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3F Forecasts

Futures · Farming · Finance

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A monthly newsletter that features weather projections with insight and comment on subjects affecting the agricultural community and other allied industries.

If you think health care is expensive now, wait until you see what it costs when it's free.

—P.J. O'Rourke

Amen. The old saying that there is no free lunch is being proven once again by the problems of ObamaCare. Insurers who were looking for much more future business that would make them money have found out they don't know how this business works. A good lesson in psychology has been learned, and most participants have taken a bruising financially. May these companies and politicians get what they deserve.

We have three eclipses in six weeks beginning in the Full Moon on August 18. This is a penumbral eclipse of the moon as the moon just barely moves into the edge of the earth's shadow. You can't see it, but astronomers know about this very slight eclipse. The average person will never see it as it begins at 4:24 AM and ends at 5:01 AM Central Daylight Time. It was hardly visible at all.

The September eclipse is an annual eclipse of the sun. The moon is too far away to cover the entire sun so the ring of sun surrounds the dark body of the moon. This eclipse forms just west of Africa and south of the Equator and ends 1730 miles west of Shark Bay, Australia.

The September 16 moon eclipse is like the August 18 eclipse in that it is only a penumbral eclipse. It is basically in the Eastern Hemisphere. This one can be seen in a 4000 miles long band. It begins at 11:53 AM and ends at 3:56 PM Central Time. The coverage is at 0.993 penumbral magnitude.

The most important one for cycles is the September 1 eclipse as grain markets, the S&P 500, energy and possibly gold and silver are affected. The war cycles will also have peaked by then. Stay tuned as the action continues to ratchet higher and become more suspenseful.

In this issue we take a little different look at the 200th anniversary of the 1816—"Year Without a Summer." That was the worst summer for growing crops since America was settled by the white man. We also have a limited update on the Commodity Depression Cycle, of which we are over half through. We have the On the Soapbox as well as the Commodity Comments sections.

Next month we have the weather and storm forecasts for the US through fall and winter. The following issue (September-October) will look at all the foreign seasons with special emphasis on South America, Australia and South Africa growing seasons while we are suffering through winter. Commodity Comments are included. By the way, next fall and winter forecasts will be published in the Weather Hotline as soon as they are finished and formatted.

We have no speeches open to the public on tap for the immediate future but do have several private speeches into winter. It is not too early to start thinking about next winter's program. Call (815) 946-3001 and get your name on the list.

This month's winner is Jim Novak of Angus, MN 56762. He renewed *3F Forecasts* and is a long-time subscriber. We continue to encourage all subscribers who are not yet on e-mail or fax service for the newsletter to do so—if they can. E-mail readers will need Acrobat Reader software to access the attachment, and at least 15 MB of computer storage is required to hold the letter as well as other e-mails. The hard-copy faxes and e-mails are already on the fast delivery. These are certainly faster than snail mail, and they work over the weekend, too. However, we will continue to use USPS for the foreseeable future—despite its sometimes snail's pace. We have been having some problems with deliveries of all forms. By the way, please clear your e-mail boxes. They come back to us if the box is full.

Also, if you change addresses—whether postal or e-mail—please let us know. We have no way of knowing you have changed until the letter is returned. In the same vein, if you change fax numbers or phone numbers, let us know. One other consideration: If you have a spam filter on your e-mail messages, go through them to make sure there are no important messages before you delete them. If you suddenly quit getting our e-mails, it probably got into the spam bin. We get quite a few calls about the subscriber not getting his letters. Just put our e-mails on your "white sheet," so they will come through. Thank you for your help and consideration.

200 YEARS

It is hard to believe that 200 years ago this summer, the "year without a summer" took place. As far as I know, no one has acknowledged this and people have forgotten about all of this or never heard of it in the first place. But to those people who lived through it, it was a nightmare they would not want to repeat. In the history books, it is sometimes referred to the "Poverty Year" and also "Eighteen-Hundred and Froze to Death." We have written different accounts in a couple of articles going back to 1989, but this time we will also mention some of the effects this infamous year had in other parts of the world such as Europe and Asia. There has been some folklore and even fiction that we will touch upon. We will also look at the probable cause of this event—an event that may never happen again—certainly in our lifetimes.

We have many sources, but several stand out. One who has probably done more to research and recorded past climate history was Dr. David Ludlum, professor at Princeton University. He was also a science guru that founded Scientific Associates in Princeton, New Jersey. My first modern weather equipment came from Scientific Associates in 1979 as I was upgrading my weather station to modern technology. He was also the person I was going to to study for a PhD in the 70s. By the time we started putting things together, Dr. Ludlum died and his statistician also passed away several months later. But I have some of his notes available as well as Princeton University Press articles and data that he never published. At the time of his death, Professor Ludlum was world renowned for his work in historical climatology.

Several other valuable sources of information include Oxford University in England, University of Connecticut (Storrs), Cambridge University, also England, US Army Signal Corps weather records and *Encyclopedia Britannica*. We also used previous issues of *Weatherwise* magazine (authored by Dr. Ludlum). We did use a total of 18 sources.

