



THT BLOODSTOCK: PATTERNS OF MOTION ANALYSIS

WITH KERRY THOMAS AND PETE DENK



KENTUCKY DERBY 2021 HERD DYNAMICS ANALYSIS

A personal note from Kerry M. Thomas

This year's Kentucky Derby report was in jeopardy. Not because of all that has been going on in the world, but because the uncertainty and overwhelming emotional stress in my personal life had me close to pulling out the white flag. My dearly beloved life-partner Tonia, who had been battling cancer since the summer of 2018, passed away in March.

Breast cancer had traveled to her brain, (my father died of brain cancer, also at home, in 2002) and two days after my birthday on October 22, 2020, we were told Tonia had 6 months to live. She passed on March 6th, 2021. Two days after Tonia left us, my mother, who I also am caregiver for, fell and fractured her hip. At the writing of this very sentence my mother is yet in a rehab facility struggling to recover.

It goes without saying that as March churned into April, doing our 11th derby report wasn't high on my list of things to do. But there was something that wasn't right about not doing our analysis of the contenders. It was a quiet nudge I was unable to ignore. I just couldn't let the horses run away from me.

I began to realize that not doing the report wasn't an option, I needed the distraction. Horses are my passion and racing is the sport I love. Over time, a sense of dedication to the many who support us each year began to take hold. If we didn't set to work on this report, I would have felt as if all the years of support and encouragement from Tonia would have been marginalized. All during her illness she was determined to not become a distraction from my work or the care of my mother. A more selfless person I never knew. Tonia, though not much interested in the horse industry, continually pushed me forward because she knew how much it meant to me. That final push, though a struggle without her, echoed within me as I replayed what she told me in what was to be among our final conversations, "My time is almost up, but you have to keep living."

This year's analysis represents my first step. I'm dusting off my time worn Akubra hat and trying to set it aright with my eyes slowly lifting forward. If not for THT partner Pete Denk, who so often carried us over the last few years during all of this, the KY Derby Analysis would not have been. I've met no one immune to the struggle of life, collectively we are bound by its ebb and flow and where our trials are unique, the emotional experience of life knits us together. The manner in which we handle adversity is expressed through the character of our actions; among the greatest challenges we face in life is the navigation of its emotional terrain.

The Kentucky Derby represents many things to many people, this year what it represents to me personally, is a stepping stone forward in my effort to keep living. Time, we can never get it back nor do we know how much of it lay before us. Don't overlook the moments that are yours, nor take tomorrow for granted.

Kentucky Derby *The Choreography of Combat*

It goes without saying that the Kentucky Derby, on multiple levels for each horse, is an atmosphere unmatched in its omnipresent energy. From the perspective of herd dynamic rhythm, the ebb and flow of the emotional terrain the horses find themselves in at Churchill, becomes greatly enhanced by the increasing impassioned spirit of the people surrounding them. It's inevitable, no matter the effort to maintain routine and calm, the vibe changes. In reality, the battle for the roses starts well before the first Saturday in May. Where so much of total performance is predicated upon the individual horses' ability to manage emotional stress, assimilation is king.

I've long been of the opinion, you should handicap through the herd dynamics and then thread your way into physical talent. Mental agility is the handicappers' edge.

When it comes to assessing probability of success, especially in a race that can be as chaotic as the derby, there are many key factors to identify. From a herd dynamic point of reference, I care less about what was done in any race leading up to the derby and more about the manner with which it was done. Where a particular physical result tells you what the horse did, how they did it affords more insight about what's happening within. Psychological growth patterns unveil the horses' story and offer a unique window not only into where the horse is, but where they were and where they may be headed.

Determining their ability to succeed is a matter of studying the individual ingredients of their herd dynamics and fitting them with their closest peer to align a likely hierarchy. In nature, herd dynamic hierarchy is manifested by individuals fitted into different tiers, upper, middle and lower. Within these juggling for position is a common, and for those closely aligned, even daily occurrence.

I view the race participants much like members of an orchestra, each horse a musician in the symphony of emotional and physical expression. Many will seek to harmonize and blend in, some will have solos. Like music, the purest beauty of the horse is found within the emotional experience of our relationship.

Identifying growth patterns happens in three phases of the racing experience; the gate, which includes the buildup before and immediate exit rhythm, the rhythms of assimilation that make up the bulk of the race midsection which then translate into the final stage, that push-for-home in the desired higher intensity rhythm of competitive edge.

Breaking it down in cognitive percentages, I consider these ratios to be 25% - 55% - 20%, each stage or “sequence” communicated one to the other from start to finish. Ideal growth patterns are supportive; the management of the start assists in the efficient management of the bulk of the race at which then prepares the athlete psychologically for competitive intensification in the final 20%. Because the entire experience is representative of various forms of competitive stresses, herd dynamically these percentages are more a reflection of time itself than of *time & distance*.

Duration of competitive stress is what significantly effects mental stamina. Identifying emotional stress markers where they may exist in the first 25% is important, as these can gnaw away at the depth of energy and if not filtered and processed properly, add emotional “weight” to the athlete. This is the classic buildup of anxiety felt right before and in the initial stages of a performance. What makes this so profound is that it cannot be “practiced” nor remedied but through experience. You can practice a speech over and over again but nothing can prepare you for the moments leading up to your introduction to the podium and those first initial stages of delivery. Individuals who easily process stress rarely ever show any signs it ever existed, and others need a few strides out of the gate to find their rhythm.

Unless you’re along for the pre-race preparations and walk-up, able to observe everything leading up to the post parade etc., much of the evaluation process comes from within the gate and moreover, the exit from it. Among the most challenging things for a horse to do from a psychological and sensory interpretation point of reference is stand in the gate and then immediately put their bodies in motion in a controlled manner.

Two different things are taking place for the athlete, they are at once mentally spinning in an environment of competitive stress while standing, unable to, through movement, filter that stress. This isn’t a major problem necessarily and is rarely an issue for the athletes that filter stress internally without needing to move. However, for the physically filtering athletes, even those with seasoning, the exit from the gate often shows signs of the buildup of performance anxiety. For some athletes Performance Anxiety that starts in the gate sequence can be carried forward, affecting the horse through the entirety of the experience.

It must be remembered that regardless of how much gate experience any horse has, what they carry into the gate with them matters. Any stress that may have been building up preceding entering will ask to be filtered while behind the bars.

Since the majority of information readily available for study is the horse actually in the starting gate, those first few strides coming out of it is where you find your clues. The manner of physical expression as they exit is a reflection of their emotional state. Wherever the emotional energy is going, the body is sure to follow. Well-processed stress has little to no noticeable negative influence on physical actions. Unprocessed stress can be a different story. Depending on the degree and depth of these stresses, purposeful motion can take anywhere from a stride or two, to several seconds to come online.

Emotional “weight” can push the horse down at the shock of the gate opening, or they can “get stuck.” Exiting with a “fall” to the right or left often indicates there was an effort being made to interpret oblique stimulus at the time the gate opened.

As the horse transitions from their gate experience portion of the race, the progression into the next phase is their introduction to the chaos of herd motion. Introspectively the individual horse starts to blend his rhythm of motion with those of the horses around him. The feel of the surface, the emotions of the jockey, the dirt in the face, the give and take of emotional energy, all serving up a cacophony of experience each needing identified, interpreted and reacted to.

As the body of the race unfolds, the efficient herd dynamic eases through the environment, mental agility allowing for versatility within changing conditions. Some absorb and feed off the din of movement, chewing up time and ground purposely while concealed in plain sight. Others attach themselves to it, their expressions flowing through the caprice of another.

The ability for a herd animal to move freely and singularly within the herd environment is vital, and a primary marker to key on. Inherently, a majority of horses will have an element of herd dependency. How it affects them on the race track is dependent upon its degree of impact on expression. Physical talent can be compromised and pace disrupted when a horse begins to outsource their decision-making process. Signs of this can be as subtle as a slight delay between transitions or as impactful as an outright change of pace.

When a horse approaches the space of another during the act of passing them, and they change their momentum in order to hover or linger, this “stick” before ultimately turning the dial back-up, is often an indication of a slight outsourcing tendency. We call stickiness, or delays during sensory transitions, “hesitation marks” and owing to the nature of their poignancy they can appear to be random.

Identifying patterns of motion as the race unfolds in this mid-section of combat comes in the form of determining tendency of response to the different stimuli encountered. Horses that respond inconsistently to changes in their environment are expressing the inclination to outsource control of their movement. Their patterns in motion depend upon the pattern of motion of the other horses. These horses may well be highly talented but any time you identify herd-bound tendencies, even when minimal or only within peculiar circumstances, physical efficiency is at risk. Consistent, repeated disruptive reactions to the same stimulus is indicative of a more internalized issue within the horse's interpretational aspect. This condition unchecked, can spread into areas of association making physical efficiency equally at risk.

From race to race you want to track areas of growth and areas of continued compromise. This will tell you a lot about the psychological horse going forward into their next race. Growth patterns show themselves in the form of a more purposeful motion. Where once the horse may have hesitated, they are now moving freely through that environment; where once their motion was patterned off another, they are now moving more independently. This is a window into their emotional energy distribution over the all-important factor of time-in-motion.

How an athlete is disseminating their energy in this part of a race is an important factor. There is a significant competitive difference between horses that interpret their environment and react purposefully and those that react and then attempt to interpret, or more commonly, rely on the interpretations of others. Horses that carry themselves with purposeful, fluid motion, are distributing their emotional energy in proper proportions that allow athletic expression to be a continuous stream. There is a cohesive merger between mind and body. Any disruptions to the flow of energy make it disproportionate and under the strain of competitive stress, mind to body fluency is injected with the arbitrary motion of the herd. The rule-of-thumb is simple to remember; even and proportional distribution of emotional energy is *fluency*, fluency allows for pure and eloquent athletic expression.

Athletic expression is comprised of mental ability and physical talent. Their compatibility allows the horse to mentally cruise through the bulk of the race all the while maneuvering and preparing for the transition into the final phase. By virtue of not having wasted emotive rhythms, their mental stamina is intact for that conclusive push. One of the characteristics of "true grit" in my opinion is revealed when mental stamina is able to supersede physical exhaustion long enough to finish the task at hand. Many athletes are determined until faced with physical or mental exhaustion.

