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AMERICAN LIVESTOCK INDUSTRY:  
SOME SPECULATIONS

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Mercantilism and the Crow Rate

When Columbus sailed to the Indies late in the Fifteenth Century, we recall that he had set forth in search of better trade routes, which is to say that his sponsors, Ferdinand and Isabella, were in search of better trade.

There soon arose from his successes an economic theory of international trade as the means to national wealth. The theory came to be called Mercantilism. It maintained that the source of national power lay in a wealthy state treasury, and treasure, in turn, was the product of a favorable balance of trade. The favorable balance of trade, finally, was obtained through a state policy of importing raw materials and exporting finished products, thereby adding the value of domestic labor and capital to the trade equation.

This was the policy that motivated the Age of Discovery, when wooden sailing ships began to wander the earth and circumnavigate the globe. What was being discovered, of course, was new and pristine Edens of natural resources which could be claimed for this or that crown and developed as colonies, ostensibly for noble social purposes, but more importantly as partners in trade. The Hudson's Bay Company was early on a notable Canadian manifestation of mercantilistic trade policy.

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Seen from the vantage point of the developing colonies, the state policy of trading finished products for raw materials at first seemed welcome nurture from the mother countries, and the nobility of the social purpose of colonialism was a belief that was easy to embrace. But in time, as the productive capacities of the colonies began to mature and their natural advantage for manufacture from their resource base became too obvious to deny, the policies of mother countries, and the devices to enforce them, came to be seen as arbitrary and exploitive, and fuses of discontent began to sputter, followed sooner or later by explosions of independence. The explosion that produced the United States came from a fairly short fuse. Other, longer fuses, still sputter.

These are thoughts I carry with me when I come to Canada because I think about Mercantilism when I visit the Prairie Provinces. I see rail rates based at Crowsnest Pass that do not pay the full cost of transferring grain, and I suppose that I see a state-induced incentive which encourages you to willingly trade your raw material for finished products from your Eastern provinces. And I perceive in this not a case of colonial exploitation (though some of you have been heard to comment on it) but as an important political ingredient in a situation that is rather uniquely Canadian: I imagine Crow Rates to be a device for promoting east-west trade in an east-west country where the gravitational pull of the U.S. economy is a constant inducement to more north-south trade, too much of which often is viewed as a threat to the political integrity of Canada.

Now, from the other side of the border, as I pick up bits and pieces of your Crow Rate debates, my early readings in Mercantilism

cause me to imagine consequences to Crow Rate amendment or abandonment that are beyond the specifics I glean from your overheard discussions. I understand your concern for the probable impact on grain prices of increased freight rates. And I share your expectation of a favorable effect on livestock production and feeding if there is a relative decline in the cost of feed. But this is only one specific effect, one example, in a changed environment in which all economic alternatives (to grains and oilseeds) are enhanced. So I imagine other effects as well.

I find it reasonable to suppose an increased attractiveness to manufacture and processing from your agricultural resource base. I imagine increases in meatpacking and milling and cereal manufacture and by-product fabrications. I suppose nonagricultural opportunities to be similarly investigated and I imagine nonagricultural competition for your domestic resources of capital and labor and land energy. I imagine your lot to be no more immune than others to the increased industrialization and urbanization that characterize exuberant, adolescent economies. In such a setting I imagine your agriculture to enjoy greater economic health and less relative political influence than at any time in its modern past. And as your economy grows I imagine the natural increase in north-south trade will so concern those at the national helm that steps will be taken to dampen it. I imagine tariff increases. I imagine a buoyant growth in international trade. I imagine that you are emerging from agricultural colonialism. I imagine your future in this century to be characterized as much by energy and trade as your past was characterized by crop and animal agriculture.

Within this setting, one of generally enhanced opportunities for animal relative to crop agriculture, let us search for probabilities, however meager, that might serve to guide us through the uncertainties that cloud the remainder of the Twentieth Century.