The cause is of little doubt. Most, if not nearly all mainstream meteorologists and other science specialists, point to the volcanic eruptions as the primary cause. Historically, four other major eruptions took place around the world from 1811-1816. But Mt. Tambora on the southern part of the island of Sumbawa in Indonesia was by far the most powerful. Tambora (also known as Tamboro) exploded on April 7-12, 1815 with the most violent blowoff occurring on the last three days. It was not only the most deadly in modern history, it blew an estimated 55 million tons of sulfur dioxide gas 20 miles into the stratosphere in just minutes during the main eruption. This was the cause of the weather events we shall discuss shortly. Most of the pumice and volcanic gas fell out of the air rather quickly. The glass that was in the stratosphere gradually turned into sulfuric acid (acid rain) in the form of an aerosol. This gas (sulfuric dioxide) circled the globe for years and, as it gradually converted over to sulfuric acid, reflected the sunlight coming into Earth and reflected the light and energy back into space.

Tambora was a massive eruption. Volcanogirts measured the severity as VEI7, one of only four like it in the last 10,000 years. The eruption was heard at least 1000 miles away. Ship log accounts indicated that ash darkness lasted for three days for hundreds of miles. The mountain was originally 14,100 feet in elevation, but today it is only 9,354 feet tall. The top one-third of the mountain was blown away and a large crater (or caldera) remained. That one-third of the mountain contained 38 cubic miles of rock, killed at least 10,000 people within the area of the mountain (killing zone) and at least 70,000 more were estimated to have perished to disease and starvation, because crops were destroyed nearby as well as around the world.

For comparison, Mt. Karkatoa (Krakatau) eruption in August 27, 1883 only had about 10-12 cubic miles of ash and was heard 3000 miles away (Island of Reunion) according to Cambridge University. The modern day equivalent was the 1980 eruption of Mt. St. Helens which was only a quarter of a cubic miles of ash. Mt. Pinatubo in the Philippines did about ½-1 cubic mile of ash in 1991. But even in 1883, communications had improved so that news of the eruption traveled quickly. Today, we can watch a major eruption in progress from space.

In 1815 and 1816, weather data was rather scarce in what is now the United States. The Northeastern and Southeastern US were the only regions that were partially settled and had any reliable weather data. Data from the Ohio or Mississippi valleys was very scarce and consisted mostly of US Army Signal Corp. and other military outposts. The records that remain are sketchy at best. Here is what I've pieced together.

The Maunder Minimum—a period of no sunspots from 1645-1715—was a very cold period as crops froze or never matured in many years, leading to starvation and even malnutrition. By 1800, the world was warming up, but there was still a number of hard winters at the beginning of the 19th century. The coldest was the winter of 1640-1641—a particularly brutal winter. No one really knows how cold temperatures really were as the Fahrenheit thermometer wasn't invented until 1707. But the early 1800 winters were particularly hard on the people.

However, the winter of 1815-1816 was not a bad winter. Some places, such as in Virginia, it was actually quite mild. But this gradually changed into worse weather as spring arrived. It actually became colder as spring gradually edged towards summer. By mid-May, killing frosts were frequent from New England to Virginia. By mid-May, cold front after cold front crossed New England—each one seemingly colder than the previous one.

The storms brought cold rain and snow to much of New England. One diary entry was made on May 29 by a politician named David Thomas while in Erie, Pennsylvania: "This morning was very frosty and ice covered the water one-quarter inch thick. We had a brisk breeze from the Northeast—a severe frost attended this morning." This was from Thomas's Travel Through the Western Country in the Summer of 1816. Another person, Adino Brackett (1777-1847), wrote in his diary: "The whole of the month had been so cold and wet that wheat could not be sown 'til late and then the ground could not be well prepared." As it turned out, July and August had cold periods, but May and June were terrible.

However, the first few days in June were benign and gave no clue what was just ahead. On June 6 a very unusual unseasonably cold air mass moved into New York for several days. A strong Nor'easter developed and brought snow to many locations in southern New England. The snow covered the ground that was "elevated" and it was "flurrying" in sea level locations. Lee Foster, a former NOAA meteorologist, comments: "As the storm entered the Canadian Maritimes on June 7, it dumped six to 12 inches of snow over most of New England with reports of two-foot drifts in Quebec City, Quebec, Canada."

During the rest of June, cold air continually covered the New England region, but did alternate with brief warm to hot spells. These spells first frightened and scared the farmers, but the warm air heartened the farmers and the population as the people worried about their food supply. Like today, the newspapers made light of the fact that dangers did exist for the coming winter. Newspapers reported that others seemed to be doing well—despite the current drought. Every time the cold air would begin to dissipate, the newspapers would look at the situation in the most optimistic way possible. June was

particularly tough, but the newspapers were optimistic. Here are some comments: "Yes, some crops had been damaged but hardier crops, such as wheat and rye, seemed to be thriving," were often printed.

Unfortunately, by the end of the growing season in September, the disaster was apparent. New England crop yields were only a fraction of normal. Corn in particular was hard hit with the crop only about 10% of normal. People became very concerned for the food supply for winter and later.