Horses with the least amount of leaked away vitality in the first two phases of competition set themselves up for an aggressive drive to the wire. When considering the final phase of engagement, you have to recognize that the characteristics of competitive edge flow through the attributes of mental stamina. Chief among them is the ability to execute fluidity-of-expression under competitive stress.

Enhanced intensity demands greater alacrity of mind to sustain physical talent. As the senses sharpen the environment condenses. For a horse, "tunnel-vision" is manifested in target recognition. Be it another horse or open space, the final phase necessitates a shift in the manner of energy distribution. In order for the horse to have a sustained finishing "hammer", as we call it, the rhythm of the psyche must increase its rate of spin.

For mental stamina to be sustainable throughout the final phase of competition, sensory soundness is key. Within protracted herd motion, a horse with gaps in their sensory sequence (a precursor to herd dependency) can get away with inefficiencies. Staying covered-up helps tremendously. Yet in isolation, inefficiencies are stripped bare, affecting environmental interpretation, target recognition and subsequently, pace.

Sensory soundness, the ability to identify and interpret stimulus faster than the rate of physical speed, thus "clearing that space", allows the horse to physically move uninhibited whether into open space, to challenge the space of a competitor, or to respond to threats coming up behind them. Difficulty in any one or more of these areas becomes antagonistic to mental stamina and compromises physical speed and psychological pace as the herd animal defaults then, to their dependent nature.

Phase three autonomy is a key. There is a much tighter window of opportunity and less room for indecision; the ability to focus, interpret and accurately respond becomes condensed with little space between them. In order to maintain a sustained competitive aspect as well as uninterrupted focus, psychological pace must increase in time with physical movement. Independence can be camouflaged in other parts of the race as horses move together.

The merger of mental and physical stamina, evolving into a battle between horses on the track mimics the emotional intensity of play between colts in a bachelor herd. It has played out for thousands of years. The expression of competitive edge through movement is natural and is inherently rooted within the nature of Herd Dynamics.

Closing Thoughts

Shorter physical distances can show favor to those with more physical talent than mental ability. There is less time required to reach the wire, minimizing the buildup of emotional stress and the duration for weakness to go unprotected. The longer the distance, the more time in motion, the greater the likelihood for those weaknesses to be exposed as the herd starts to align itself in hierarchy.

Classic distances in my opinion represent the best of competition in its most natural form. It affords the opportunity for horses to compete for position and rank as they do in nature, through their herd dynamics, not just their turn of foot.

Competing at a high level for the classics requires their preparation be both mental and physical, representing the art of coaching blended with the finesse of physical training.

Compartmentalizing the race experience for each individual horse and comprehending the race in three phases I feel will offer an edge for the handicapper, especially in juxtaposition with physical data. Tracking growth patterns for each horse is a large part of what we do for our clients and is at the core of our evaluation process for this report.

As always, I wish to thank Brisnet for working with us in providing the platform for this report, and for you who support us through your purchase of our effort that goes into the making of it. Special thanks to THT partner and my best friend, Pete Denk, for as you know, without Pete the report would not come to fruition, and to Kentucky Confidential who provided the platform that introduced our work to the public for the first time back in 2011, the foundation from which we continue to grow.

The Kentucky Derby project this year for me was done with a heavy heart, but it also helped bring to me some moments of distraction as I work to try and adjust my life for an unknown future. I hope you enjoy it and it helps you take a view from the hoof, if you will. The beauty and appeal of racing runs deeper than the betting line, it is the natural artistry of emotion coursing through the horse, that endears us.

Thank You~
Kerry

For Tonia, who for 20 years quietly supported my crazy passion of chasing the horse dream, I miss you... you were and always will remain, my everything.

2/01/68 – 3/06/21



Herd Dynamic Rankings (by tier) for the 2021 Kentucky Derby

TIER 1 ★★★

1. Highly Motivated
2. Essential Quality
3. Hot Rod Charlie
4. Rock Your World

TIER 2 ★★★

5. Known Agenda
6. King Fury
7. Helium
8. O Besos
9. Medina Spirit
10. Midnight Bourbon
11. Super Stock
12. Sainthood
13. Keepmeinmind
14. Mandaloun

TIER 3 ★★★

15. Like the King
 16. Dynamic One
 17. Brooklyn Strong
 18. Bourbonic
 19. Hidden Stash
 20. Soup and Sandwich
-

A note from Kerry and Pete: We provide these rankings, but we encourage you to minimize reliance on the numbers. Instead, read our observations on the horses and glean from the profiles what you wish.

The profiles are based exclusively on video analysis and are augmented by our experience in the bloodstock/racing business, where we have been able to profile a few thousand horses since we started doing this research 11 years ago.

Our primary goal is to help bring to light the individuality of each horse. Racehorses are far more than the number on their saddlecloth or a speed figure. They are herd animals and emotional athletes.

Picture the horses in each Tier in a bachelor herd. Only the truly special horses will continue to rise through the ranks; many have found their level and will compete consistently for some time; others, having already reached their apex, will be dropping down.

The flow of leadership within the various divisions of Thoroughbred racing often mimics the constantly revolving door of herd hierarchy in nature, where a horse could be leading the herd one day, second in command the next, or completely out the door. There is an inherent limit on how long a horse stays at the top.

HIGHLY MOTIVATED

Colt by Into Mischief—Strong Incentive, by Warrior's Reward

Bred by Klaravich Stables in Kentucky

Owner: Klaravich Stables

Trainer: Chad Brown



When we are poring over race replays, nothing gets us more fired up than evidence of a truly elite Herd Dynamic. If we see a glimmer, we dig deeper for corroborative or contradictory evidence.

When we finished combing through Highly Motivated's races, we had a pile of shiny gold nuggets. No matter what environment or race scenario he was put in, Highly Motivated performed like a horse with an elite Herd Dynamic.

Although he does not enter this race undefeated, like some of his competition, finishing position is not everything. Highly Motivated is fast and he comes to the Derby on a Herd Dynamic growth pattern that is not complete.

Highly Motivated did not win his debut race at Saratoga back on August 29, but he ran a winning race. Debuting on a muddy track at the distance of six furlongs, Highly Motivated lost position at the start after drifting inward and bumping with another horse.

In 8th place, he made an early move up the rail and then continued advancing on that path through the far turn. With the two leaders in front of him turning for home, he slid to the outside, targeted and ran them down. It was an impressive sustained rally, but there was just one problem; Highly Motivated's stablemate Founder emerged from the pack and came charging in the final strides to win by a neck.

Highly Motivated didn't finish first in his debut, but he exhibited a bunch of advanced traits. He ran with good presence, his mind-to-body fluency looked good, his transitions were well-executed, and he sustained his competitive edge from start to finish over a muddy track. Founder is a decent horse, but he got the run of the race that day. (We saw Founder again recently, serving as Highly Motivated's 'workmate' in one of his final pre-derby drills.)

Highly Motivated's second start came in a 6 ½-furlong maiden race at Belmont Park. He drifted in pretty badly at the start –

body control out of the gate was his one weakness early in his career (more about that later) – but he still got out pretty quickly. He settled in stalking position, in 4th place on the inside.

Jockey Javier Castellano had to check on the far turn when Highly Motivated was pinched between horses. One thing we love to see is a horse who does not overreact to trouble. Highly Motivated lost the absolute minimum amount of ground when he was checked, and his forward focus almost never went away.

What he did in the stretch was even more impressive and the key to this performance. Blocked behind horses, Highly Motivated on the inside pushed #2 Hipsky out of his way (part presence, part a light brush). We loved how he moved into that space and accelerated through the hole.

Known Agenda, who was making his debut in this race, had a clear run and a head start on the outside, but he was unable to separate from Highly Motivated's combination of presence and turn of foot. Highly Motivated split horses and drove off to win by 1 ¾ lengths. If you're a race-watcher, the Herd Dynamic power and athleticism displayed in that replay is worth reviewing.

Highly Motivated completed his two-year-old campaign in the Nyquist Stakes, a 6 ½-furlong race at Keeneland on the Breeder's Cup undercard. He broke inwards from the rail, then advanced up the inside to 5th place, about 2 ½ lengths behind the leaders. This stalking running style looks like a natural, comfortable pattern of motion for Highly Motivated.

Turning for home, Castellano guided Highly Motivated to the outside and asked for his run. Highly Motivated came with a relentless Individual Herd Dynamic energy. He drew off to win by four lengths, completing the 6 ½ furlongs in 1:14.99! His splits were even more impressive (:22.17, :22.92, :29.90). The Nyquist was a very fast race, start to finish, and Highly Motivated made it look easy while moving very independently

of the herd. Three horses who finished behind him were next-out winners.

Brown waited for Highly Motivated to turn three to stretch him out, starting him in the Gotham Stakes (G3), a one-turn mile. He stumbled just slightly at the start and was advancing up the rail early when he was almost sideswiped by #4 Wipe the Slate. Castellano had to slam on the brakes. The head-on-view of the Gotham showed just how much trouble Highly Motivated encountered. He got pushed into the gap and had to fight just to get back onto the main track. Those space infractions were not his fault, but they cost him a lot of position.

Highly Motivated regathered himself and came running in the lane of the Gotham to get 3rd. He stayed the mile just fine, and he never lost his will to complete despite a very troubled trip. This horse has a lot of fortitude and underlying strength. Given this race was off a 4-month layoff and at a new distance, we thought it was a very underrated effort.

Brown chose the 1 1/8-mile Blue Grass Stakes (G1) for Highly Motivated's final Derby prep. The race featured a matchup vs. two-year-old champion Essential Quality, and for us it was the best of the final Derby preps.

Castellano asked Highly Motivated for speed at the start. It was Highly Motivated's first perfect gate break. Essential Quality, who was in the stall to his outside, drifted out and away from Highly Motivated and bumped with the horse to his outside at the start.

With Essential Quality just a half-length back on his outside flank, Highly Motivated set reasonable fractions of :23.83, :48.21, and 1:12.08. He pinned his ears on the far turn. He knew he was being challenged by a very serious opponent!

