

**RECORD OF SOCIETY OF ACTUARIES
1987 VOL. 13 NO. 4B**

AT THE DAWN OF THE THIRD MILLENNIUM

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MR. JAMES C.H. ANDERSON: Why do we forecast the future? I believe that there are three reasons. First, we are attempting to exploit anticipated opportunities. Second, we intend to defend against foreseen threats. Third, in some rare cases, we attempt to forecast the future in order to influence the direction of events. It's that third purpose to which I'm going to direct most of my attention today.

The methods of Futurism are probably well known to all of you. There are really three ways in which we attempt to forecast the future. The simplest is by mere extrapolation of observed trends. This is the conventional wisdom of Futurism, and it is widely practiced in areas such as budgeting. Usually these kinds of forecasts are right, but only in the short term. They're always wrong when trends reverse. A second method is through the anticipation of secondary consequences of observed trends. These forecasts generally are based on deductive reasoning. They're often right in terms of the forecast for the intermediate term future, and they don't necessarily depend on a continuation of the underlying trend. For example, certain population forecasts can be made with considerable confidence even if trends and birth rates and death rates should suddenly alter. These kinds of forecasts, however, are susceptible to error if new factors alter the cause and effect relationships which form the basis of the forecast. The final method is to identify the fundamental relationships which eventually lead to trend reversal. Some of the soothsayers on Wall Street might, for example, apply that kind of technique accurately to predict that when stock prices get to be lighter than air, sooner or later they do come crashing down.

I used the title, "At the Dawn of the Third Millennium" for these remarks, and it gives me the opportunity to have a little fun. My first question is, when

SECTION LUNCHEON

does the Third Millennium in fact dawn? Will it happen on Saturday, January 1, in the year 2000 or will it happen on Monday, January 1, in the year 2001? Basically, this issue pits the odometer type of mentality of the public against the mathematical purity of people like ourselves. We're aware that those calendar designers were generally nonnumerate people. They did not have the foresight to install a year 0 in our calendar, which illogically progresses directly from year minus one to year plus one. My suspicion is that in the end the odometer mentality is going to win, and I suggest a simple test to you. Have you ever, when driving your automobile, noticed that your odometer was approaching 999.9, and have you ever made it a point to observe it roll to the next round thousand? Well, I think you have. Have you ever watched, after it rolled to the thousand, for it to roll to 1001? I'll bet the answer is no. So, I suggest that on Saturday, January 1, in the year 2000, we join the public in celebrating the arrival of the Third Millennium, because it's going to have the more obvious aspects. Our checkbooks for example, are going to be obsolete, because they will have that 19__ printed in them, which no longer will be appropriate.

Now, the arrival of the Third Millennium, and the juxtaposition of the two dates that I've just mentioned, allows me to make passing reference to another rare phenomenon, and in the course of making reference to this, I get the opportunity to use a rarely used word. The word is *bissextile*. I would wager that this word is known only to a small fraction of this audience; conceivably to a fraction as small as zero. Let me tell you about bissextile. In 46 BC, or if you prefer, minus 46, Julius Caesar approved a change in the calendar, and that change involved the insertion of an additional day into the month of February, on a periodic basis. "Bissextile" comes from the Latin *bi sextus dies*, which refers to the doubling of February 28th. Now, when this quite important change in the calendar was adopted, they did not precisely estimate the number of Leap Years that would be needed in order to maintain the correct speed of the world around the sun measured in days. The original attempt was to say that a bissextile year would happen once in four. This gave the first approximation to the speed of the earth of 365.25 days per year. That didn't, in fact, correspond to the actual time that it takes the earth to orbit the sun, and at a later stage there was inserted the so-called century exception: a year that is a century year will not be a Leap Year. That altered the approximation to 365.24 days. Finally, that was not deemed to be sufficiently accurate either, and the second exception was introduced: a century year divisible by 400 is a Leap

AT THE DAWN OF THE THIRD MILLENNIUM

Year. So, the year 2000 will be a bissextile year, and that will be another rare event.

Let me begin my comments on the Third Millennium by placing in context the kind of geopolitical world that we are likely to have in the year 2000. It seems to me that we are approximately an equal distance from the year 2000 as measured from today as we are to a date in 1975 when a paper was published that included a scenario referred to by the title, "Cannibal Life." So, if you will think backwards to that event it gives you a kind of time frame within which we're speaking. There's one fact about the future that I think we can rely on. Sometime during the summer of 1987, we are told, there became five billion passengers aboard Spaceship Earth. By the year 2000, there will be more than six billion passengers on Spaceship Earth. What is perhaps not so clear is that 90% of those additional passengers are going to be from the lesser developed countries of the world.