If one looks at the entire year of 1816, it certainly wasn't the coldest on record. The warmer winter and fall raised the averages. But in many places, 1816 was the coldest or second coldest summer on record. Some observations from The Philadelphia Area Weather Book include: Average summer temperature during 1816 was 66°F.—the coldest on record (and 5 degrees below the modern record). Other temperature average readings include five degrees below normal in May for much of Connecticut and Massachusetts. June and July were five to seven degrees below normal, August was one to three degrees below normal and September was 1½ to five degrees below normal in these states.

The aftermath of this crop disaster was not pretty. Even though the Northeastern US had about 200 years of weather records in different forms including stories handed down from generation to generation, no one had ever heard of a year without a summer, the resulting food shortages and near famine. As a result of the near famine from the 1816 crop disaster, many people wondered what the future would hold. Another famine coming? Mass starvation? Should we move?

Because of the devastation of crops and "good" reports heard from west of the Appalachian Mountains, many farm families pulled up stakes and moved West. They didn't want to move north because that was even colder and they had enough. Moving south meant different farming methods the farmers were not familiar with. But they were familiar with the "Equal Latitude Myth" where, if one stays in the same latitude, the weather will remain quite similar. So many moved into western New York and Pennsylvania and many kept moving west into Ohio and the Midwest. The myth was that Ohio Country, was milder than the mid-Atlantic states. Even Thomas Jefferson, who was still alive at the time, thought the climate was mild due to some plant species being similar to what he saw in Virginia and Maryland.

But the new settlers found that the climate was harsher, not milder. The Continental Climate pattern is hotter summers and colder winters. Some transplants went even further west where it was even more frosty and cold in winters in states of Illinois, Indiana, Wisconsin, Michigan and parts of Minnesota and eastern Iowa. Plus the farmers ran into a whole new problem: The tough prairie sod couldn't be broken with the current wooden plows. Then there was the problem of Malaria—especially in Illinois and parts of Indiana. It wasn't until John Deere, a blacksmith, forged the first steel plow in his shop in Grand Detour, Illinois in 1837 that the sod was broken. Today, the John Deere museum is preserved by Deere and Company.

What was happening in Europe? While we had data in the Eastern US, the Western data was scarce and not reliable except for some army records which (some) were preserved. We do know that where Des Moines is now located, there was a killing frost on July 4, 1816. Unlike the lack of data in Western North America, there was more documentation about Europe's difficulties. The hardships and weather extremes in Europe—especially in Western Europe (France, western Germany, Spain and England) were brutal. Even Ireland had conditions similar to the Eastern US, but not as bad as the Great Potato Famine (1845-1849). That great famine led to riots, begging by the population and mass emigration from Ireland—many of which came to the United States. Great Britain and Wales also had mass starvation. Even Al Gore's Book Earth in the Balance: Ecology and the Human Spirit stated 1816 was the worst European famine in the 19th century. The BBC in a documentary film, studied Switzerland's records and found 100,000 more deaths in 1816 than normal. A letter written in Paris in October, 1818: "All counts agree that in the memory of no man living, has a season been so cold…" This letter was widely circulating in many US newspapers along the East Coast.

But it wasn't super cold all over Europe. Norway, Italy and even Iceland were just somewhat colder than normal. However, it was actually warmer than normal in Eastern Europe, European Russia, Turkey, Greece and into the Middle East, according to Ludlum's notes. But Casablanca, Morocco was cooler than normal as was Portugal. All of the places that were cooler than normal had some really major crop problems. Oddly enough, some of the warmer places were drier than normal. This may have been because the colder air to the west didn't have much moisture content. When the air heated up as it came east, the relative humidity dropped to very low numbers—resulting in low rainfall amounts.

The Timetables of History shows something else that was unusual for 1816, the year without a summer. In fact, it has become a legend. And it is true. The English poet, Lord Byron, would normally spend his summers in Switzerland in his chalet along the shores of Lake Geneva. But the summer of 1816 was so cold that Lord Byron's guests were housebound. The weather was inhospitable for even walking at any time that summer. Lord Byron challenged his guests to write some sort of horror stories—the more lurid the better. Byron offered a prize to the winner. The winner was a 19-year-old Mary Shelley who was poet Percy Shelley's wife. Her winning story was named Frankenstein. That is how the legend of Frankenstein began. But that was not all. Another of Lord Byron's guests that "summer" was John Polidori and his contribution was a reworked version of Byron's the Vampire: A Tale. Polidori put the vampires into existence as we now know them. Lord Byron wasn't just doing anything. He wrote Darkness at the same time that the other poets and authors were doing theirs. Ironically, the Year Without a Summer was not a weather event that directly caused this outburst of literature.

How did 1816 impact Asia? There were many effects—many of which were never written down. The East Indian Tea Company had about as complete records as anyone. Their records, now at Cambridge University, show the Indian monsoon failing. This led to mass starvation in India with the population dropping to 17 million by 1817. The tea crop was very small and the price of tea soared. The English did not have much tea to drink in late 1816 into mid-1817 when the next tea crop was harvested after the monsoon retuned to a

more normal state by June-September 1817.The summer of 1816 was hot and dry in India and Pakistan.