### World Economy

Let us begin this examination with a look at the world economy and with a disclaimer about very long-run "forecasts". To examine the future to the end of this century - seventeen years - is not forecasting. It is speculating. The term "forecasting" suggests a scientific legitimacy and a precision that just is not appropriate to such a long range outlook. It is not possible to forecast so grandly as to foretell the closing years of this century. Rather, one merely builds scenarios, providing them with as much plausibility as the fuzzy evidence seems to suggest, and this is speculation.

I am led (as an economist) by what I read to believe that we are witnessing the end of an era, the close of a boom that has characterized the entire generation since World War II; an era of economic growth and optimism that might now, in retrospect, be seen as an extended period of over-consumption and under-investment; a time when it came to be regarded as normal to borrow against a benevolent future, and to burden the economic powerplant with ambitious and well-intended social programs. Now we seem finally to have discovered the horsepower limits in the powerplant. Analogies abound. The world economy is like a ship at sea, aging powerplant pounding, hull so encrusted with the barnacles of social programs that little seaway is being made; and rolling unstably from overload on the heavy gundeck.

Well, now we are in worldwide recession, worse nearly everywhere than in North America; productivity low and decreasing, debt-loads heavy and demanding, and the future no longer benevolent. Dry-dock time is at hand. At very minimum, conservatives suppose, the hull needs to be scraped and painted (but the money was already spent to provide for the painter's retirement).

I submit to you the proposition that the problem is bigger than that. The powerplant badly needs an overhaul; the whole ship has been in service long; it is possible that the overhaul will prove to be less a task for mechanics, painters and plumbers than one for architects and engineers.

I think that much of the 1980's and 1990's will be preoccupied with dry-dock tasks and expenses. To you and me this translates into an extended period of slow economic growth and substantial interest rates. I suspect that we will learn to look back at the era behind us as a middle-aged man looks back to his youthful, adolescent vigor, nostalgically, and supposes that he will get himself 'back in shape'. Indeed, he may, but the probabilities of it are ever-decreasing, and the realities dictate that he will instead grow reluctantly accustomed to his menopausal middle age.

There are bright spots in this somber global aspect. One of them is well-maintained, well-protected economies, where they exist, like Japan, and another is energy wealth, well-maintained, where it exists, like, perhaps, Alberta and Quebec in Canada.

Population, Income and Employment

If these are global generalities for economic circumstances, there also are aspects of population, income and employment that are only slightly more specific, but they have a cutting edge that agriculture will feel.

One of the most benevolent things about a benevolent future is the growth potential it contains. But to stabilize growth is to lessen substantially the benevolent capacity of the future to forgive the mistakes of the past.

As the economies of the West are maturing, so also are their populations. Birthrates are dropping, average ages are increasing, elementary schools are closing for lack of students, and the costs of caring for a growing population of the elderly are rising. (Meanwhile, in developing countries, populations continue to explode, unaccompanied by any increase in buying power, and this may translate into years of continuing unrest and political instability in those countries).

Maturing populations in recessionary economies with growing health-and age-care burdens seem to me to translate into little or no growth in disposable family income, persistent unemployment, particularly for new and marginal entrants in the labor market, and perhaps a lessened ardor for mandatory retirement programs that hasten the growth of nonproductive populations.

I think these things have a pointed relevance for us who examine their meaning for animal agriculture. A buoyant and growing demand for red meats has for years been known to be closely related to a growing, youthful, active population with a rising disposable income. Growth in the pork industry, continentally-

speaking, is almost precisely related to a growing population. Growth in beef consumption is similarly related to population growth, but augmented by a rising disposable income as well. Clearly, I think the North American industry of animal agriculture should plan for a future characterized by stability and not by growth, and then happily receive as an unplanned blessing any unexpected growth that happens to occur in the years immediately ahead. I am confident that there is future growth in this industry, but for the moment I think it is prudent to not require it now.

I imagine a household with a retired grandparent, an unemployed high school graduate, a salaried income that has fallen behind inflation, a mortgage with an escalated interest rate, an automobile suffering some unaccustomed neglect, and a fuel and heat bill gone swiftly beyond their means to manage. This is a family that is forced to change its consumption patterns. This is a family that is easy to find. This is a family whose grocery budget is riddled at the gas station on the way to the supermarket. This is the family that once planned for vacations, a new car, a fourth bedroom, and a better diet with more red meat. But not today.