The top two drew away from the field in a fabulous stretch battle. Highly Motivated held the upper hand for a long time, even pushing Essential Quality out toward the middle of the track. We thought Highly Motivated showed superior brilliance and no signs of submission. It could be argued that Highly Motivated was controlling the space in that stretch battle. But Essential Quality had a stamina edge. He stayed on better and won by a neck.

It was an amazing stretch run by two determined colts. Highly Motivated finished fast despite flipping leads late. He ran his final three furlongs in :36.46. It was a very strong first attempt at a two-turn race and while trying a new pattern of motion.

We think Highly Motivated runs better at a forward target than he did trying to defend from the lead. We expect him to revert to his stalking pattern of motion in the Kentucky Derby.

Given his fast finish in the Blue Grass and excellent efficiency, we think Highly Motivated has a very good chance to get another furlong. (If not, he has potential to develop into an elite miler)

Highly Motivated is fast and he has a determined, powerful and efficient mentality. We have no doubt about the strength or purity of his Herd Dynamic, and he enters the Kentucky Derby on a growth pattern.

His forward focus and will-to-compete have been undeterred by situational chaos, and that bodes very well for his ability to handle Derby chaos. He had some hiccups out of the gate early in his career, but we believe that was a product of excess energy, not a sensory issue (harder to fix). He broke perfectly in his most recent start.

When we had to choose which of our Tier 1 colts to rank #1, it was a tough, hair-splitting decision. Our primary goal with these reports is to provide a summary of each horse's race experiences, seen through the lens of our study of Herd Dynamics. Our work is always evolving. Every time we profile a horse we might learn something new.

When the top three-year-olds meet at Churchill Downs on the first Saturday of May, each one is at a unique point in their Herd Dynamic timeline. There have been years when choosing our top-rated horse was easy because one horse was superior on the traits and patterns we look for.

Orb, Nyquist, Always Dreaming and Justify appeared dominant to us in their Kentucky Derbies. Animal Kingdom and I'll Have Another had excellent profiles in years we didn't see a single standout.

This year we didn't feel like there was one profile that was clearly superior, so we asked ourselves, which of these Tier 1 horses do we believe in the most? Highly Motivated was the one we both picked.

ESSENTIAL QUALITY

Colt by Tapit—Delightful Quality, by Elusive Quality

Bred in Kentucky by Godolphin

Owner: Godolphin

Trainer: Brad Cox



Essential Quality enters the Kentucky Derby undefeated in five lifetime starts thanks to a rare combination of speed & stamina, and a determined, forward mentality.

Trainer Brad Cox has run Essential Quality in blinkers in all his races. We would love to know what Cox saw in him before his first race that factored into that decision.

When we are able to see a horse make mistakes and grow from the experience, it gives us a better understanding of the mentality and how sensory equipment might be factoring into Herd Dynamic growth.

Does Essential Quality have an elite mind? We can't say for sure without seeing him without the head gear – this is not a horse who wears his personality on his sleeves – or seeing him in additional environments. But he absolutely has an elite Herd Dynamic (which combines the physical/mental/behavioral).

Essential Quality made his debut at Churchill Downs on September 5 in a 6-furlong maiden race. It was an eye-catching, eventful first race.

He broke well, just drifting out slightly and bumping another horse while making his initial interpretations of herd motion. Rating in 6th place early, Essential Quality showed he has speed (his first two quarter mile splits in :22.76 and :22.84) and a big forward projection.

Behind horses and under heavy restraint, Essential Quality was trying to feel his way through traffic on the far turn. He looked ready to go forward whether he was interpreting everything or not. Rider Shaun Bridgmohan thought about splitting horses in early stretch, but the two leaders were wavering sideways, the hole changing. Bridgmohan steered Essential Quality to the outside at about the 1/8 pole, and the other horses got out of Essential Quality's way. That's a sign of a big Herd Dynamic.

Essential Quality had plenty of thrust once in the clear. He won by four lengths while accelerating in the final furlong (:12.07). We don't see debuts like that very often.

Essential Quality proceeded to the Breeders' Futurity Stakes (G1), stretching out to 1 1/16 miles at Keeneland in his second start. He broke well but then drifted outside for a few strides, causing significant trouble for all the horses outside of him. There is a small hole in Essential Quality's environmental awareness that manifests at the start of herd motion.

He quickly straightened out and found his footing heading into the first turn. He settled into a good, strong rhythm through the middle portion of this race, and it was clear sailing from there.

Pressing the pace on the outside, Essential Quality slid past the leader turning for home. He drifted inside as he took the lead, then gradually released from the herd as he drew away to win by 3 lengths. It was a powerful performance and looked to us that he didn't even access his top emotional gears. His energy distribution (third quarter mile in :24.52, final 5/16 in :30.97) looked very strong. His deceleration over distance was minimal.

Essential Quality completed his juvenile campaign with a win in the Breeders' Cup Juvenile (G1). Demonstrating his positional versatility, Essential Quality rated in 8th place early, about 7 lengths behind a fast pace through the first turn.

He launched while wide on the far turn, following the move of Hot Rod Charlie. Essential Quality runs at forward targets very well. He passed Hot Rod Charlie at the 1/16 pole and crossed the wire full of energy.

His fractions from the Breeder's Cup Juvenile (:23.79, :23.07, :24.41, :30.83) were so impressive. His rating gears aren't much slower than many speed types, and his late move is sustained and relentless.

Essential Quality made his three-year-old debut in the Southwest Stakes (G3). Running on a sloppy track for the first time, he broke well from the rail.

He was not in a hurry – he was in 5th place early – but rider Luis Saez quickly guided him to the outside. That move avoided the

spray and also allowed Essential Quality to utilize his cruising gears in the middle portion of the race.

By the time the field hit the far turn, Essential Quality was out wide in 3rd place, just a half-length back and putting pressure on the leaders. He swept to the front turning for home, showing no hesitation.

Spielberg made a brief run at his outside oblique, but was quickly discouraged trying to match strides. Spielberg drifted inward and took on the adjunct's role at the 1/8 pole, content to let Essential Quality lead the herd. He crossed the wire four lengths in front, skipping over the slop.

Essential Quality's final prep for the Kentucky Derby came in the Blue Grass Stakes (G2). He broke outward at the start and slammed into #5 Rombauer. One of the only potential weaknesses that we see in Essential Quality for the Derby is his habit of drifting into other horses right after the start. It takes him just a few strides to find his place in the herd and get his mental and physical linked up.

In the Blue Grass, Essential Quality was in the clear the whole way. With Highly Motivated setting reasonable fractions to his inside, Essential Quality was tracking, gnawing away at him from just a half-length back.

Those two drew off from the rest of the herd by more than five lengths on the far turn. They hit the 1-mile mark in 1:35.97, and Highly Motivated still had the lead. Highly Motivated drifted out at Essential Quality during the stretch run, pushing the champ out a few paths.

This was a really gutsy performance by Essential Quality against a horse who was just as fast as him and was trying to intimidate him. Essential Quality kept digging in, and when Highly Motivated switched back to his left lead at the 1/16 pole, Essential Quality held his action and gained the upper hand. He won by a neck. It was the best Herd Dynamic battle we saw in this year's prep races.

Essential Quality's physical fractions and energy distribution from the Blue Grass (:24.00, :24.30, :23.87, :12.45) set the bar for this year's Kentucky Derby.

Essential Quality appears to have elite mental and physical stamina, and those feed off each other. Superior physical stamina gives a horse confidence. Mental stamina can keep pushing a horse forward when the physical body tires.

Our only questions about Essential Quality involve the reason he wears blinkers – which we don't know – and that small adjustment period right after the gate opens when his space awareness looks a little fuzzy. Those two things are probably interrelated.

Essential Quality is versatile, but he is at his best when he is in the clear because that allows him to utilize his high cruising speed. As a faster-rhythmed horse, Essential Quality filters his stress best when he is motion.

Based on his race videos, we still don't have a definitive feel for Essential Quality's personality. The blinkers partly hide his countenance, and he doesn't show a lot of outward emotion. His running style is steady & efficient. He is a big, impressive looking horse, but his body language is fairly non-descript. That could be a positive sign.

If Essential Quality has any major weaknesses, they are yet to manifest. His running style is almost machine-like. He is tactical & efficient, he transitions smoothly into IHD competing mode, and the jockey can hold the gas pedal down for a long time.

Essential Quality is a deserving favorite for this year's Kentucky Derby.

HOT ROD CHARLIE

*Colt by Oxbow—Indian Miss, by Indian Charlie
Bred in Kentucky by Edward A. Cox Jr*

Owner: Roadrunner Racing, Boat Racing LLC, Strauss Bros. Racing, Gainesway Thoroughbreds Ltd.

Trainer: Doug O'Neill



In terms of pure athleticism and exuberance of personality, Hot Rod Charlie is one of our favorite horses in this year's Kentucky Derby.

For the sake of tracking his development, we divide his 7-race career in two distinct parts. His first three races – a pair of 5-furlong sprints followed by a 1-mile turf race -- provided education for the horse and the connections.

His next four races – when he added blinkers and went long on dirt – saw him develop into a Derby horse. Hot Rod Charlie comes to Louisville on a strong Herd Dynamic growth curve.

Hot Rod Charlie ran 4th in his July 11 debut at Del Mar. He got pinched at the start, then gradually found his fluency. Rider Abel Cedillo looked a little frantic with his whip trying to get Charlie going in the lane. Charlie eventually found his rhythm, but it didn't look like a match for the tempo of this five-furlong dirt race.

They switched Charlie to the turf in start #2 but again at the 5-furlong distance. He hopped at the start, then showed some speed, but not five-furlong speed. With Cedillo going to a strong right-handed whip, Charlie was running a little head high through the lane as he intensified. Everything was a little too frantic and rushed for Charlie, who tried hard but finished 3rd.

They gave Hot Rod Charlie added distance in start #3, and he showed some progress in that 1-mile turf race. This was the first race in which his Derby rider Flavien Pratt got aboard, and we liked how Pratt let Charlie settle and learn from this race. Sitting in 5th place behind horses, Charlie was exhibiting plenty of forward focus but still running a little greenly.