In places such as Southern China, cold temperatures and widespread heavy rains caused flooding. The summer rice crop froze in 1816—causing a widespread famine as rice was the staple food in the Chinese diet. Tropical Formosa (now Taiwan) had an experience with cold and snow—which inhabitants hadn't seen in anyone's memory. There were causes "desperate Yunnanese" resorted to eating white clay, while parents sold their children in the town markets or killed them out of mercy." Even some places in the Southern Hemisphere were affected by the Year Without a Summer, but it was winter in the Southern Hemisphere so crops were not as seriously affected as in the Northern Hemisphere.

Indirectly, one more serious and lingering problem was the Disease Cycle and its effects on the populations around the world. The origin of the "disease ecology of the Bay of Bengal" took root in 1816-1817, The volcanic-eruption-induced drought changed the environment. Flooding east of India later in the monsoon season was thought to give rise to a new strain of cholera. This strain (cholera causes extreme dehydration among other symptoms) was deadly as there were no antibiotics or vaccines to relieve the effects of the disease. This disease spread around the world so that by the end of the 1800s, million of people had died—some as far away as Alaska.

It was also thought that a new crop was needed for Southeast Asia. The rice crop died in 1816 and a much more reliable crop was going to be needed. Another food crop would certainly help stabilize the diets of all the local residents when a disaster hit. But the Yunnanese crop failures pointed out to the local populations that a cash crop was needed—especially one that would be lucrative to grow. The solution was opium from the native and locally-grown poppy that weathered the droughts much better than rice. Opium was originally grown and harvested in Yunnan Province, Southern China, was later introduced and grown to the south in the countries of Burma (now Myanmar), Laos and Thailand. Today we know it as the "Golden Triangle"—one of the most profitable crop areas in the world.

One other consideration: The Dalton Minimum in the sunspot activity chart of observations showed minimum activity from 1795-1830 and was also a cold period. There were a few sunspots in most of those years. The Maunder Minimum (1645-1715) was devoid of sunspots and was the coldest period in the last 1000 years. There is no way to prove it, but the Dalton Cycle Minimum certainly added to the effect of the Year Without a Summer because it took years to get crops and civilization "back to normal."

As with many historical events, some fiction and fictional stories do originate and continue to circulate. Dr Ludlum has accumulated some of these fictions and rumors. We will repeat some of them here in list form.

1. There were many accounts of 1816 referring to snow—or at least flurries—that occurred during all three of the meteorological summer months of June, July and August. The states with the best weather records were checked—ranging from New England and New York south to Virginia. Interestingly, Ludlum saw no notes or measurements—or any other evidence—for any July or August snows—at least at lower elevations. But, there was solid evidence that there were occasional killing frosts occurring during all three months. There was snow in New England during June.
2. Back in 1816, the knowledge of science was rudimentary at best—especially weather science. The people came up with all kinds of crazy and even outlandish explanations for the cause of the freakish weather.
   One of the explanations was regarding sunspots. Some people thought that spots were increasing in size as well as in numbers. Many had the theory that the spots diminished the incoming solar energy, which met a cooling Earth. The sunspots were increasing and, in fact, visible to the naked eye—especially during sunset. This theory persisted into the 20th century. However, most meteorologists and astronomers today know that it is the opposite effect—the lack of sunspots that leads to cooling. The "Maunders Minimum" (1645-1715) occurred during the "Little Ice Age" (1400-1850). During the 70 years of no sunspot activity (1645-1715 – the Maunder Minimum) sunspots were all but non-existent. But, as earlier mentioned, the sunspots reappeared by 1816 and were fairly obvious—especially at sunset on hazy nights. There were sunspots even though the Dalton Minimum Cycle was still in effect. There weren't as many sunspots as what we now regard as normal.
3. By a strange fate of nature, there was a total lunar eclipse on June 9, 1816. A freakish snowstorm came just before the eclipse and certainly added to the mystery as the cause of the cold weather (University to Connecticut). At that time the thinking was that the eclipse interfered with the moon's gravitational pull which suppressed the warm southerly winds and allowed the cold northerly winds to come south and settle over the region. The people claimed their evidence as massive, widespread wind caused vegetation damage throughout the countryside. This brought fear to many hearts—especially farmers.
4. Dr. Ludlam recounts other theories. One was that clear cutting of forests to aid in farming and settlements caused this very cold summer. These believers cited the constant turning of the topsoil allowed the soil's heat to escape into the atmosphere. However, later that century people believed the opposite: Clear cutting and deforestation would do the opposite—have a warming effect because sunlight would reach the ground and warm the soil. What changed the people's minds? The late 19th century winters were milder and the old timers after 1860 were bragging about the very harsh winters they witnessed during their youth. The records do bear evidence that the winters were becoming more benign—especially as the 19th century was drawing to a close. However, the real reason was that the 400- to 500-year "Little Ice Age" was really coming to a close.
5. Another reason for this bizarre summer in 1816 was the huge fields of ice and icebergs floating in the Atlantic Ocean. According to several ships' logs, some icebergs even made it into the tropics. Icebergs were very plentiful off the New England coast during the summer of 1816. The theory was that the ice had a cooling effect on the temperature. In reality, the ice formed as a result of the

cold devastation in the Earth's atmosphere.