Let's take just a moment to pursue some thoughts, some observations and analogies, about energy and consumption.

#### Energy and Consumption

What is the housewife thinking when she drives from the gas station to the supermarket, startled once again at the damage done by the family wagon to her grocery budget? No doubt she reflects again, but momentarily, on the desirability of another car, any car, with a smaller appetite. But it's not something she can fix



between here and the grocery store, and the grocery list is something that must be managed now.

I think it must be true that she arrives at the grocery store in a state of dread for her tattered budget and feeling an urgent need, somehow, to make up for some of the ground she lost at the filling station. And not because she wants to but because she must, she proceeds to do just that. Does she buy less fresh and frozen and more canned and dried? Possibly. Does she buy less ready-mix and more from scratch? Maybe. Does she buy less brand name and more private label? Probably. Does she buy more carbohydrate and less protein? If she knows how. Does she sort the cheaper cuts and salvage bins in meats? Yes, definitely. Does she substitute eggs and chicken and fish for beef and pork? She tries to.

She is doing in the grocery store today exactly what she hopes to do about the car some day. She is finding better mileage. Some day she will have better gas mileage. Today she is getting better grocery mileage. But she is driven by necessity to change her consumption patterns; her energy consumption patterns, whether that energy is gasoline or groceries. She likes her family station wagon better than the alternative she will have to accept. And she likes red meat for her family better than the alternatives she has to buy. She can't afford both and she is afraid she can't afford either.

I think there is a message in here that is buried deep enough to be overlooked if we just go idly about turning over flat rocks looking for easy meanings: If energy is expensive, then it is expensive in a great variety of forms, and its efficient conversion is essential in the purchasing households that have to pay for it.

Surely there are producer households in this audience that know well the discomfort of energy costs, not only as a household item but as a production cost - for tractors, for combines, for grain driers, for fertilizer and, hence, for feed for livestock.

It takes 2.0 pounds of feed to put a pound of gain on broilers; 3.4 pounds of feed per pound of pork; about 8.0 pounds of feed per pound of gain on beef. I don't know if my numbers are all that up-to-date, but I'll bet my ratios are. It takes four times as much energy to produce a pound of steer as a pound of broiler.

Is there a parallel here, between the steer and the station wagon? I'm afraid there is. And I suspect that it can have meaning just as potent for steers as for station wagons. Will it be said, looking back, from the year 2000, that fed beef and big cars were just two examples of how energy-squandering North Americans indulged themselves while they rode a wave of post-war affluence they thought would last forever?

I do not know the answer to that, but I do think our red meat consumption habits will take on a more European pattern. By that I mean, compared to present patterns, relatively less beef, and more pork and poultry and veal. Veal, after all, always had only two options when it reached the auction mart: die now or die later. Which occurred depended on whether packers or feeders did the successful bidding. For years it was the latter; now I suspect the tables are turning, because of energy costs (both to the consumer and to the producer).

These are not changes the household makes because it wants the change, any more than it wants to replace the family wagon

with something spartan. It is just that these are among the most obvious, most likely, and least painful alternatives households will choose if the wave of post-war affluence is really past.

What interests me most about all this, and what puts an upbeat tenor on the whole prospect, is that I think there is evidence the meat industry already knows this, acknowledges it and is responding to it. I think there are interesting things going on in the livestock-meat industry that testify to a positive response to change, that perceive change as opportunity rather than change as threat.

#### Market Performance

Before I try to justify that statement I need to make some general observations about how things work in the livestock and meat marketing system. More accurately, my observations are about how economists suppose things work - or ought to - in any marketing system, livestock or otherwise.

It is imagined by economists that marketing is more than a physical distribution system. It is also a system for communicating about prices and qualities, and paying the prices for the various qualities to all the people - from rancher to retailer - who participated in producing them.