Pratt asked for his run at the right time, but Charlie made the mistakes of falling in behind horses in the lane, then drifting further inside in response to a right-handed whip. Charlie ran 5th, beaten 3 ¼ lengths, but there was a glimmer there. It was Charlie's first attempt at putting together a series of transitions

over a route of ground, and his final quarter mile (:24.01) was his fastest of the race.

Trainer Doug O'Neill decided to add blinkers and put Charlie back on the dirt going two turns in his fourth start, and that combination would be the key to Hot Rod Charlie's development.

Hot Rod Charlie rocketed out of the gate, then settled just off the outside hip of the big 2-to-5 favorite Parnelli. Hot Rod Charlie's rhythm and fluency took a leap forward in this race. He and Parnelli left the rest of the field far behind as they battled the length of the stretch. Rider Cedillo did a great job not overdoing it with the riding crop this time, mostly hand riding and only showing the whip.

Charlie responded beautifully, running his last quarter mile in :24.11. He gained a small advantage over Parnelli inside the 1/16 pole and won by a neck. It was 16 ½ lengths back to third place!

Off that awakening, O'Neill shipped Hot Rod Charlie to Keeneland for the Breeder's Cup Juvenile (G1). He went off at odds of 94-to-1, but he ran a surprisingly brave race from the 12 post in a field of 14.

Tracking a fast pace from 6th place, about 7 lengths back early, Hot Rod Charlie was under a hold, showing a good patient forward energy. He moved up to 5th on the back side, then into 3rd place turning for home. It was a really nice advance at the leaders. He showed independence of movement and no signs of outsourcing his reads in a big 14-horse field.

Hot Rod Charlie hit the lead at the 1/8 pole, but Essential Quality, who had been following him all along, was bearing down on him. Hot Rod Charlie tried, but he could not resist the champion's rally. He finished 2nd, beaten ¾ of a length.

We really liked the effort from Charlie. Coming off a maiden win, he shipped across the country and was not influenced by

the big race-day environment or the strong Herd Dynamics he faced in the Breeder's Cup.

Hot Rod Charlie made his three-year-old debut in the Robert B. Lewis Strakes (G3). He stumbled slightly at the start, recovered, then settled in a stalking position in 4th place on the inside. We love his forward, athletic expression as he closed in on the leaders on the backstretch.

Before Charlie could catch the leader Medina Spirit, Roman Centurion rolled up on his outside, and Hot Rod Charlie found himself between horses, for the entire length of the stretch.

Charlie was bumped by Roman Centurion, then he bumped back. It is not easy to maintain forward fluency when in tight between horses. Charlie finished third, beaten a neck, but he hung in there. It was a solid return effort.

Hot Rod Charlie took a trip to the Louisiana Derby (G2) for his final prep for the Kentucky Derby. Breaking from the 5-post in a field of eight, he drifted in and bumped with Proxy at the start, then went eye-to-eye with Mandaloun to his outside.

We liked how Hot Rod Charlie stayed forward in a crowd early and took control of this race. We have never seen him on the lead before, and everything looked great here – his stride, head carriage, ear articulation and tail all suggested an athletic, comfortable horse.

Midnight Storm looked Hot Rod Charlie in the eye turning for home, and Mandaloun and Proxy were trying to join the battle. But Hot Rod Charlie was resolute, fending off Midnight Storm twice while lengthening his advantage to two lengths at the wire. Looking at the head-on, Hot Rod Charlie held a beautiful path down the lane. That was a nice sustained, efficient drive, and he galloped out well.

With that win at 1 3/16 miles, it doesn't take much imagination to picture Hot Rod Charlie getting the Kentucky Derby distance of 1 ¼ miles.

Hot Rod Charlie is shifted towards the Individual Herd Dynamic, but he has a good supporting Group Herd Dynamic base. His awareness and body control are very good, and since blinkers were added, he has handled all the environmental stimulus thrown at him. He looks like the same horse whether he is in California, Kentucky or Louisiana.

We would classify Hot Rod Charlie as a tactical speed horse, but he has very good stamina too. And he has shown versatility in his pattern of motion. He can lead, stalk or even close from mid-pack if the pace is hot, like he did in the Breeder's Cup.

Battle tested and entering the Kentucky Derby on a Herd Dynamic growth pattern, Hot Rod Charlie looks like a major contender.

TIER 1 ★★★

ROCK YOUR WORLD

Colt by *Candy Ride (Arg)*—*Charm the Maker*, by *Empire Maker*

Bred in Kentucky by Ron & Deborah McAnally

Owner: Hronis Racing LLC and David Michael Talla.

Trainer: John Sadler



Rock Your World enters the Kentucky Derby undefeated but with just three races under his belt, only one on dirt, and all in 2021.

This is a long way to come in a short time, but the raw Herd Dynamic power Rock Your World has expressed demands respect.

Rock Your World made his debut at Santa Anita on New Year's Day in a 6-furlong turf sprint -- an unlikely spot for a horse soon to be aimed at the Kentucky Derby.

Breaking from the 8-post in a field of 12, Rock Your World came out firing. He transitioned directly into Individual Herd Dynamic competing mode when rider Joel Rosario gave him a couple taps of the whip at the start. The outside horse in a 3-horse pace battle, Rock Your World looked very competitive minded but he was patient enough to sit off the flanks of the other early speed.

Rock Your World looks like a fairly big horse on video, but he ran his first quarter mile in a blazing :21.81 while just a half-length off the lead.

Rock Your World smoothly separated from the other speed in early stretch. His forward extension and body control looked excellent. He was just floating over the turf course, and his path down the lane was straight as an arrow. Rosario saw no reason to ask him for any more run, letting him coast past the wire and win with ease. It was an impressive athletic expression of speed, and a strong, contiguous run from start to finish.

In his second start, Rock Your World stretched out to a mile on the turf in the Pasadena Stakes. He may have the physical speed to sprint on the turf, but in this race we realized he is no turf sprinter. Rock Your World broke ok and tracked the leader early. In IHD speed rating gear, he showed an intense but controlled look.

His rhythm seemed a natural fit for route racing as he patiently tracked the leader from a couple lengths back in second place. Rider Umberto Rispoli asked for more on the far turn, but it took a little longer for Rock Your World to get to the lead and separate this time. He actually looked a little distracted and potentially beaten at one point in mid-stretch when in 3rd place.

But once Rispoli got his point across that it was time to dig in, Rock Your World tapped into a deep reservoir of energy. He steadily drew away late to win by 2 ¼ lengths. Rock Your World is an IHD-shifted speed horse, and he looked very polished in his debut, but he won this 1-mile race in the manner of a green stayer still finding his way in competition.

His splits from the Pasadena were quite impressive – every quarter mile in under 24 seconds is the mark of staying speed. And he had a lot of physical and mental residual energy on the gallop out.

Rock Your World moves beautifully on the turf, so when he entered the Santa Anita Derby (G1), surface was a major question. When the gate popped, it only took him a few strides to get a feel for competing on the new surface. With Rispoli asking him for a little speed, Rock Your World grabbed the lead along the rail path.

When a horse is on the lead on the inside with horses trying to come over from the outside, that is a Herd Dynamic pressure spot. But Rock Your World looked very comfortable as he defended his position from Parnelli and Medina Spirit. His body control was good, his tail looked relaxed, and his ears were articulating through fairly fast opening fractions.

Rock Your World pinned his ears a little when the other horses tried to challenge him on the backside. When Rispoli asked him to let it out a notch on the far turn, Rock Your World opened up a 2-length lead. This is a very purposeful horse who has no issue separating from the herd and charging into open space by himself.

None of the other horses could enter Rock Your World's space in the lane, though we saw more greenness from him as he initially delayed to change leads, then after he did change he flipped back. He also was weaving just a little bit in the lane, and his stride looked a hair awkward in a couple moments. It didn't matter, as he won by 4 lengths going away, but that was not quite elite body control.

Rock Your World again galloped out with a lot of energy. The Santa Anita Derby was a fast race start to finish, and we love the distance aptitude we see in this colt. We are pretty confident he stays 1 ¼ miles.

An expressive but controlled colt, Rock Your World has a gritty, competitive psychology. There is a ton of raw power in this colt, but he is still learning pattern of motion execution over distance.

We see a very clear IHD speed slant in his psychology. He doesn't need the lead at all times, but he wants to be forwardly placed. He was born to be a herd leader over distance.

Rock Your World already appears elite in many categories:

speed, physical & mental stamina, fortitude and tenacity. However, he is still a work in progress in the mental efficiency department. He looked like a pro in his debut, took a little step back in his second race, then took a small step forward in race 3.

Is he polished enough to execute a winning trip in the Kentucky Derby this early in his career? He has never dealt with traffic in his three races, and his versatility would face a stern test if it happens for the first time in a 20-horse field at Churchill Downs.

Our Herd Dynamic read here is very positive and forward moving. The potential ceiling is sky high here, but Rock Your World is far from a finished product after just three races.

KNOWN AGENDA

Colt by Curlin—Byrama (GB), by Byron (GB)
Bred in Kentucky by St. Elias Stables LLC

Owner: St. Elias Stables

Trainer: Todd Pletcher



Known Agenda was one of the most interesting and challenging horses for us to get a read on heading into this year's Kentucky Derby.

There has been a lot going on in his Herd Dynamic development, including the recent addition of blinkers that involved a significant tradeoff between speed (better) and body control (worse). We like a lot of the things we see in Known Agenda's profile.

He debuted at Belmont Park on September 27 in a 6 ½-furlong maiden race. Known Agenda had a nice forward expression from the start. His head carriage indicated no blowback from forward stimulus. He got a wide trip in his debut, but he showed good engagement stalking the pace from 5th place early.

About 3 or 4-wide around the far turn, he spun into the lane in 3rd place, in excellent position to get the debut win. Just as Known Agenda was about to hit the lead inside the 1/8 pole, Highly Motivated, who had been blocked, split horses to his inside and took over herd leadership.