6. Another theory was Benjamin Franklin's experiments with his lightning rods short-circuited the balance of nature and resulted in colder air because the lightning heated the air but was now gone. Related to this was the thought that the Earth's heat balance was disrupted by such experiments. No one thought about how enormous the energy of the earth and the sun is.
7. The wrath of God came in for the cause of the cold. The "Fire, Hell and Brimstone" preachers had a field day telling their parishioners that they would freeze in this hell and then go on from there. There were quite a few variations on this theme, and it depended upon each theologian's point of view. But this was a rare occasion that nobody had seen before. Hence the saying, "Till Hell freezes over" had its origin.
8. There are many stories about the summer of 1816. Some were funny, some and strange. A few were actually bizarre. Here is one that actually happened. This was associated with the 1816 Farmer's Almanac, now known as "The Old Farmers Almanac. This publication began in 1792 and was first published by Robert B. Thomas as the original editor. Today, it is the oldest publication in the United States that is still in continuous publication.

Judson Hale Sr., current editor-in-chief of the Almanac, tells of a really bizarre story as relayed to Don Lipman. The presses were running in 1815 printing the 1816 issue. It so happened that Robert Thomas, who was still editor-in-chief, was sick in bed with the flu. An error was made (it could have also been a joke). The printer transposed the forecasts of January and February with July and August. Such a printing was forecasting snow for July and August.

Thomas supposedly found out about this error and stopped the presses (still in printing the run). He then destroyed all the issues that contained the error. But he missed a few copies for whatever reason and the few copies made it into circulation. When the "summertime snow" story became known, Thomas was totally embarrassed and went into complete denial. He was harassed and was totally humiliated. However, the following summer arrived with cold, frost and snow over much of the US Northeast. Did he still hotly deny the rumor? Of course not. Thomas saved face and took full credit for the forecasts. **Comment**: Robert B. Thomas became one of the first people to take credit for a bad forecast (mistake, if you will) and take full credit when everything worked out. Thomas would fit right into today's political scenery.

COMMODITY DEPRESSION CYCLE

There is not much room to discuss all the ramifications of this cycle, but we will hit on a theme—that of cold weather and the misery it can (and probably will) cause. We have said before that this Depression Cycle runs from June, 2014 to September, 2017. However, the results will last for years later.

Take food as an example. We have been looking at the weather cycles and we see a Catch 22 situation. Both 2015 and 2016 (so far) were good food production years—leading to a surplus of produce over much of the world. As is normally expected, not every region has shared in nature's food bounty like the United States and much of Europe. Areas such as India and Asia Minor (Turkey and around the Black Sea) have had more serious weather issues. There will be some major consequences for the food and energy sources among other effects.

Let's have a brief rundown on the food production into 2020.The USDA August crop report had just come out as this was written with 15.15 billion bushels of corn and 4.06 billion bushels of soybeans. These are all record-sized crops and yields per acre. We have seen two good crop production years in a row. Prices sank to multi-year lows when the report was released at 11:00 AM CDT on August 12. Gloom permeates the agricultural industry.

But such low prices will foster growth of usage—including exports. It is the old saying, "The cure for low prices is low prices." The odds of another bumper crop in 2017? We don't see it and, with less crop coming to market, prices will eventually rise. We have a hot, dry period coming in 2019 and then we go into a complete reversal in 2020 where it will be much colder than normal—as we noted about 1816 above. This will be part of a minimum solar sunspot cycle that will last into 2066. We foresee many companies (and some countries) going broke as the food shortages become acute around the world. Wars will break out as the War Cycle peaks about 2020-2022. Agricultural prices may skyrocket in value, leading to possible black market prices in some parts of the world (as we see in Venezuela today). Agricultural prices will get better but, like the 1980s, a weather phenomenon may be the trigger to begin this change.

The farmers and other producers of agricultural production will eventually prosper as their produce will be needed by everyone. The sad part of this situation is that, like in the 1980s, some will go out of business because of the lack of profits. The worst of this situation is probably from July 2014-September 2017. While that is the depth of the Commodity Depression Cycle, it will take at least one more year to start truly bringing profits back into the Agricultural and Resource sectors. Can wars accelerate this recovery? It is possible—depending upon circumstances. But with the cycle ending in September, 2017, we are doubtful this will happen in such a short time span. We think the better odds lay with the very cold weather that is in store for the world after 2020. That is the way we would bet today.