Now, I have come across an entertaining Foreword by Lawrence Siegel to the 1982 edition of *Stocks, Bonds, Bills and Inflation* by Roger G. Ibbotson and Rex A. Sinquefeld, Ibbotson Associates, Chicago. A couple of passages in the Foreword are relevant to this fact about the population of Spaceship Earth. Mr. Siegel says,

Squirrels hoard. Knowing that they must have food in the winter, they willingly forego present (certain) consumption in exchange for future consumption which is also more or less certain. Within an individual squirrel's lifetime, the animal makes numerous trades between the present and the future.

Yet, squirrels do not build wealth over time. The offspring of particularly industrious squirrels do not find their lives made richer by their parents' past efforts; squirrels as a species are not better off than they were a hundred years ago. Clearly, hoarding or storage (the exchange of present for future consumption, both under certainty) is not a sufficient condition for building wealth.

Ants (which incidentally are organically far less complex than squirrels) not only hoard but they build structures (anthills) which may last longer than any individual ant. Thus, ants transfer wealth intergenerationally: young ants may find themselves born into a well-constructed anthill. Since an ant may not live to reap the fruit of his own labor, we regard ants as investors, not just hoarders. Like human investors, they trade present certain consumption for future uncertain consumption, and may defer consumption until after death. By investing, ants build wealth.

SECTION LUNCHEON

Yet, unlike that of humans, *per capita* ant wealth does not grow steadily over time, with each generation of ants being better off than its predecessors.

Economic growth is made possible by the building of capital; in fact, some regard the two as synonymous. Capital takes many forms: human, physical, financial. The outstanding economic trend of recorded history is the increase in the stock of all of these kinds of capital over time, both in aggregate and *per capita*. This growth has been made possible by the taking of risk.

At this point, it is obvious that there is a missing link in the logic. Ants take risk and their economies do not grow steadily over time; humans take risk and their economies do grow.

The link has to do with man's ability to influence outcomes. This ability is the evolutionary adaptation which makes man far more of an economic animal than the squirrel or the ant. Humans can influence outcomes in three ways. First, man can identify good and bad uses for capital, and select the good ones; and secondly, man can change the environment in a way favorable to the desired outcome. Third and most importantly, man can change himself. Although man may not be strictly unique in any of these three attributes, he is unique in possessing all three in combination and to the degree in which he has them.

Why, then, do human economies have secular growth while ant economies do not? The reason is that ants most probably multiply in a Malthusian fashion, expanding their population to consume any attained economic growth, while humans sometimes react to growth by limiting their population. Thus, humans have the mechanism for pushing up the *per capita* store of wealth over time.

I'm suggesting, of course, in this passage, that there may be some similarity between what is likely to happen in the lesser developed countries of the world and what happens in ant economies where the population expands such that resources are always expended to the fullest at subsistence. And I'm suggesting that the developed and developing countries in the remaining twelve years between now and 2000 are going to experience economies that diverge in terms of success and that they may eventually experience a divergence in their civilizations.

What are some of the implications of all this? The implications first for the lesser developed countries. They face problems such as the urbanization of their large and growing populations. They face problems in the areas of housing, transportation, jobs, security and pollution. The subsistence needs of these countries include several expected items and one perhaps unexpected item.

AT THE DAWN OF THE THIRD MILLENNIUM

My list includes food, shelter, medicine, energy, education, and the surprising one, munitions. Undoubtedly there are going to be tremendous immigration pressures arising between the lesser and more developed countries of the world. And we're likely to see in these increasingly crowded countries a tendency towards totalitarianism, political instability, religious fanaticism, terrorism, provocation and possible nuclear warhead proliferation. It all sounds very familiar. It sounds like what's going on in Iran today.

The implications for the developing countries also are serious. These countries are likely to experience tremendous aging of their populations, and some, like Germany and Switzerland, are actually forecasting significant population losses. These countries, however, will experience an increase in their per capita wealth. There will be stresses on the social conscious of the more developed countries, and in particular, there will be stresses in choosing between domestic and international priorities. In general, these countries are going to have to decide whether to practice a form of neocolonialism or whether to mount Marshall Plan II. In summary, the context of the future that I foresee, within the countries in which we live, is an outlook for prosperity with considerable stress.

