



The CANADIAN COURIER

The National Weekly



Vol. XX.

July 29th, 1916

No. 9

ROMANCE OF ESTIMATING CROPS

Probably They Work on the Same Principle as the Weather Prophet

By CHARLES STOKES

THE Statistician pressed a button for his chief assistant. "Have you," he asked, "got this year's crop estimates finished?"

"I'm sorry, sir," the young man replied, "but I'm short nearly fifty per cent. Can't seem to get them anyhow—our local collectors of data just won't send them in, though I've written and wired."

"Bring me what you have," said the Great Man. The chief assistant went away straightway, limbered up his trusty adding machine, and in a few minutes laid the neat result before his boss.

"I will now," said the latter, "give you a little demonstration. If you wish to make any headway in this business you must always bear in mind—invariably bear in mind—that crop estimates must not be founded on guess work."

"Oh, yes, sir," the young man answered readily.

"Now, the crop in any country, province, county, township or quarter section is, to begin with, an unknown quantity. For convenience, we will call it x. Is that clear?"

"Yes, sir."

"The area cultivated and which produces the crop is also, more or less, unknown. We may, therefore, call it y. Y, you will easily see, will produce x. Do you see?"

"Yes, sir, I see."

"But the man who cultivates the land we will style, for simplicity, z. The number of men obviously varies. Let us call the number a. It is clear from this that z multiplied by a, or az, when applied to y, will produce x. Or, $y+az=x$."

"Quite true, sir."

"But here"—and he glowered triumphantly—"each farmer has his own individuality. We will call this individuality b. B may sometimes be minus and sometimes a plus, but I think we may safely assume that the average is b. So we can multiply one side of the equation by b—thus $(y+az)b=x$. Do you follow me?"

"Easily, sir—it is so simple."

"Yes—isn't it? Yet we have to reckon now with another element. The weather. Obviously, the weather has to be taken into consideration. Let us call the average weather c. We can now say, without the faintest fear of contradiction, that $(y+az)b=x+c$."

"True, sir."

"To solve this is child's play. We could," said the Statistician longingly, "use the binomial theorem and conic statics, as they do in some departments, but time is short. However, we may say that if $(y+az)b=x+c$, then must equal $(y+az)b=c$. Q.E.D. Or, another way, would be to say that by $abz=c=x$. Likewise, Q.E.D."

"I get you, sir," said his assistant enthusiastically,

"but may I ask a question now?"

"As many as you like, my boy."

"What happens—as in the present case,—when we are ignorant of what either a, b or c or x, y or z represent?"

"In that case, we work by a formula. We take last year's figures, add them to the census, divide by 10,000, multiply by 3.762198, deduct the number of years since Confederation, and multiply again by the number of days in the month. In Leap Year, February, you remember, has 29 days. Add or strike off as many noughts at the end as seems reasonable, put a decimal point and two decimals, and there you are."

"But why 10,000—why 3.762198, sir?"

"Why not?"

"But the local returns we have received?"

"Did those districts vote for us?"

"Yes, sir—solid!"

"Why couldn't you say so at first? Work out their averages, immediately, and add 25 per cent., and estimate all the districts that voted against us at fifty per cent. lower, and the districts where we expect to get votes at about ten per cent. lower. Must show our supporters they're above the average, and demonstrate the advantages of good government. And be quick—the Minister wants that estimate this evening for a speech!"

Let us pause here for a moment. A local crop reporter is going his blithe rounds. He stops at a farm house, and asks for the owner. Directed to the barn, he at length runs his quarry to earth at the other end of a mile pasture, through three fences.

"What is your acreage-and-estimated-crop-wheat-barley-oats-flax-give-all-other-crops!" cries the collector in a mouthful.

The farmer knows him not. "Don't want to buy nothin'," he says.

"You have a bum steer, friend. I am the local collector of crop statistics for the X Government. My card."

The farmer takes it. "Well, you've got me. See, I've got 200 acres of wheat—no, I mean 400—and 15 of barley—I should say 197—and an acre and a half of spuds. Guess the wheat will go 12 bushels to the acre, but in some parts it will be over 70. Mind ye, I'm only guessing. The barley, God only knows what will happen. Then the spuds will give about 1,000 bushels—"

"A thousand bushels—off an acre and a half!" cries the pleased amateur statistician.