The winning move by Highly Motivated was very impressive. He was moving with the superior presence and speed. Known Agenda ran well, but he wasn't on the same level as the winner, who had the advantage of making one previous start. Because this was Known Agenda's first race, we can't hold this loss against him too much. He showed us a willingness to jump into the fray, but he didn't yet know how to finish a race.

Trainer Todd Pletcher didn't waste any time before stretching Known Agenda out in distance, entering him in a 1 1/8-mile maiden race in his second start. Hard-ridden by Kendrick Carmouche out of the gate, Known Agenda still was caught 4-wide heading into the first turn, then taken back briefly.

Known Agenda looked very comfortable and forward in this stalking pattern of motion. He put his head in front at the 6f mark, easily dispatching the frontrunner. Just strides

later, Greatest Honour (who would win his next three races, including two graded stakes at Gulfstream Park) pounced from the outside.

Known Agenda and Greatest Honour battled the length of the stretch, and by the time they hit the wire, it was 21 lengths back to the third-place horse! This was a loaded maiden field, as the distant third-place finisher Overtook won his next start, then finished 2nd in the Grade 3 Withers Stakes.

Known Agenda utilized his better efficiency and forward focus in IHD to win by a head. Looking at the head-on, Known Agenda was running low to the ground and straight as an arrow.

Following his maiden win, Known Agenda proceeded to the Remsen Stakes (G2), which was run over a sloppy, sealed surface. Known Agenda slipped at the start, leaned in and bumped with the horse inside of him. His first few steps after that looked a little tentative, and then he got held up behind horses.

Rider John Velazquez went to the whip very early, while the field was still on the backside. It appeared Velazquez might have done that because Known Agenda hesitated to come up the inside. The move backfired as Known Agenda actually backed out of that position then re-rallied very late to finish 3rd, beaten 9 lengths.

Known Agenda's sequences were out of order in this race, and he and his rider were not on the same page. Psychologically, Known Agenda did re-engage late. Given the environment and that he was stepping up off a maiden win, we wouldn't hold this race against him too much.

Velazquez was back on board Known Agenda for his three-year-old debut in the Sam F Davis Stakes (G3), and again we saw this rider/horse combo did not click. Known Agenda hesitated slightly at the start and bumped. In 11th place early, he did not get moving when Velazquez first asked him.

Still more than 13 lengths back at the stretch call, Known Agenda rallied belatedly to finish 5th, beaten 4 lengths. He was finishing fastest of all in the final 5/16. Mentally he was hunting targets in late stretch and through the wire, but it was not an effective pattern of motion.

We thought there were some positives to take from that race despite the finishing position, but Pletcher and Johnny obviously thought differently. Velazquez has not ridden Known Agenda since, while Pletcher ran the colt back in an allowance race and added blinkers.

The Feb. 26 allowance race brought Known Agenda and his Derby rider Irad Ortiz Jr. together. We thought Known Agenda was already a forward-minded horse, but the blinkers definitely tuned him up a notch. Running his usual stalking pattern of motion, he was sitting 4th behind a three-horse pace duel on the back side.

He challenged for the lead on the far turn, appearing to bump with Top Gun Tommy, then crossed over that rival's path and drew off to win by 11 lengths. Ortiz initially rode him aggressively to open up but was easing him across the wire. Horse and rider appeared to get along with each other very well.

That big win renewed Pletcher's confidence in Known Agenda, as they proceeded to the Florida Derby (G1).

Breaking from the middle of an 11-horse field, he got out of the gate well and stayed nice and forward in early traffic. He attained his customary stalking position in 4th or 5th place. At about the 5/16 pole, Ortiz went to the whip to rouse Known Agenda as he steered him out to the three-path.

Advancing three-wide, Known Agenda came together with the leader Soup and Sandwich at the head of the lane, leaning on his rival slightly. Known Agenda took the lead while momentarily getting stuck in his lead change. Under a left-handed whip from Ortiz, Known Agenda drifted out 6-8 paths. His body control looked a little sloppy to us and his rhythm was frantic, but he was moving fastest of all.

Known Agenda won the Florida Derby by 2 $\frac{3}{4}$ lengths. The time for the race was fast, and we love what we see in his internal fractions (:24.20, :24.05, :24.48, :23.90, :12.84). That is strong energy distribution. He ran well start to finish. We think Known Agenda is well-equipped to get 1 $\frac{1}{4}$ miles physically and mentally.

The big question here is his growth curve. Blinkers have channeled him forward and revved him up, but the declines we see in space awareness and body control make us unsure what direction he is heading.

If he cleans up that body control, Known Agenda can compete and potentially win the Kentucky Derby. But if his growth pattern with the blinkers is over, then he is going to come up short here. The rail draw did him no favors.

KING FURY

Colt by Curlin—Taris, by Flatter

Bred in Kentucky by Heider Family Stables LLC

Owner: Fern Circle Stables and Three Chimney Stables LLC

Trainer: Ken McPeek



He broke well from the 10-hole, then settled in 5th place on the back side, in GHD rating mode. He intensified in stages, moving into 3rd place while 4-wide on the top of the far turn, then taking over in the stretch to win by 2 ¾ lengths. It was a dominant Herd Dynamic performance.

Trainer Ken McPeek ran King Fury in the Breeders' Futurity (G1) in his second start. He attempted to execute a GHD stalking pattern of motion -- he tried to put his mark on that herd -- but he wasn't good enough. Outrun and moving with a heavy energy late, he finished 8th, beaten 13 lengths.

King Fury was back in the entry box three weeks later for the Street Sense Stakes, where he matched up against fellow Derby starter Super Stock. We liked how King Fury broke from the gate – in GHD mode but mentally forward. It is a sign of confidence when a GHD horse is projecting forward early in herd motion.

Stalking a slow pace from 4th place, just behind Super Stock, King Fury moved three-wide around the far turn. His transition into IHD for the stretch drive was very good. Super Stock battled with him to the 1/16 pole, at which time King Fury held the upper hand. We liked the strong and straight path King Fury held down the lane, and his final 5/16 in :29.86 was a fast for a dirt race.

The up-and-down juvenile season continued with King Fury being entered in the Breeders' Cup Juvenile (G1) just 12 days later. He got an inside trip from the #2 post and was lightly checked a couple times. But even when he had room to run, he was moving very heavy again, with limited forward projection. King Fury is pretty honest in his body language. When he is feeling confident or when he feels overmatched, he is telling us.

Three weeks after the Breeders' Cup, King Fury ran in the Kentucky Jockey Club Stakes (G2) and was outfitted with blinkers. Bumped at the start, he was rank heading into the

first turn. King Fury went from his usual moderate rhythm to a fast mental pace, burning emotional energy like kindling.

The new equipment also altered his pattern of motion, getting him to express more speed, but it messed up his GHD interpretational process. He was running with very stiff ears as he battled for the lead on the far turn. He faded to 5th in the lane while tiring physically and floating laterally.

We were glad to see the blinkers removed when King Fury returned to the races as a three-year-old. The Lexington Stakes is the very last Kentucky prep on the calendar. The 1 1/16-mile race was run on a sloppy sealed track this year and attracted a field of nine.

King Fury broke alertly from post #8 and with good pace, but jockey Brian Hernandez Jr. took a hold. King Fury quickly settled into GHD. This is his natural, pre-blinkers pattern of motion. He looked very comfortable early and was skipping over the sloppy surface when he shook off a bump from Proxy heading into the first turn.

King Fury was in 8th place, about 10 lengths off the lead at the first call. His forward focus looked sharp and he was striding beautifully while by himself on the backstretch. The field wasn't much more than a half mile into the race when King Fury and Hernandez started passing horses.

He advanced up to 4th place, just 2 ½ lengths behind the leaders by the 6-furlong mark. It looked like he might have to wait behind horses, but he turned it into one contiguous move when he came off the inside, pushed Swiftsure out several paths, then split Starrininmydreams and pacesetter Noble Reflection.

King Fury hit the front at the top of the lane and released cleanly from the field. He widened his advantage to 2 ¾ lengths under the finish line under light encouragement from Hernandez.

It is only one race, and it was on a sloppy track, but not only did we see significant improvement in King Fury at age three, we saw something special from the standpoint of herd motion.

When King Fury made that sustained run, he was moving very fluidly and independent of the rest of the horses. He and Hernandez were synched up beautifully as they threaded their way through traffic. High-level GHD horses have an innate ability to interpret everything around them including predicting the movements of other horses just before they happen.

That allows the high-level horse to flow smoothly through seemingly complex herd environments. In the racetrack environment, that ability needs to be paired with superior physical energy and pace to make a difference. But that combination of physical strength & mental fluency is exactly what King Fury's run in the Lexington looked like to us.

From the standpoint of added distance, we think King Fury has a very good shot to like 1 ¼ miles. The big question will be how he stacks up with the elite Herd Dynamics of this crop at age three.

We think there is a wide range of potential outcomes for King Fury on Saturday. He fell flat every time vs. graded stakes horses last year. That could happen again.

But we think we saw something special in his first start at age three. In the end we decided to rank him in our second tier, as a colt with the potential to jump up to tier 1 and even contend for the win.

HELIUM

Colt by *Ironicus*—*Thundering Emilia*, by *Thunder Gulch*
Bred in Kentucky by *Teneri Farm and Bernardo Alvarez Calderon*

Owner: D J Stable LLC

Trainer: Mark Casse



With just three lifetime races and only one in the last six months, it is difficult to imagine Helium is ready for the test that awaits him on the first Saturday in May.

Yet, when we put him under our Herd Dynamics microscope, we came away sufficiently impressed. Helium has met every challenge he has faced while running three very unique races. There are signs of a special psychology here.

Trained by Mark Casse, Helium spent his two-year-old season at Woodbine in Canada. He debuted on September 27 going 7 furlongs on the Tapeta all-weather track. He broke slightly inwards at the start but well enough to secure the rail path and press for the lead.

Helium runs with a very free-flowing, forward expression. We didn't detect an ounce of stress in him. He has a really nice fluency to his stride.

Helium has speed – he set fractions of :23.48 and :46.16 – but his energy distribution start-to-finish was well balanced. When the favorite *Excellerator* tipped out and made a run at him in the lane, Helium showed good oblique awareness and competitive instincts. He changed leads and lengthened his stride when rider Emma-Jayne Wilson asked. Helium is an athletic mover with good body control.