Looking at energy (oil and natural gas), the situation is a little different. Yes, there is an oversupply of both crude oil and natural gas now. The Commodity Depression Cycle applies to the energy sector as well as it applies to the Agricultural sector. However, the oversupply is from foreign suppliers (i.e. Saudi Arabia) not the US. The US had higher cost production due to the type of extraction of the crude oil and natural gas. This process called "fracking" requires much more technology to operate than just pumping the crude oil straight out of the ground. Saudi Arabia can pump out of the ground much cheaper than the US. ($12-15.00/barrel vs. $50-70 per barrel for the US 2016 prices). When the Commodity Depression Cycle (CDC) made itself known, the higher cost producers such as the US felt the bite early on. Other higher cost producers were also affected by this CDC and entire sovereign

nations are in dire financial difficulty because of this situation. Libya and Ecuador immediately come to mind. Since this cycle has a little more than a year before completion, this cycle may cause turmoil in some parts of the world before it ends.

When this cycle ends, this may not end the financial woes for the oil producers. Saudi Arabia, the cheapest oil producer, continues to pump oil instead of cutting back. There are other companies here in the US as well as in other nations who continue to pump oil because they have to or go broke. There have been dozens of bankruptcies already in the US, as highly indebted companies couldn't make their debt payments and defaulted into bankruptcy court. This will continue as long as the price of oil stays below $50/barrel.

The situation for natural gas is hardly any better. As with oil above, the price of natural gas fell below the breakeven point of production. However, the prospects for natural gas producers are a little brighter. The weather cycles indicate a cold and long winter (2016-2017). The cold weather should begin in October and be winter-like before the end of October. This below normal temperature period should last almost to the end of February or approaching a five-month long period. A colder-than-normal period along with a longer-than-normal cold period could put a strain on existing supplies. One other point that few non-experts know or understand is that much of the US gas supplies now come from the "fracked" wells in the US. Production from these wells has a steep fall in production the first year. Many wells experience at 50-70% drop in production unless they are either "reconditioned" or re-fracted. Most of the wells now are over a year old and production for both oil and gas has fallen significantly in many wells. Total US production is declining. Unless wells are reworked and maintained, production will continue to fall.

A look at oil cycles isn't particularly encouraging—at least for the shorter term. It is true that oil usage continues higher because it is cheaper now than two years ago. However, the cycles do not show a roaring energy market (like we saw in early 2014) for a few years yet. With the exception of an outbreak of war (always possible), we only see a gradual oil and gas value increase to about 2020. Yes, we do expect prices to increase, but there are many producers that are losing much money. They keep producing so they don't go bankrupt. In the end, some of these **will** go bankrupt and then the production will decline. This could take another year or more before this scenario will finally happen. So, yes, it could take 2-4 more years before the energy situation will finally turn around. Do remember that this is a longer term cycle, and it has to work over the entire 30-year cycle period. Better days are ahead, but patience is required.

COMMODITY COMMENTS

Please be advised that this section is always the last one written, so it is as current as possible—no matter when we go to press. If the issue is delayed for any length of time, this will be revised to conform being up to date. We continue to say a few words about basic trends of many commodities for the next one to two months. Here is what we see for the general trends (more specific advice is on the hotlines, e-mails and faxes). **This is current as of August 19, 2016.**

Grains: By now, everyone has heard about the very bearish USDA Crop Report that was issued on August 12. The record corn production number of 15.15 billion bushels and the record soybean production of 4.06 billion bushels were more than I or anyone else was expecting. Whether these numbers are correct remains to be seen. I've been from central Illinois to northern Wisconsin and southeast Minnesota and, frankly, I don't think that yield and crop size is present. It will be a good crop season and growing conditions are good to excellent in many areas. Now, the market is thinking that big markets and high (record) yields beget bigger and higher yields in subsequent reports. In other words, the September report will be larger than the August report we have just seen. That theory works 75% of the time, but there can always be an exception. As expected, prices sank to new lows as soon as the report as released at 11:00 AM, August 12. We loaded up on grains after the report and, as we go to press, we still have these contracts. My corn is now dented and the soybeans are filling pods. We are going to have a good crop and, as long as we don't have a hailstorm or other quick disaster, we'll be all right. As of August 18, my growing degree day (GDD) totals was 2350.0 GDD. We'll be all right.

Corn was the biggest surprise. Supplies are at record highs, but demand is also high and rising. Prices are so cheap that demand should pick up. Also, producers have no profit in this crop. There have been areas of flooding and other inclement weather around the US—especially in the Delta region of the Mississippi River. In the area I looked at, and I assume that other areas also have at least some of the "tip-back" that I saw in most cornfields. My tip-back ranges from ½-1½ inches. This can cut production per acre up to 10%. With cash corn down to $3.00/bushel and possibly even lower, where does one sell their crop? These prices are at ruinous levels; no one can make money at $3.00 corn.

The story for soybeans is similar—record-size crop and low prices. I'm a little more optimistic about soybeans as the demand continues high and is growing. China is buying an enormous amount of soybeans as we go to press and other countries are also buying. Soybeans may lead the grains into 2017.

The story for wheat hasn't changed much in the last three years. There is just too much wheat in the world. The strong dollar is also harmful for wheat sales. The pricing situation for oats and rice may actually be better—especially for the speculators. The Commodity Depression Cycle is certainly in force as it has more than a year yet to go (September 2017) before we see the bottom. It will be tough for some producers to keep looking on the optimistic side of life.

