Lloyd T. Jensen

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Presidential Address

B. E. EASTON[1]

I welcome this opportunity of reporting to you and recording some of the facts and events that have happened since our meeting two years ago at San Francisco. For the first time in our history, we are meeting in the state of Minnesota and this wonderful city of Minneapolis. The committee in charge of arrangements has done its job well. Their enthusiasm and hospitality have already been experienced by all delegates. We hope that it will not be too long before we can return to meet again in this very fine beet growing state.

It is a great honor for me to have been your President for the past two years and to have been the first Canadian elected to this high office. My friends in the industry in Canada, and certainly my company, share with me sincere appreciation of this honor.

The Society has continued to grow not only in numbers, but in stature. I am pleased to tell you that we now have a total membership approaching 800, representing 38 states plus the District of Columbia, 5 provinces in Canada, and 22 foreign countries. Our very fine official publication, "The Journal" has a circulation of over 1200 copies.

Your executive hopes that you like the type of program being presented this year. You will notice there are many more symposia and group discussions in addition to some excellent formal technical presentations. At this point I would like to congratulate our Program Chairman and his committee for the splendid job they have done.

As President, I would ask you to reflect upon the accomplishments of the past, consider current problems of sugar beet technology, and as a corporate body, work diligently toward finding solutions to our various problems. Our Society is a forum for the exchange of ideas as well as for the presentation of research accomplishments.

There is a continued need for research. Essentially, effective research, fundamental or applied, calls for a systematic approach to the problem through experimentation, accurate observations and valid interpretation for constructive application. Too often the full effectiveness of research is lost because the last link in these three aspects, valid interpretation for con-

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structive application, is not developed to the extent it should be. Had it not been for research, both of the two sources of sugar, cane and beet, would be out of production due to disease and insect problems. We must, therefore, continue to meet and exchange our ideas as well as present our latest findings. Our industry, unique in its organization, allows for this cooperation and greatly benefits from it. There must be continued cooperation between government institutions, universities, processors and growers.

I would like to reminisce for a few moments. At one stage in preparing this talk I thought for the benefit of our newer members, I should review the history of our Society. Upon checking the records, however, one was reminded that Past President Dewey Stewart did this very job four years ago in a most capable manner. Those interested should refer to his official presentation. One cannot help but think of the tremendous contributions made by our associates and friends who are either no longer with us or have retired. My only purpose in bringing this up at this time is to inform our newer members of the great efforts our predecessors have made for the benefit of this Society. One should also not forget the great work some of our present members have accomplished and thus brought honor to this Society.

It is always sad for us to record the loss of some of our members. I am sure we all extend to the families of those who have passed on in the last two years, our deepest sympathy. Although not practical to list all, I find it necessary to record the death of V. F. Savitsky who passed away on April 16th, 1965, in California after a brilliant career in his native land and more recently in the United States. Dr. Savitsky and his wife were an unique scientific team and of course, will go down in history for their tremendous discovery of genetic monogerm seed in 1948. The loss of Leroy Powers, geneticist, USDA, Fort Collins, Colorado, brought to an end the active career of an outstanding scientist. His contributions to his chosen field of science, particularly in sugar beet improvement, will long be remembered.

Our achievements of the past are many. There have been steady increases in yields of sugar beets per acre, but unfortunately there has been a decrease in the pounds of sugar recovered from a ton of beets. I will say more about this drop in sugar later. One must admit, however, that the Society has given leadership in many fields. Local varieties adapted for resistance to disease, genetic monogerm seed which facilitates

mechanization of field operations, new plant breeding techniques and advanced technology in the factories are only some of the improvements.

Monogerm varieties have comprised about 90% of sugar beet production in North America for the past three years. Most districts are now planting monogerm seed exclusively. Future research and field practices with monogerm seed and applications of selective herbicides should eliminate the need for migrant laborers in sugar beet production, thereby removing an economic and sociological burden from the enterprise.

In the eastern area of the United States and Canada, regional meetings have been held regularly during the life of this Society every year between National meetings. In 1965, at East Lansing, Michigan, the 13th regional meeting was slanted particularly to company field staff in order to keep them well informed on latest research developments. It is interesting to record that this year in the eastern area, the 5th Annual Spring Demonstration, modeled after the famous British Sugar Corporation show, will be held in Michigan. Usually there are from one to two thousand people attending this one-day event which further indicates the keen desire of beet growers to see new equipment and try to completely mechanize their crop as soon a practicable.

History has been made since our last meeting. You will remember that after closing our proceedings in San Francisco, we were given the very great thrill of touring the new Spreckels automated plant at Mendota, California. Since then, plants have opened at Hereford, Texas, Drayton, North Dakota, and Montezuma, New York. Plants are being erected in Chandler, Arizona, and Easton, Maine. Practically every company has plans for modernization of present factories with an eye towards automation, taking advantage of technological advances to lower the cost of operation.