He hit the 6-furlong mark in 1:10.96 (third quarter mile in :24.80) and then ran his final furlong in :12.49 to win by three lengths going away. He was barely slowing down at the wire. The runner-up had an experience edge and is a solid horse; *Excellerator* since won two optional claiming races in the states and finished 3rd in the Private Terms Stakes at Laurel.

Helium's second start was at the same 7-furlong trip at Woodbine in the Display Stakes. He broke well again – there are a lot of signs of a very good sensory system here – but this time he rated instead of expressing his speed early.

Showing some control, he was still running in a very free-flowing, forward manner while behind horses. Up close in 4th, Helium went on the attack when steered out wide on the far turn. He burst away from the herd to win by four lengths while running his final three furlongs in a sharp :35.85.

His transition from Group Herd Dynamic rating mode into IHD competing mode was smooth, and his body control once again looked very good when he intensified. Helium gave us two different patterns of motion in his first two starts, and he executed both of them very matter-of-factly and efficiently.

Helium's lone start in 2021 was the Tampa Derby (G2). It is his only start on dirt and only start around two turns, and it was an eye-opener.

Helium broke a little slowly from the 10-post. Back in 11th place early but under some urging from rider Jose Ferrer, Helium took the first turn 4 or 5-wide while beginning a very early move.

Helium advanced up to 5th place, just two lengths off the leaders, by the time the field reached the far turn. Continuing his move while 5-wide around the final bend, Helium surged to the lead turning for home and went down to the inside.

Hidden Stash (a solid horse but one of our lower ranked HDs in this field) came running at him in the lane. Helium looked caught, but he showed tenacity as he dug in, shrugged off a bump and won by a resurgent $\frac{3}{4}$ of a length.

Helium showed versatility, executing a dep closing pattern of motion with a sustained, wide run. Given the trip he overcame and watching his stride on the gallop-out, his ears scissoring, we think 1 $\frac{1}{4}$ miles is in play.

The challenge of predicting how Helium will run in the Kentucky Derby is more difficult because he hasn't yet faced a top tier Herd Dynamic three-year-old. Also, his only prep race was

back on March 6. Three-year-olds develop at a rapid rate at this time of year. We sure wish he had run again before the Derby.

The races Helium has been in were significantly slower than the fastest final prep races in April, such as the Florida Derby, Blue Grass Stakes and Santa Anita Derby. Helium needs to improve his physical speed another level or two just to compete in Louisville. That alone is a significant hurdle. He has a right to get faster in his second start at age three, but no one will know for sure until the question is asked by his peers.

What we can say for sure is that there are signs of significant Herd Dynamic strength and mental efficiency here. Helium has adjusted to changing, challenging environments, and made it look easy. His mind to body fluency appears elite. If his physical talent is on par with the elite crop members, he has the mentality to challenge for a top spot in this Derby.

O BESOS

Colt by Orb—Snuggs and Kisses, by Soto
Bred in Kentucky by L. Barrett Bernard

Owner: Bernard Racing LLC, Tagg Team Racing, West Point Thoroughbreds, and Terry L. Stephens

Trainer: Greg Foley



For a while it looked like O Besos might not have enough points to qualify for the Kentucky Derby, but when a handful of horses withdrew two weeks ago, this son of 2013 Derby winner Orb drew in. O Besos is an interesting addition to the field, as he has a unique combination of Herd Dynamic and personality traits.

If you look at O Besos' running lines on paper, you might suspect he is a methodical Group Herd Dynamic closer. After watching him break slowly in his debut, fall 15 lengths behind, then rally to finish 6th, we were going down that path too.

But the more races we watched, the more we noted a fairly fast-rhythmed horse with a strong emotional energy. O Besos is very efficient, aggressive and independent in Individual Herd Dynamic competing mode. IHD is actually the dominant side of his Herd Dynamic.

O Besos just happens to be one of those IHD-slanted horses whose preferred (and most effective) pattern of motion is to shut off early, let herd motion develop for a while, then make one protracted move.

O Besos has worn blinkers in all his races, but they do not appear to be that restrictive. We like that we can still see his eyes in the race videos. And we have not seen any behavioral overcompensations resulting from the blinkers. This appears to be a good equipment fit.

Following a 6th-place debut learning experience at Churchill Downs on November 22, trainer Greg Foley entered O Besos in a 5 ½-furlong turf sprint at Fair Grounds. The race was moved to the dirt and scratched down to a field of five.

O Besos broke slowly, drifting inside a little at the start. Following a brief physical filtering period, he took up the chase. He moved up to 3rd place but still 12 lengths off the leaders after three furlongs.

We loved the late move he put on this field. O Besos was moving very powerfully and purposefully in IHD. He caught the leader inside the final 1/16 and won by 5 ½ lengths! This off-the-turf field wasn't devoid of talent either. Runner-up Unitedandresolute broke his maiden in his next race and placed in a stake at Keeneland two races later.

It was impressive to see that pattern of motion executed in such a condensed time in motion. O Besos was not using those other horses for his rhythm or outsourcing to them for environmental reads. That allowed him to move independently of the herd when he was firing in IHD. His forward focus and target draw looked very good. He was running straight as an arrow down the lane, with good body control.

O Besos stepped up to allowance company going 6 furlongs at Fair Grounds next. He was crowded early, but he went into chase mode fairly early to catch up to the field. Forced to then wait behind horses, this was a great educational experience.

Behind a wall of four horses turning for home, O Besos picked a hole and parted the seas. Tate (#3) and Whiskey Double (#5) both surrendered their paths to O Besos, a sign of his Herd Dynamic strength.

O Besos had to mentally switch gears while maintaining body control and space awareness as he came through the opening. He won by 2 ½ lengths under a hand ride. That was a growth race, and his physical fractions indicated excellent energy distribution (:23.02, :23.49, :12.02, :12.04).

O Besos joined the Derby trail in the Risen Star Stakes (G2). This was his first 2-turn race, and his first vs graded stakes horses. Marcelino Pedroza, who will ride O Besos in the Kentucky Derby, got on board for the first time.

In 5th place early, O Besos was running a mid-pack closing/stalking trip. Holding that tactical position and then trying to relaunch proved a little too tough for him. In the end he was all

out to hold on to 4th place from Senor Buscador. O Besos' final furlong in :13.32 told us that he was stretched.

The Risen Star was a learning race for O Besos and Pedroza, as they bounced back nicely in the Louisiana Derby (G2). O Besos broke from the outside post with good body control – no fall-off to either side. We like that Pedroza encouraged O Besos to relax early. Last of eight the first time under the wire, O Besos was in energy conservation mode for the body of this race.

Still in behind horses, O Besos started showing increased forward focus on the far turn. Rallying through traffic in the lane, he really didn't have a clear path in front of him until he dove to the rail late. He finished 3rd, 2 lengths behind Hot Rod Charlie and just a diminishing head back of Midnight Bourbon. O Besos looked good on the gallop-out.

The one-run closer style often works better at shorter distances, but O Besos appears to have a fairly deep well of emotional energy and some good physical stamina. He and his rider did a nice job with his pattern of motion execution in the 1 3/16-mile Louisiana Derby. We expect they will look to build on that in the 1 1/4-mile Kentucky Derby.

The key for IHD horses who run as closers is that they spend a percentage of the race not tapping into competitive mode. That IHD energy is always there, just under the surface, and once the fuse is lit, the horse has a finite amount of run.

We like O Besos' competitive grit and enthusiasm for competition. He is not a finished product, but he took a step forward in the Louisiana Derby. He has a chance to begin another growth curve now, and if he does, we think he has a shot to crash the top five in this Derby.

TIER 2 ★★☆☆

MEDINA SPIRIT

*Colt by Protonico—Mongolian Changa, by Brilliant Speed
Bred in Florida by Gail Rice*

Owner: Zedan Racing Stables

Trainer: Bob Baffert



Mentally and physically, Medina Spirit is pure racehorse.

From the moment the gate pops until he crosses the finish line, Medina Spirit is competing – with wonderful efficiency and guts.

Medina Spirit resides in the barn of Hall of Fame trainer Bob Baffert, but he is no blue-blood, nor was he an expensive sale horse. Medina Spirit was bred in Florida and sold for just \$1,000 as a yearling – that is the minimum price a Thoroughbred can sell for at auction.

At age two, Medina Spirit went through the Ocala Breeders' Sales Co.'s June sale, the least fashionable of the two-year-old sales. While most horses work one or two furlongs at maximum speed, Medina Spirit worked an unconventional three furlongs (in :33-flat).

He showed a clean stride and good mental continuation through the wire. That workout was good enough for Southern California-based clocker Gary Young to purchase Medina Spirit on behalf of Zedan Racing Stables for \$35,000.

That probably made Medina Spirit the least expensive horse in Baffert's barn, but we are guessing he impressed pretty quickly. Medina Spirit debuted in a 5 ½-furlong maiden race at Los Alamitos on December 2. Outfitted with a shadow roll and blinkers, he broke very well and was pressing the pace early.

Medina Spirit appeared to be fast-cycling and very forward minded, but with a long smooth stride. He pressed the pace from the outside, took over turning for home and changed leads nicely as he drew off by 3 lengths. He looked like a horse that wants to go much longer than 5 ½ furlongs, but his body control was excellent even at that accelerated, condensed trip.

His mind also kept up with the fast physical pace. Medina Spirit could feel the runner-up and he was turning his head slightly

to the outside, in anticipation of a space challenge that never materialized. That was a professional sequence of transitions for a debut.

As Baffert often does with his more talented, advanced young horses, Medina Spirit went directly to a graded stake after his maiden win. Baffert also removed the blinkers for Medina Spirit's second start, in the 1-mile Sham Stakes (G3).

The hardest posts for a horse to break straight from are the rail and the far outside. The rail can be tight, while the far outside presents the challenge of open space to interpret. Medina Spirit had the rail in the Sham, and his gate break was beautiful. He dug in and launched forward at the start with excellent body control. It takes a sharp mind to enter new space with that kind of efficiency.