Now, let's move closer to home. Let's talk for a minute about the users of actuarial services circa the year 2000. I've identified three users of actuarial services, beginning first with insurers. I expect that insurers will no longer be the largest users of actuaries in the year 2000. Mainly, I foresee insurance companies becoming parts of large consolidated financial and perhaps financial and industrial groups, resembling what might be described as the new Zaibatsu. In these enlarged groups, I foresee that there will be no clear senior role for actuaries as such, for actuaries as they are now trained. Instead, I foresee other individuals taking on senior responsibilities in these kinds of expanded organizations. I would predict, however, that actuaries who are involved in areas of health and casualty insurance are likely to experience considerable gain in the importance of what they do, by contrast to those who are active in the field of life insurance.

The second users of actuarial services are retirement plan sponsors. And here, too, I foresee considerable change. The whole process of retirement plan sponsorship is becoming a part of a wider set of issues, the wider set of issues being labor costs and human resource issues. Compartmentalized solutions that

SECTION LUNCHEON

we have been accustomed to in the past -- solutions, for example, that separate employee benefits from direct compensation -- will be less appropriate in the world I foresee in the future.

And finally, among the users of actuarial services I would mention the consulting firms. By the year 2000, the consulting firms may in fact employ significantly more than 50% of the actuaries in North America. A couple of weeks ago I attended the meeting of the Conference of Actuaries of Public Practice and, using the preregistration list that was published in their program, was able to classify the consulting actuaries in attendance at that meeting into one of three categories. These were all consulting actuaries. In the first category were individuals who were involved in a monoline actuarial firm, (i.e., a firm in which there was only one area of practice, perhaps the employee benefits field, or perhaps the casualty field or whatever). The second group consisted of individuals with multiline actuarial firms which practiced in more than one field and where the firms were controlled by actuaries. And the third category were those who were involved in mixed professional practices that were not controlled by actuaries. I won't go into all of the statistics, but there's one very striking one: category three, the mixed professional practice not controlled by actuaries, represented 54% of the people who were preregistered to attend that meeting.

What I'm leading up to is the future of the actuary. Harking back to what I said at the very outset, it's my belief that the future of the actuary is something that we can control. I think that the future of the actuary is entirely within the bounds of being dictated by the current profession. But we're going to have to face some decisions. And one of them is, are we going to continue to be traditional specialists in a field which is likely to decline in as little as twelve years, or are we going to become problem solvers who act on a larger stage? Not only is the choice ours to make, but the choice is very clear. This profession must move towards becoming problem solvers acting on a larger stage. I have several times made the suggestion that life contingencies may no longer remain part of the core curriculum of the actuarial profession and it's something that I sincerely believe. We have got to separate ourselves from the narrow specialties on which this profession has been built for so many years. The future is within our control, provided we make appropriate modifications to our

AT THE DAWN OF THE THIRD MILLENNIUM

educational process, our training process, and our qualification process. And it's on the last of those three that I want to focus.

If my suggested future for the actuarial profession becomes a reality, we as actuaries are going to become less bound than we are today by a common specialty. We will be practicing in a wide variety of fields, some that are completely outside the scope of the profession as it exists today. Some of us may have the title Actuary of a bank, for example. One of the leading figures in our profession for many years is Meyer Melnikoff, who, after he retired from the insurance industry, became a member of Goldman Sachs. He uses the title Actuary. That may be a signal of the future.

This need for a common bond must be reflected by a stronger organizational definition of who is an actuary. In the U.S. the situation is very different from what it is in Canada. In Canada, if you ask the question, who is an actuary, there is a clear answer. An actuary is a Fellow of the Canadian Institute of Actuaries. There are similarly clear answers in the United Kingdom and in Australia, but not in the United States, no matter what the membership of the Society of Actuaries may think. The international focus of the Society of Actuaries and the international focus of the Casualty Actuarial Society may in fact actually impede a solution to this problem, which is basically a United States problem. The American Academy of Actuaries, but not the Society of Actuaries or the Casualty Actuarial Society, has come to terms with the Enrolled Actuaries in the United States, but has not come to terms with the American Society of Pension Actuaries. I don't think that we are going to have a widely accepted organizational definition of who is an actuary until these competing bodies are part of a single organization.