Physical Efficiency and Pricing Efficiency - Hence there are two aspects of marketing that need to be known and measured and evaluated. One is the physical distribution system, and it ought to be evaluated in terms of its physical efficiency - how much tonnage it delivers, and how smoothly, per unit of labor or money expended. This provides a way to measure one competitor against

another, or this year against the ones before. The other aspect of marketing is the pricing system. It ought to be evaluated in terms of how honestly it communicates this information and in terms of how accurately it pays for the value received.

Public Programs - It is because of the very positive effect on both physical efficiency and pricing accuracy that we have publicly-provided federal grade standards and market news in both Canada and the United States. Probably no other single thing - save, perhaps, the threat of solitary confinement - so remarkably promotes competition, clarifies communication, and enhances pricing accuracy.

One good way to appreciate these positive contributions is to recall the stories of our forefathers about how things used to be: Buyers were few and large, and concentrated in the cities with consumers. Sellers were many and small and scattered in the vast rural landscape. Buyers communicated daily; sellers seldom knew each other. Buyers were professional, sellers amateur; any buyer might buy more in a day than any seller might sell in a lifetime. The opportunities for buyers to exploit sellers were just too good to miss. And so they were not missed. Both the frequency and the magnitude of this exploitation are firmly imbedded in the public record, and that record should be widely known, and not forgotten.

Evaluating Performance - So that is what economists think about the marketing system and how it ought to run - efficiently, competitively, fairly, honestly - and how it ought to be evaluated. In fact economists are so captivated by these beliefs that they suppose you and everybody else can apply these same measures with equal effectiveness in judging how your marketing system runs, and how it ought to run, and what makes it run. As you watch things change or hear proposals for

change you need only ask yourself: How will this effect physical efficiency? How will this effect pricing accuracy? Will (or will not) the proposed gain in either more than compensate for any impairment to the other? And a good general rule to apply to aid your search for answers is that public administrators, generally, will want maximum performance in both but will settle for better pricing accuracy at some expense to physical efficiency, while profit-motivated businessmen will be extremely interested in physical efficiency and considerably less devoted to pricing accuracy.

Private Enterprise Goals - In fact, a good watchword for the private sector might be: "Maximum Physical Efficiency; Minimum Pricing Efficiency." Why, the entire idea behind product differentiation and brand-name advertising is to associate the price with product performance (often unmeasurable) and to obscure the relationship (often remote) between price and the cost of production. And this is not wrong or perverse. While it is silly for householders to pay twice as much for Bayer aspirin as for no-brand aspirin, there is nothing immoral about Bayer trying to encourage this and capitalize on it. While the federal grade standards provide a range for each grade, the grain terminals unfailingly blend grain to the minimum specifications for each grade, and it is as inane to suppose that they should do otherwise as it is to suppose that you or I should pay more taxes than the law requires.

Economists think these are good rules to apply because they are so conducive to understanding what they think goes on; so useful for appreciating motives; so helpful for minimizing surprises from the future. So let's see if they will work for us.

### Product Identification

So when I say to you that I think the livestock-meat industry perceives change as opportunity rather than change as threat, I am saying that the industry perceives changes that will improve their physical efficiency and introduce interesting possibilities into their pricing policies.

Now, how a product is perceived depends greatly on how it is identified; on what somebody says it is. Manufacturers tend to identify products by brand name in ways that are advantageous to the manufacturer; it is fun to sell Bayer aspirin to people who are persuaded it is worthwhile to pay far more than the production cost for it. So, also, is it more fun to brand name pork products and advertise them, than it is to peddle fresh beef like cordwood with no opportunity for brand-naming because the federal grader already identified your product as the same as everybody else's. (The grader took half the fun out of being in business.) Federal grades function strongly in favor of retailers and consumers. And consumers (like producers) are also small and many and scattered over a vast landscape. So a considerable amount of potential market power is dissipated, and presumably advantageously, among the widely-scattered powerless - consumers and producers alike.