"Who said an acre and a half?"

"You did. Look, I've got it wrote down."

"You've got it wrote wrong, then. I've got seven acres and two and a quarter roods in spuds."

OUR local statistician duly corrects the entries. Next place of call he is unable to convince the son of the soil that he isn't a collector from a machinery firm, and listens to a hard luck story of no money and poor crops. Wise in his generation, the statistician disguises himself with a false beard and moustache, and calls again the next day, telling the agriculturist he is from the States and wants to locate, and has been recommended to him. The simple farmer thereupon invents a crop beyond the dreams of an agricultural college professor.

Quite a lot of visitors does the farmer have. If it isn't one, it's the other, wanting to know what he's raised this year. Apart from collectors, salesmen, subscription agents, and neighbours, there is the secretary of the local Board of Trade, who is getting out a new booklet in a yellow and lilac cover. He gives the secretary his picture and a signed document: but discovering later that the said secretary has bought out the hardware store where he owes money, makes a special journey to town to steal the document. Quite prominent is the city newspaper man, bored to death and weary of walking through stubble, whom he entertains lavishly on buttermilk and sausages and who mentions him, his crops and how he came from Scotland twenty-seven years ago, in those articles on "The Crops This Year: by Our Expert."

Meantime, the Official Statistician is very busy at headquarters, collating, calculating, proving. His adding machines crash merrily—his blue prints become so criss-crossed that they begin to resemble

fly-screens. Every day, or week, or month, according to the Minister's vagaries, he issues a revised estimate, and sleeps soundly at night, too. Simultaneously, a very large number of men, women and children up and down the breadth of the land are engaged in estimating the crops, and a right pleasant time is had by all.

All of which is preliminary to some examples of crop statistics which the reader who has followed thus far may care to peruse and to see whether there is any truth in the contention that agricultural statistics are not worth the paper they are printed on.

The year 1915 was, of course, an extraordinary one, and a large number of prophecies made early in the game were later retracted. It may be noted in passing that the prophets are now fewer and a great deal more cautious than a few years ago, when the man who was not (in a cant phrase) "predicting a bumper crop" was almost as rare as hen's teeth. Probably they work now on the same principle as the weather prophet, who predicts nothing but bad weather, knowing that if the weather is bad he is justified and that if it is good his readers are too pleased to grumble. But consider, as an instance, the prairie wheat crop.

IN July, the wheat crop of Alberta, Saskatchewan and Manitoba was estimated by a big railway man at 245,000,000 bushels, which a month later increased to 250,000,000. Towards the end of August a prominent miller made his guess at 300,000,000, but the very next day a Winnipeg agricultural publication set it back to 212,000,000. Nothing daunted, a Winnipeg daily paper a week later brought it back again to the quarter-million mark, notwithstanding that the Secretary of the Winnipeg Grain Exchange said only 235,000,000. The Dominion Government, to make sure, announced on September 15 that the crop was 275,772,200 bushels—notice the minuteness with which the odd 200 bushels had been calculated.

One month later, Ottawa figured it out at 304,200,000 bushels. The agricultural publication referred to, not to be outdone, raised Ottawa some 38 million, and boldly proclaimed 342,000,000; to which estimate the Government would seem to have been converted, because in its final estimate, dated December 31st, the Dominion statistician fixed the wheat yield of 1915 in the three provinces at 342,948,000 bushels. No one minds this sky-rocketing, so long as it is on the right side.

Yet the returns collected independently by the three provincial governments, when collated, say that the wheat yield was 313,961,000 bushels. Merely a matter of some thirty million dollars! Which is correct? One would be inclined to say the Provincial Government's, as being nearer to the man who furnishes the figures; yet one provincial statistician's calculations are only two-thirds those of the railways, who had actually moved nearly all of what he called the total yield. (The sceptic can consult the Monetary Times Annual for confirmation of these figures).

We can take other examples in the West while we are there. The first column in the following table shows Ottawa's final estimates for the three provinces: the second the collated returns of the Departments of Agriculture of those provinces:—

	Dominion.	Provincial.
Oats, bushels	334,840,000	297,238,000
Barley, bushels	35,317,000	59,167,000
Flax, bushels	10,559,000	7,460,000
Potatoes, bushels	12,687,000	21,047,000

The significance of this comparison can be seen