We love how Median Spirit looked without the blinkers. His ears were flopping and his tail was relaxed as he stalked stablemate Life is Good from 2nd place, about 4 lengths back.

Medina Spirit made a nice run at his stablemate but came up ¾ of a length short. Life is Good was getting out badly late –shifting at least 6 paths -- and it definitely affected Medina Spirit's approach. Medina was moving the better of the two late, and this could have been a disqualification had both horses not been from the same barn. It was an excellent effort on the class and distance rise.

Medina Spirit drew the rail again in his next start in the 1 1/16-mile Robert B. Lewis Stakes (G3). He had another great exit from the gate. There is no build-up of stress for Medina Spirit, he anticipates the start. He looks forward to competing.

We love the ear feel he showed while on the lead. That is textbook Group Herd Dynamic awareness from an Individual Herd Dynamic-slanted leader. Medina Spirit's ears tell you exactly how he is feeling and what he is focusing on.

The Lewis featured a length-of-the-stretch 3-horse battle between Medina, Hot Rod Charlie and Roman Centurion. Medina Spirit held the rail path, and he controlled his space very well while scoring a very game, neck victory.

Medina Spirit remained at 1 1/16 miles in his next race, the San Felipe Stakes (G2), which featured a rematch with stablemate Life Is Good (a very talented horse who was considered the Kentucky Derby favorite before sustaining an injury). Life is Good dominated this race, winning off by 8 lengths on the front end.

Medina Spirit won the battle of attrition for second place, out-staying Dream Shake. They were all tired after trying to keep pace with Life Is Good, but Medina Spirit was mentally determined to win his space. Some horses quit when they are repelled by the winner. Gritty horses like Medina Spirit fight on even for a minor placing.

Medina Spirit's final qualifier for the Kentucky Derby came in the 1 1/8-mile Santa Anita Derby (G1). As usual, he broke from the gate efficiently. He definitely helps himself on the back end of his races by how well he breaks at the start.

There was an early battle for the lead involving Medina Spirit, Parnelli and Rock Your World. Medina Spirit settled out wide in 3rd place, a length or two behind Rock Your World, who pressed on from the inside.

Rock Your World opened up on the far turn. John Velazquez and Medina Spirit tried to make a run at him, but Rock Your World kept going. He was drawing away at the finish and galloped out far in front. As he did in the San Felipe, Medina Spirit was tiring, but he outgamed Dream Shake for 2nd place.

Medina Spirit is competitive minded and aware of his surroundings at all times. Those are generally positive traits, but he is expending emotional energy from start to finish. He is optimizing everything he has for as long as he can, but he isn't spending much time conserving energy.

Based on physical fractions and our visual observations, we think anything beyond 1 1/8 miles could be stretching him, especially against the very best colts of his generation.

As much as we respect and admire what this horse has done, we also note that he has completed a major Herd Dynamic growth curve. Medina Spirit was a finished product early at age three. Every horse has a set amount of time that they can operate at their peak level.

Medina Spirit is a pure and honest competitor. He has never finished worse than 2nd in five starts. He definitely has the Herd Dynamic traits to run well under Derby conditions.

But based on what we saw in the last two rounds of Kentucky Derby qualifiers, we think an underneath spot could be his ceiling in this race.

TIER 2 ★★☆☆

MIDNIGHT BOURBON

Tiznow—Catch the Moon, by Malibu Moon

Bred in Kentucky by Stonestreet Thoroughbred Holdings LLC

Owner: Winchell Thoroughbreds LLC

Trainer: Steve Asmussen



Midnight Bourbon has one of the most straight forward Herd Dynamics in this year's Kentucky Derby.

This tall, regal colt by two-time Breeder's Cup Classic winner Tiznow is a pure Individual Herd Dynamic speed type, and he utilizes what we call the single platform IHD speed pattern of motion. Simply put, Midnight Bourbon breaks from the gate, seeks tactical position, rates, then waits to give everything he has left when the jockey says go.

Once a horse gets good at this running style – and Midnight Bourbon has the skills to execute it beautifully – it is a very dependable and efficient way to express physical talent. In fact, it makes the race more about physical speed than most.

It takes a horse with considerable athletic ability to utilize this pattern of motion at the highest levels of racing. Midnight Bourbon is indeed a beautiful physical specimen in possession of a nice combination of speed and stamina.

When analyzing the Herd Dynamic of a horse of this type, it is important to keep in mind that physical fitness and race distance plays a crucial role in how it will look.

Take Midnight Bourbon's debut race at Ellis Park for example. He debuted in a 1-mile maiden race on July 25. He broke from the gate ok and demonstrated high-speed IHD mental cycles while pressing for the pace. At about the 6-furlong mark, he began to physically tire.

Midnight Bourbon competed for as long as his fitness could hold out. As he tired physically, his body floated laterally. He finished 3rd beaten 10 ½ lengths.

Midnight Bourbon really didn't do anything wrong in the debut, and he is better than the horses who beat him that day. He looks like a tall, long scopey horse, not the type that would be anywhere near his peak power in summer of his two-year-old season.

Midnight Bourbon moved forward nicely in his second career start, another 1-mile maiden race at Ellis. The minor bobble he exhibited at the start does not faze us, as it didn't look like a sensory issue. That's just a big young horse digging hard to break out of the gate.

Midnight Bourbon was running straight, with good body control early. He gets up to cruising speed fairly fast, and his psychological rhythms (fairly fast) are a good match. He allowed #7 Wayakin to clear on his outside, then eased off the rail, content to stalk that one from 1 ½ lengths back.

Midnight Bourbon's sustained speed soon proved too much for the pacesetter, who cracked after six furlongs in 1:11.86. Midnight Bourbon took the lead and quickly separated from the field. His release was smooth as he drew away to win by 5 ½ lengths. He held his mental rhythm from start to finish very well. He has no issue charging into open space by himself.

After the Ellis park meet ended, Midnight Bourbon stepped up to the big leagues for his final two starts at age two.

In the Iroquois Stakes (G3) at Churchill Downs, a 1-turn mile, Midnight Bourbon showed us how he performs when he is out-sprinted out of the gate. In 5th place early, he negotiated traffic well without showing any desperation, working his way up to 3rd place and settling in the clear. The position he rates in during the middle of the race is the "platform" portion of his pattern of motion.

Rider Gerardo Corrales roused Midnight Bourbon fairly early on the far turn, and he advanced up to within a half length of the leaders, who went 6 furlongs in a sharp 1:10-flat. He passed the tired front-runners in early stretch and kept fellow pace stalker Super Stock at bay. But when the Group Herd Dynamic closer Sittin on Go came running on the outside, Midnight Bourbon could not hold him off.

That 2nd place finish, beaten 2 ½ lengths, was a very good effort. The winner got the run of the race, but this is also an

example of how the IHD speed single-platform pattern of motion can be vulnerable to pace dynamics.

Midnight Bourbon's incremental fractions (:23.40, :22.50, :24.21, :25.32), particularly the deceleration in the final quarter, makes the point. Once the jockey pushes the button, the IHD single-run horse is in the process of emptying the tank. The needle can only go down. With the exception of immortals, take a Holy Bull for example (1994 Travers Stakes), there are no additional physical (or emotional) gears left to tap into.

In the Champagne Stakes (G1) Midnight Bourbon ran against Jackie's Warrior, perhaps the fastest two-year-old in America last year around one turn. When the single platform IHD speed horse is pitted against horses with superior speed, the lack of versatility in this pattern of motion becomes apparent.

Midnight Bourbon tried stalking the pace, but he exhausted himself trying to get into his sweet spot. Plaudits to jockey Jose Ortiz for putting the whip away in the lane as Midnight Bourbon crossed the line in 3rd place, beaten 14 lengths.

Just as this pattern of motion is closely tied to physical speed matchups, it is important to keep physical maturation in mind. To us, Midnight Bourbon looks like the type of horse who will hit his peak at age three or beyond.

Midnight Bourbon indeed looked stronger early in his three-year-old campaign, which took place at the Fair Grounds in New Orleans.

Midnight Bourbon won the Lecomte Stakes (G3) in his three-year-old debut, defeating Proxy and Mandaloun. Joe Talamo asked him for speed at the start, and Midnight Bourbon gave it to him. This is a willing, responsive horse.

Midnight Bourbon opened a 1-length lead and was running happily with his ears perked and tail relaxed. Leading the herd is a natural position for him. When Mandaloun and Proxy maneuvered to take him down in the stretch, Midnight Bourbon felt their intentions and he gave everything he had to fight them off.

His added head movement and the subtle lurching and drifting to the outside were all by-products of intensification. He scored a gritty, 1-length victory. Note how when he was allowed to lead the herd through :24-and-change quarters, he was able to hold his pace through the final 5/16 (:24.68, :24.31, :24.58, :30.84).

Mandaloun, who added blinkers, was able to reverse that outcome in the 1 1/8-mile Risen Star Stakes. (G2). Midnight Bourbon had the lead early, but then #13 Rightandjust sprinted by on the outside. Midnight Bourbon re-engaged immediately and pushed for the lead.

Mandaloun, sitting third just off that duel, got the run of the race and was able to pounce on Midnight Bourbon just as he overtook the leader in the lane. Midnight Bourbon finished 3rd, beaten 1 3/4 lengths.

We can tell from his body language that Midnight Bourbon does not like to be passed. When he is at the apex of exertion his body control can look a little odd and he can float laterally when tired. None of those are mental mistakes or indications of Herd Dynamic faults. They happen as he is being outpaced physically. This is a very honest, competitive horse who gives full-bore effort until his tank is emptying.

Midnight Bourbon came back with a better performance in the 1 3/16-mile Louisiana Derby (G2). He is an excellent gate horse, and he broke with intensity here. This horse has a very athletic personality.

The Louisiana Derby was a big test for Midnight Bourbon, who was pressing the pace of leader Hot Rod Charlie, with Mandaloun stalking, and O Besos waiting to attack late.

Running with determination, he tried to crack Hot Road Charlie at least twice. It was a great prolonged battle, but the leader – who looks smaller than Midnight Bourbon on video -- had a little more depth to his emotional gears.