In the United States, the federal grading of meat is voluntary, not mandatory, and how much of it is voluntarily done depends upon how much of it is insisted on by buyers. Consumers are not powerful buyers, but retailers are. And retailers have insisted upon federal grading for beef not so much out of a concern for the welfare of their customers as out of the knowledge that it enhances their buying power to be able to play one purveyor against another

for an undifferentiated product.

There has been much less insistence about federal grades for pork because the retailer buys disassembled and processed pork products, not fresh primals. Consequently, the use of federal grades for pork is not widespread in the United States; it is very selective and for special purposes. (And a result, over many decades, has been a slowness, compared to Canadians, for example, in swine breed and pork product improvement, and this has diminished the U.S. ability to compete in foreign markets.)

So I always watch for competition, between the public sector (government) and the private manufacturer, about who will identify the product. And when I see changes proposed for grading standards I am always curious about who proposed the changes. When proposals arise, from time to time, advocating carcass weight and grade selling for hogs, I recognize this to be a broadly advantageous development for practically everybody except, perhaps, packers who buy hogs. (So I would expect the proposal to originate in the public sector and I would be surprised if it originated with packers or producer groups who had been frightened by packers about some of the implications.) If proposals originate with packers I would expect the change to have an effect favoring physical efficiency, which might be shared by everyone, or else to have an effect allowing even a little more latitude for product differentiation, the blessings of which would probably not be widely shared by those packers.

While my sympathies are strongly in favor of grades and their intended effects, it is clear that the result, while well-intentioned, is not always right. For years federal beef grades made no assessment of cutability. Then there followed some years in which the cutability

or yield grade was considered independently of the quality grade. Then the present method developed. For many years longer than it was entirely useful, the grade standards discriminated against bull beef.

And today an important development in consumption patterns is being reflected inadequately in grade standards: While the share of beef consumed away from home now approaches half of all consumption, the guidelines for establishing grade standards appear predominantly to reflect the needs of mass merchandising for home consumption, producing a comparative public disinterest in product identification for product consumed away from home.

We should be able to survey the changes around us in products and methods and come up with explanations that are at least partially complete and accurate about the motivations and expectations that underlie them (even though they are not on the surface where they would be obvious).

#### Product Alternation

So let us survey some developments in the industry which show potential for (1) improved physical efficiency, or (2) impaired pricing (more product differentiation), or (3) both of these.

Breed Development - In the United States there are still people like me who refer to the new breeds as exotics. We don't call Charolais exotic anymore, but we still think Chianina or Limousin or Maine-Anjou are harder to pronounce than exotic. These are all big, fast-gaining breeds. Good energy converters. That's physical efficiency. But often there is a problem getting enough marbling for the Choice grade before the carcass gets too big for good market acceptance. It happens that the new grade standards now pay much less



attention to marbling than they once did; what was once "important" is no longer so. Youth makes up for the lack of marbling, we are told, and indeed that seems likely. It is like watching a weather vane as it shifts slightly toward a future in which the physical efficiency equation is slightly improved by a breath of better feed conversion ratios. (And a concern for marbling coincidentally disappears.)

Bulls and Dairy Beef - Here are more examples of fast-gainers hung on big frames that represent better physical efficiency if you don't need to worry about the marbling deficiency. And timely, too. We need this, in exactly the same way Detroit needs better gas mileage. (Interestingly, youth also dissipates earlier worries about animal odor, a long-held worry about bulls.)

Box Beef - Economists for years have advocated centrally-located beef cutting and preparation. And for years there were impediments; butchers' unions resisted it, for example. Well, now it is almost commonplace. Either packers do it or chainstore warehouses do it. Why should chainstores do it? They aren't as centrally located as IBP. Well, either way, it's an improvement in physical efficiency. Still, there must be a saving in it, even after IBP has done it, else Safeway would not find it worthwhile. Where is it? Well, for one thing, what is the grade of beef in the box? Is it all the same grade?