The cycles indicate that we have seen the bottom of the grains on August 12. However, even though prices should rally, the price advance will be sluggish towards the end of August or into September 1 when we have an annular solar eclipse. This shows that cycles should change direction and go back down to recheck the harvest lows. If the lows hold (bottom about October 5-15), grains should be up into January. We think a bigger move higher starts in early to mid-October. For speculators, this period from now into early October will be a challenge. Most should wait into October and then buy the grains. We have a lot more on the hotline updates.

Meats: The story here is not all roses either. Most cattle farmers are losing money even though the corn prices are cheap. The hog markets are faring little better. The 2014 highs both experienced are little more than distant memories. Both the cattle and hogs are trying to put in the lows, and with cattle lows in mid-July, cattle may have bottomed. It may be early to mid-September until we know if the bovines have bottomed as we expect a recheck of the $106.95 hundredweight low hit on July 21, 2016 for December cattle futures. I'm not very optimistic the July 21 low will hold.

For the oink-oinks, the prices have been sliding downhill since mid-June. The cycles continue bearish and may be mid-fall (October-November) before they turn around. They have already dropped about 15¢/pound and may sink to below 50¢ before stabilizing in price. We are still bearish hog prices because there are plenty of supplies. Spectators should short both cattle and hogs on rallies.

Sugar: The price of sugar seems to have plateaued between 18.50-21.00¢/pound since early June. October sugar is now the lead month. The sugar crop around the world does have issues such as drought in India and the Ukraine to name two places. The world supplies are being worked lower, but the world still has plenty of sugar. For speculators, this is a tough call. Buying October or March futures or calls on dips around 19¢/lb. should work out to be profitable, but it may take the patience of Job to make it work. For most speculators, look elsewhere if you crave action.

Cotton: The white fiber is showing signs of waking up from the dead. There has been little action here since the price collapsed about 20-25¢/pound in July 2014. This market finally started to come to life in mid-July, 2016 when crop conditions for the growing US crop went downhill. In addition, both India's crop and the Chinese crop in Southern China were deteriorating due to drought. Prices rallied about 10¢/pound in just three weeks. Cotton is known for its wild market moves, but it has been several years since such moves have taken place. Because China has a very large amount of lower grade cotton, prices will not be going much above 75¢ in the near future. This is also a commodity that has limited action for the next 3-6 months. Buy on setbacks and get out on rallies. If nervous or not sure what to do, call me or look elsewhere.

Precious Metals: Here is one commodity group that has shined so far in 2016. The lows for both stocks and commodity prices in the metals were in January-February. However, December gold's low was December 17, 2015 and it has been slowly climbing ever since. For silver, December futures hit bottom on December 14, 2015 at $13.77, bounced around into early February and then rallied to over $21 on July 5 before settling back. This is normal for a setback. Story is the same for copper, platinum and palladium. Incidentally, platinum is still cheaper than gold, even though it is 30 times rarer than gold. It has been inverted for months—in fact, since mid-2015. I have never seen this situation last for so long.

We see topping action about September 1, a setback possible and then a possible rally into October before selling off (or possible congestion on the charts) into 2017. Whatever the stock market does, the metals will do the opposite. Politics may well be involved. If Hillary Clinton wins the November 8 election, Wall Street could have a good rally into 2017. If Donald Trump wins, Wall Street may sit where it is or even tank and the metals will shine. The key month is October. One other factor is the debt in the world economy. If the Sovereign Debt (government debt) starts going bad, the metals may rally significantly. Long-term, we are bullish the metals. Speculators should buy more distant contracts of the metals on weakness and hang on. Over the next several years, gold could be worth $5,000/oz., silver $100 and copper $3-4 per pound. These prices are possible by 2020. Good luck.

Energy: The oil patch had a rough beginning in 2016 and the ordeal is not over yet for many companies. Dozens have gone bankrupt and some more are just barely hanging on. Some more bankruptcies are definitely possible. However, it seems that some big banks are keeping this market from dropping below $40 so they don't have to eat billions of dollars worth of debt. In the November futures, strong resistance is in the $40/barrel price range. As we go to press, the Baker-Hughes drill rig count has been up for eight weeks in a row from a low of 404 drilling rigs active. The peak was 1900 in 2014. Oil inventories are still burdensome, but are slowly dropping. It will take another two years to work off all the supplies that are still overhanging the market.

As for prices, we don't see a strong market for the next 2-3 years unless a major war breaks out. We do see prices gradually climbing higher, but there will be strong resistance around $55/barrel. It appears that oil is putting in a head-and-shoulders bottom on the charts with the left shoulder in early 2015, the bottom in January, 2016 and the final (or right shoulder) put in on August 3. Oil has since rallied strongly with some help from banks. We would suggest getting heavily long on setbacks. A cold winter is coming which will aid prices.

Natural gas is becoming the favorite fuel for electric power plants as well as other uses. Supplies are still large but are shrinking due to the current hot summer and the heavy use of air conditioning. We have a cold, long winter coming. A lot of gas will be needed for home and office heating. Strong support is about $2.6/million BTU. Current price resistance on the charts is $3.0/million BTU. Longer term resistance is around $4.5 and the peak is $6.0 million BTU. The bottom in the gas prices is late August and cycles head higher into January. Speculators should load up (long) on November natural gas and ride the market higher. Eventually, gas should peak out in January-February 2017. Gas should be hot (pun intended) this winter.

