rather desultory manner, as a minor activity of an already existing department, to our own time when we find most countries maintaining highly specialized bureaus with personnel adequately trained to keep a constant surveillance on all incoming material. Regulations have also undergone a similar change. The state has recognized the inherent right of the individual in the matter of importations and as a result qualitative or conditional regulations are more often utilized than the strictly embargomatic orders of a few decades ago.

What the future holds for plant inspection and quarantine it is impossible to estimate. With the rapid expansion of the world's commercial horizons by the annihilation of distance through the unprecedented development of modern transport systems, which brings the farms and gardens of the world almost to our door, so to speak, the problems of the quarantine enforcement agencies are becoming constantly more complex. It appears reasonable to assume therefore, that regulatory work will become increasingly more important as time goes on and that there will be a greater change and improvement in policies and procedure during the next few decades than we have witnessed during the early organization of the work.