Isn't it true that when a manufacturer wants to differentiate, his options include not only the product but the services surrounding it? I would bet the sales pitch around box beef (and, understand, I am not the least informed, so this is only speculation) is very similar to the pitch for Harvestore. It is arithmetic, and it emphasizes savings over existing methods. But a very close scrutiny of the

arithmetic might disclose an even greater saving if you adapted the Harvestore management package without buying the Harvestore, or if you prepared the beef product yourself but did it the box beef way. So that must be Safeway's motive. The packer who provides box beef will share the saving with the retailer, but he won't give it all to him. Hence, box beef represents a double-headed gain to the innovator who brings it about. Physical efficiency is improved but only part of the gain is shared, and the grade identity is obscured so pricing accuracy is impaired. The resulting improvement in operating margins makes the innovation attractive to the innovator - and to others who would adopt the same practices quickly.

Restructuring - Means flaking, chunking, reforming; creating a retail cut that looks like sirloin strip, for example, but not made out of sirloin. It is like particleboard from the lumber yard. It is good portion control, good physical efficiency, good mileage improvement. It is also good product differentiation; cheaper than the desirable product it resembles but also more expensive than its cost of production: Improved physical efficiency; advantageously altered pricing opportunities.

Electrical Stimulation - A rapidly-spreading innovation in U.S. packing plants is a fast jolt of low-amp, high-voltage electricity to the carcass shortly after stunning and bleeding. It accomplishes in moments the dissipation of muscle energy that otherwise occurs over a longer time in the chillbox. It is said to have a tenderizing effect, but this may be over-sell. What it is also expected to do is improve the way the carcass sets up and its prospects for making the Choice grade. The sales pitch claims that electrical stimulation will substitute for the last month of feeding; that, say, 120 or 130 days

will do the job that previously was thought to require 150 or 160 days. One month less in the feedlot for the same final product is an impressive improvement in physical efficiency. But that's the sales pitch. There's another way to read it: Go out and buy Good cattle that are not finished, and pay the seller the Good cattle price. Then take them to the plant and make Choice carcass beef out of them. That is an impressive motive. Even if the claim proves to be only partly true - even if the effect is only slight - the implications are still the same: better physical efficiency; worse pricing accuracy.

Blade Tenderizing - Ten years ago needling machines were rather experimentally regarded in U.S. packing plants. They began as a hope that Good or Standard beef might be given the tenderness associated with Choice beef. Today they are standard equipment, used defensively, as a precaution, even on the Choice beef, because they so successfully eliminate the occasional toughness of even a Choice grade cut. Here again, we are talking about an accomplishment in the packing plant that used to be associated exclusively with the feedlot. And the motivation behind it is again found both in physical and pricing opportunities.

Enzyme Bath - Enzyme baths are tenderizing devices used for the lowest grades of beef, the grades not ordinarily intended for table consumption. But a blade tenderizer and an enzyme bath can make a Utility cow good enough for an economy steakhouse that serves its meals in a cafeteria line. In principal, how different is this and its motivations from restructuring? Not a bit.

Feedlots - A net effect of all these trends, it seems to me, will be to reduce the length of time that cattle are kept on feed; that is to say, they should reduce the necessity for longerm, hard finish feeding. The resulting product may not, in the eyes of devoted producers

be as "good", but it will be an affordable product enjoying an extremely wide market among dollar-conscious consumers who will judge those characteristics to be "good" mileage improvements.

### Conclusions

In this overview the livestock and meat industry has been treated rather as a footnote to the vast, impersonal sweep of larger forces affecting national and world economies. This is, in fact, the proper perspective in which to see this industry; it affects very little compared to the magnitude of forces it is affected by.

Like most other industries, the livestock and meat industry responds positively to a healthy economic environment. The health of that economic environment in these times is being affected by major and basic readjustments.

Our fundamental concern, in this context, is whether or not these forces affecting the industry will cause permanent changes to occur in the demand structure for beef. With the most careful weighing of circumstantial evidence, we still find that we do not "know" the answer to this fundamentally important question. But the probabilities seem to suggest that the answer is yes, the demand schedule for beef probably is being permanently affected; price quantity relationships and consumer product perceptions are shifting in ways that, it seems to me, are unlikely to be reversed.