We have been talking for many years about mechanization of spring field work which obviously must be accompanied by sound weed control practices. In 1965, Public Law #78 was not renewed and the importation of Mexican nationals was forbidden. Undoubtedly this caused hardships in some areas but it may be a blessing in disguise in forcing at a faster pace, complete mechanization of the beet crop.

Factory technology has made great strides as you have heard or will hear reported at this meeting.

The return to low sugar prices was much more sudden than any of us realized would happen. During the year 1963 and into 1964, the world price of sugar reached dizzy heights. Almost

as quickly, however, prices plunged on the world market and during 1965, reached the lowest level in over 25 years. Canada imports 85% of its sugar supply in the form of raw cane sugar, which is purchased on the world market. World market prices, therefore, have a direct bearing on the price of sugar beets in Canada. The United States' program does not follow the world market quite as directly, but low sugar prices cause hardships for both growers and processors.

It is interesting to note that mechanical harvesting plays a minor role on our program. We are now mainly concerned with refinements to existing machines. There has been a great growth of the 2-row harvesters, which caused some problems with rapid delivery, but this type will continue to increase in numbers.

Any discussion of events of the past two years, important to the beet sugar industry in North America, or any attempt to look toward the future of the industry on this continent, must show at least an awareness of the amendments to the Sugar Act passed by the United States Congress in October of 1965. American sugar legislation is of great interest to all of us, and to our American members the interest is much more than academic. The livelihood and future progress of everyone connected with the industry in this country is affected by the legal framework, under which the United States industry operates.

From friends and associates on this side of the border I have learned that perhaps the most important feature to you of the new law is the immediate increase in your annual marketing quota to 3,025,000 tons—a figure which will remain constant until the total annual sugar requirements of the United States reach 10,400,000 tons. As I understand it, this new quota is somewhat more than you would have had for the next few years under the gradually increasing quota provided by the old law. The new quota will allow you to market, gradually, the additional sugar that was produced as a direct result of the urging of your government during the sugar crisis of some three years ago.

Also extremely important from your point of view, I understand, is the term of the revised law—which now runs until the end of 1971. This will help to give your industry reasonable stability for the next five years, and will afford the opportunity to direct more effort to some basic and vital matters such as research from which attention has been diverted during the recent years of uncertainty in the sugar world.

One of the highlights since our last meeting was the second joint meeting of the European Research Society, commonly called IIRB and our Society which took the form of a cross-country tour in May and June of last year. Approximately 60 sugar beet leaders and scientists assembled on the east coast and visited four main areas; Washington and Beltsville, Great Lakes Area, Colorado District, and the West Coast. The administration to set up such a tour was a very large task and the special committee for this purpose, ably assisted by our secretary, is to be commended for a job well done. It was obvious that meetings of this type, held every three to five years, can be of tremendous value. It gives an opportunity for our two societies to exchange ideas; to learn first hand how we are facing our mutual problems. We have received many complimentary letters expressing appreciation of this visit. We have an official invitation for our Society to take part in a third joint meeting, tentatively scheduled for Europe in either 2 or 3 years time. A special committee for investigating this possibility should be formed and I should like to recommend to our new executive that the invitation be accepted and tentative planning begun. We will have official delegates at the winter congress of the IIRB at Brussels, Belgium, earlier this year. We are pleased there are some official delegates here today from the IIRB, who will be bringing us greetings from our European friends. On behalf of the Society I wish to thank very sincerely all the people who took part in this historic occasion, particularly the companies who shared the expense of complimentary arrangements.

There are some immediate problems which I would like to discuss briefly now. I believe low sugar prices, as far as we in Canada are concerned, is one of the big problems. It is hoped that future International Sugar Agreements will help stabilize prices so that the whole industry can remain healthy and survive. Money for research requires a healthy industry. It is also hoped that excessive cane sugar competition in traditional beet sugar areas will not force the price of sugar to excessively low levels. Having recently toured the cane sugar-producing areas of the Caribbean, I am confident that in the long run the beet industry can successfully compete. They are beset with problems impeding mechanization. They too are feeling the pinch of unrealistic present day world sugar prices.

The word quality has been used at our meetings for some time and quality is still a major problem. We are learning to grow the crop with less nitrogen. We are learning to pile our beets better in spite of the fact they have to remain for long

periods of time in storage under all kinds of weather. All companies, however, are deeply concerned about the lowering of extraction and certainly there is a challenge for this Society to give leadership in reversing this trend. Rather than agriculture blaming the factory and the factory blaming agriculture, we must all unite in this common goal and work very closely together towards a higher quality beet with its consequent benefits to both growers and processors.

With the Bracero program now history, and with the tremendous growth of industry in all areas, the field labor problem will become even more acute. We can and must exploit the alternatives now being developed to replace handwork which include expanded use of space planting, chemical weed control and mechanical thinners. It may mean more trash in the fall due to less efficient weed control by the above methods. Our factories may have to learn to receive and cope with greater amounts of foreign material in beet deliveries than heretofore. On the other hand, the agriculturists have to appreciate the problem of extraction and do their very best to help deliver as clean a raw material as possible.