S&P 500: This is a market that appears to be heading slowly higher from October into January, 2017. September appears to be weak and is historically the weakest month of the year. If Hillary Clinton wins the White House, we expect stocks to more sharply higher. We would consider being short December futures in late August and September and then go long December or March futures. Since the February 11, 2016 low of $1787.50, the S&P has rallied nearly 400 points. This would be how we look at it as of today. The last recent selloff when "Brexit" voted on June 23 was a great time to buy. We

expect to see this type of reaction again (a Trump win?). Long-term, we see a host of problems in 2017—especially after July 1, 2017. Good luck with this high flyer index

Coffee: December coffee has been rather volatile since mid-February, 2016. The coffee areas in Brazil have been quite dry and the drought has done real damage to much of the coffee growing region north of Sao Paulo and Rio. Coffee sold off in mid-August as this market continues its up and down pattern. The charts now show an uptrend since mid-June. Support is about $1.35/pound on the December futures. The weekly charts show the ultimate high should be about $2.25/pound in 2017. We like this market, but it will really try your patience.

My favorite positions for the next several months are natural gas followed by crude oil, coffee and silver (on setbacks). Our favorite short is the US $. Grains will look better (long, after early October) and cattle prices may rally as the cold winter arrives.

For more information and timely advice on these and other commodities, please consult me for hotline information.
HARD COPY FAX & E-MAIL

ON THE SOAPBOX

Are you getting tired of all the negative things and ideas being written and talked about on the news media, Internet and the headlines. Is there anything right about the US? There is a lot. It is true that we have problems as a nation, but there have always been problems for a long as I can remember (and that goes back prior to the Korean War). It's time we take a positive approach—with or without the "help" of politicians. Here is a short list of positives to begin; there are many more that I do not have room to list and discuss.

1. The US dollar is the world's reserve currency.
2. The US economy is the largest national economy by an enormous margin. It is larger than China (#2) and Japan (#3) combined.
3. No nation attracts more students and immigrants as well as foreign capital than the US.
4. US still leads the world in medicine, science, engineering and the arts. I can attest to the medicine advances. I had three different medications that were lifesaving.
5. We have the best hospitals, universities and businesses in the world.
6. Our financial markets are the biggest and deepest in the world. There is also more transparency and available information here than anywhere else on Earth.
7. While we are on the subject of finance, Americans are only 4.4% of the world's population (according to UN statistics), but we create about 23% of the world's annual wealth.
8. All forms of pollution are in decline. The one possible exception is the greenhouse gas issue.
9. Human life spans are longer now than ever.
10. Communications have never been faster and easier to use. I remember when DDD (Direct Distance Dialing) first started, and I used it to call Los Angeles, California in 1962 from my college room in Champaign, Illinois. I thought it was a miracle.
11. The American working week now averages 34.4 hours (US Labor Statistics). That has never been shorter.
12. The essentials of life (food, clothing, water and shelter) are as affordable as ever. Even energy has come down in price.
13. Americans have ended their "addiction to oil" that experts have warned bout for decades. Now, new technology—such as "fracking" and horizontal drilling—have made US the largest energy producer in the world—surpassing Russia in 2014.
14. Standards of living are higher than ever in history. Many places in the world don't have electricity, clean water or indoor toilets.
15. Worldwide travel has never been as easy as it is now—despite TSA.
16. American cities have never been generally safer than they are now. Violent crime is in a long-term cycle of decline. Some cities are seeing violent crimes declining faster than others.
17. Technology has never been cheaper or more varied. Computers, smart phones, laptops, tablets and Internet of things (IOT) are changing our lives at record speed.
18. American population is highly educated. Eighty-eight percent of American graduated from high school. About 60% have been to college and 42% have college degrees or two-year associate degrees.
19. We have the best and most varied food supply anywhere on Earth. Technology has transferred US agriculture—whether you are interested in meat, milk, mandarin oranges or milo. We have plenty of food to feed a larger population.
20. We have rule of law, capitalism, property rights that protect one's wealth and self. This is more widely embraced in more nations than any other system.

There are many more reasons to think about what is right about America. Yes, we do have problems with terrorism, racial tension, too much government spending and increasing regulations just to name a few. But these have been around for decades. They will not go away with a political change in Washington D.C. But the long-term promise of the US is still there.

Yes, we do have challenges and we are very likely to have setbacks and surprises ahead. But we have had and will continue to have challenges. But let's enjoy the bright side of the future.

Remember, over the long haul, optimists get rich, the pessimists will be crying in their cheap beer.

Hard copy fax and e-mail are available for hotlines and *3F Forecasts*. All foreign subscribers will be put on e-mail.

Long-term weather forecasts and predictions are made to a reasonable degree of meteorological accuracy based upon data for regional areas. This data and forecasts/predictions are believed to be reliable, but are not guaranteed.