With respect to seed, now that we have monogerm, it becomes increasingly important for us to have reliable germinating seed that will produce more vigorous seedlings. We like to envision the possibility of planting the seed as deep as other seed crops thus reducing the sensitivity of a young plant and the germinating seed from marginal moisture conditions. There is evidence that this is practicable. If such a possibility becomes reality, further attention must then be given to our methods of planting, including the mechanical devices and accompanying cultural practices.

In weed control, it is necessary for us to have a better understanding of the lethal and selective actions of herbicides. We should be able to answer questions such as, "Why do certain herbicides give good results in one field and poor or negative results in an adjacent field?" To answer such questions it will be necessary to better understand the composition of beets and internal plant reactions such as photosynthesis, the enzyme systems, the metabolic activity and the processes of translocation. With a better knowledge of these processes, it is conceivable that formulations specific to the sugar beet can then be subsequently produced.

The program of chemical genetics in part overlaps with that mentioned above for weed control. However, further basic research needs to be done on the chemical association of genetics with disease resistance.

The use of chemicals for insect control is currently in turmoil. The recent refinement in analytical techniques has created an aura of uncertainty regarding the residues in plant material consumed by animals and humans. Since the residues apparently accumulate with negligible degeneration, it appears that either a diligent search must be made for substances to neutralize the residues or it must be definitely determined if concentrations can actually become lethal to plant and animal life.

The beet sugar industry has been pointed to as one of the culprits contributing to stream pollution. Waste water disposal is a big problem. Companies not yet adhering to national programs will be forced to do so at large capital expense with no financial return. It behooves us to exert extensive research efforts to reduce and, hopefully, eventually eliminate our contribution to stream pollution. This is being started and should continue as fast as possible.

This past year I heard many factory superintendents state they did not know how they were going to carry on in the future if the type and supply of labor continued in its present pattern. The next few years will see some very significant changes in the unit processes of extracting sugar from sugar beets. Foremost among these developments will be the incorporation of automated controls in the individual factories. Many industries in North America are adapting processing controls to computer systems. As we gain a better knowledge of our own unit process, the better becomes the opportunity of placing those processes under guidance and control of "electronic brains". Within the last decade our industry has incorporated more new process equipment in its factories than during the previous three or four decades. The changes are occurring so quickly and frequently, it is difficult to keep pace with them, but automation is fast becoming an economic and operational necessity in our industry.

In the last few years use of non-caloric artificial sweeteners in food processing has skyrocketed. The paper by Mr. Kelly helps us to better understand the situation. We in the industry must continue to not only fight this invasion, but search for new uses for sugar and possibly new by-products. We perhaps should make better use of those we now have. This factor becomes increasingly important as world sugar production continues to rise. It might be useful for us to take a page from the book of the oil-chemical industry as we reflect upon the inroads of synthetics in the fiber industry of the world. Laboratory novelties have become the products of business through the ingenuity and imagination of research and development personnel.

It is a little discouraging to go back over the papers of earlier meetings and see the terrific length of time it takes for resultant action after research interpretations have been recorded. In other words, scientists were recommending action for some of our problems several years before commercial treatment actually became a fact. It is up to all companies to pick up information from meetings of this type and acquaint our associates and growers of the facts. It is our responsibility to have this information firmly transmitted through our staff to the grower level. Field representatives of tomorrow must be capable of absorbing this type of information and translating it to his growers to help them with new ideas.

It may be entirely out of my province in suggesting this next move, but I think we are a big enough industry, important enough in the economy of this North American continent, that we should have facilities to train people for the sugar beet industry. Even if we start with short courses at one institution, it would at least be a beginning. Could we not send our young people to learn the basic agricultural problems of such a specialized industry? Could we not send our bright young technicians to get help in the solving of processing problems? I do not wish to take away from the theory of coming up through the ranks since many companies have remarkable self-training programs. There are smaller companies, however, that cannot take advantage of this and I believe there is a need for such an opportunity.

I also believe that the marketing of the crop needs special attention. I mentioned previously the wild fluctuations of price that we in Canada experience due to world conditions and note in your country you are concerned about excessive cane competition in traditional beet sugar markets. There is no use hiding these problems and surely we as an industry are big enough to get together and solve them.

Before I close I would like to very sincerely express my personal appreciation to our hard working secretary and his staff at the headquarters of the Society for their loyal support. The directors of the Beet Sugar Development Foundation who make available their staff to run the business of our Society deserve special commendation.

Our Society has an unique comradeship in its members. There is very little secrecy and although we do not need to boast of our accomplishments, they have been many. There is a genuine desire to share the fruits of each others research with their friends.

In this spirit I challenge all of you to continue the excellent progress that has been made by our members in the last few years. We have many problems, some of them more acute than others, but they can be solved.

Let us all unite to preserve and improve this fine beet sugar industry which may be described as "an ever present force for economic stability" in a very important and large section of this North American continent.