Midnight Bourbon was pulling his horns in late when O Besos came running up the rail and tried to snap him at the wire. Midnight Bourbon was in the process of losing 2nd, but he hung on just long enough.

We love Midnight Bourbon's athleticism, consistency and honesty. He is a good gate horse who is operating at full efficiency early in herd motion. We think he will run his race in the Derby.

His pattern of motion is an effective one, but there is not a lot of behavioral diversity in it. It requires him to be the dominant IHD speed horse and then be strong enough to hold off any GHD-based horses who make a late run. Midnight Bourbon is improving, but based on when we last saw him in Louisiana, he is probably still a tick below the best of this crop.

SUPER STOCK

*Colt by Dialed In –Super Girlie, by Closing Argument
Bred in Kentucky by Pedro ad P.J. Gonzalez*

Owner: Keith Asmussen and Erv Woolsey

Trainer: Steve Asmussen



Horses don't come much more behaviorally steady than upset Arkansas Derby (G1) winner Super Stock.

This hard-trying colt runs with a steady mental rhythm and even physical pace that complement each other nicely. His best traits are his grit and his staying power.

While he has been behaviorally consistent, his Herd Dynamic has incrementally improved over his eight lifetime races.

Trainer Steve Asmussen debuted Super Stock in a turf sprint at Keeneland on July 9. Running over a yielding turf and facing a rapid fire pace, he never got any traction as he finished 10th. He wasn't meant to win that race.

Asmussen transferred Super Stock to his Texas division, and the real Super Stock emerged. He improved considerably in start #2 but still was denied his maiden diploma when finishing 2nd by a head vs Game Day Play, a solid sprinting colt who later won The Clever Trevor Stakes at Remington and placed in the Gazebo Stakes at Oaklawn Park.

During his stretch battle with Game Day Play, Super Stock was learning body control in Individual Herd Dynamic combat. Super Stock got stuck on his transition and he was leaning in against his opponent's body through much of the lane.

Even when they make mistakes, good horses usually move forward off that first taste of intense competition, and Super Stock did just that when breaking his maiden in the Texas Thoroughbred Futurity Stakes. Super Stock is a Kentucky-bred, but because he received his early training in Texas and was entered in a sale there (cancelled due to COVID), he was eligible for that restricted stake.

It proved to be an excellent achievable goal, as Super Stock found his confidence in that Texas-restricted race. Battling for the lead between horses, he was running with strong body language and a matter-of-fact rhythm.

He looked very fluid as he drew away to win by 3 ½ lengths. His sequences and transitions had good continuity. That was his first compete race. Asmussen sent him back to the main string in Kentucky off that victory.

In the Iroquois Stakes (G3), a 1-turn mile at Churchill Downs, Super Stock stumbled at the start, then settled in 5th place, stalking the pace between horses. He looks comfortable in traffic, as his expression and rhythm does not change much based on proximity to other horses during the Group Herd Dynamic phase of motion. He runs with intensity, but he doesn't seem nervous.

Super Stock tried to quicken in the lane, but he couldn't pierce the space of Midnight Bourbon, and the winner Sittin on Go went by him on the outside with a superior turn of foot.

Super Stock finished a best-of-the-rest 3rd. A steady, tactical grinder, he looks partly dependent on race flow for his effectiveness.

It was more of the same in the Breeders' Futurity Stakes (G1) at Keeneland. Breaking from the rail, Super Stock drifted out and bumped at the start. His gate breaks definitely looked a little less efficient when he was facing graded stakes horses at age two.

Under a big hold behind a slow pace early, Super Stock got a good ground-saving trip here, but his lack of acceleration prevented him from taking advantage. He was outpaced turning for home by Essential Quality. Then Keepmeinmind came running inside of him, came out and bumped Super Stock and forced him out further. Keepmeinmind ran on to get 2nd, while Super Stock finished 3rd, beaten 4 ¾ lengths.

Super Stock expresses himself well athletically but he is one-paced. There isn't a significant difference between his cruising gears and his finishing gears. His physical fractions (:24.31, :24.82, :24.71, :31.34) demonstrated that even energy distribution.

Super Stock finished his juvenile campaign with a run in the Street Sense Stakes at Churchill. We saw improvement there in his body control out of the gate, but the rest of the race he looked the same. Stalking the pace from 2nd place, he was running with a steady rhythm, ears pinned, intense countenance but relaxed tail – that's him!

King Fury came running on his outside, and those two hooked up in a nice battle. Super Stock tried very hard to dig in and hold him off, but he came up a half-length short. King Fury appeared the dominant IHD force there, but there was nothing at all wrong with Super Stock's effort or fractions. He actually accelerated late (24.94, 24.66, 24.76, 30.03). Super Stock was staying on very well going 1 1/16 miles at age two.

Super Stock made both his starts this year at Oaklawn Park. In the Rebel Stakes (G2) he did a stutter step from the outside post and then instead of getting hung out wide, jockey Joe Talamo took back and tucked in. That gave Super Stock a chance at a more GHD-closing style pattern of motion.

Super Stock handled the trip well. Briefly last turning for home and in traffic, he did a solid job to rally for 4th place in a race he probably needed to shake some rust off.

It all came together for Super Stock in the Arkansas Derby (G1), which featured the smallest field (just 6 horses) we can recall seeing for this race. Breaking from the rail, Super Stock was bumped by Caddo River at the start but appeared to hold his ground very well.

Super Stock looked very comfortable – ears pinned yet flopping – as he stalked the pace duel between Caddo River and Concert Tour. At no time in his recent races has Super Stock ever looked frantic. We think he processes stress very well.

With the top two tiring each other out, Ricardo Santana Jr. steered Super Stock to the outside around the 1/8 pole and rolled by to win by 2 ½ lengths. His finish appeared very strong from the standpoint of emotional energy, but a little less better vs. the clock (final 3f in :39.32, final furlong in :13.18)

Super Stock got a dream setup in the Arkansas Derby, but we do think he hit a new Herd Dynamic peak. He is getting stronger.

Super Stock's core efficiency, grit and steadiness serves him well in races where the environment might weaken his opponents. We don't rate Super Stock as an elite Herd Dynamic, but he does have a very nice combination of mental and physical stamina. We are expecting another honest effort and possibly a minor placing in the Derby.

SAINTHOOD

Colt by Mshawish—Lemon Hero, by Lemon Drop Kid
Bred in Kentucky by Edward Taylopr and Springland Farm

Owner: Winstar Farm LLC and CHC Inc.

Trainer: Todd Pletcher



Sainthood has one of the lightest resumes we have ever seen in a Kentucky Derby Horse.

He has run in two maiden races and finished a troubled 2nd in the Jeff Ruby Steaks Stakes (G3). The Ruby is run on a synthetic track and is the only Grade 3 race among the max 100-point Derby qualifiers.

Sainthood has looked green at times in his race videos, and he doesn't even have a well-defined pattern of motion. Yet, when we completed our evaluation, we found this horse to be interesting. There is potential for a lot of improvement ahead.

Sainthood debuted at Gulfstream Park on January 9 going 6 furlongs. He hopped at the start, just slightly missing the break, then stalked the pace from 4th place early. He took over the lead mid-stretch and looked like he was headed for the debut win, but another horse on debut, Lamutanaaty, re-rallied on him to his inside and won by a head

We don't like to see horses get re-rallied on, but even good horses can make all kinds of mistakes in their debut race. On the head-on view it looked like Sainthood was running straight and controlled. He just didn't finish with enough intensity to seal the deal.

We don't know much about the horse who beat him, although he had some good credentials – Lamutanaatty is \$700,000 yearling by top stallion Into Mischief, owned by Shadwell and trained by Chad Brown. The race also produced four next-out winners.

Trainer Todd Pletcher shipped Sainthood to Fair Grounds for his second shot at the maiden ranks and stretched out to 1 1/16 miles. With John Velazquez in the irons, Sainthood broke fairly straight and with good forward energy from the outside post. With Velazquez looking back over his shoulder at the horses he was merging in front of, Sainthood cleared and went to the lead.

This ride from Velazquez was oddly aggressive; perhaps he was told before the race to make sure Sainthood kept his mind on running. Velazquez asked Sainthood for run very early on the backside when a stalking trio of horses got within a length of him on the outside. They were less than a half mile into the race when Velazquez started hand-riding!

Sainthood responded, pinning his ears and intensifying. He separated from all the other horses except #8 Masqueparade. Turning for home Sainthood started getting out a bit as he battled with Masqueparade. Dolder Grand then joined the battle and slipped up the rail, opening a 1-length lead. Sainthood looked a little green as he tried to manage opponents, spaced out on both sides of him, but he was learning.

Under a strong right-handed whip from Velazquez, Sainthood moved back to the inside to deal with Dolder Grand. He won by a nose-bob! That was an eventful race. Sainthood was still in that that zone of youth where a horse is learning the difference between running with other horses and being a professional racehorse, but he is a willing competitor, definitely not afraid to try.

Sainthood was asked for run very early in the maiden win, and although he was not polished, he did hold his competitive edge for a long time. And he did not look exhausted at the wire. His time-in-motion profile looks promising, and his physical splits also suggested more distance than 1 1/16 miles could be to his benefit (:24.91, :24.68, :24.18, :31.49).

Pletcher sent Sainthood to Turfway Park for his shot at qualifying for the Kentucky Derby. We thought his maiden race was eventful, but his trip in the Ruby took things to another level.

Sainthood lifted up and then out at the start, breaking very strongly. He had the lead in the opening strides, but jockey Gerardo Corrales kept Sainthood in rating mode, allowing #8 Moonlite Strike to pass him and get over.

The early pace was fast, and Sainthood was 4th on the inside, 3 ½ lengths behind an opening half mile in :46.81. Sainthood was very relaxed and his stride looked fluent and balanced.

Corrales gave Sainthood a nudge as the field approached the far turn, and he got an instant but incremental response. Still on the inside, Sainthood got within 1 ½ lengths of the leader Moonlite Strike, who immediately started backing up. Sainthood deftly moved a path to the outside, losing minimal momentum as Corrales went to the whip to encourage Sainthood to stay with the flow of the advancing herd members.

Steered out 5-wide turning for home, Sainthood was trying to reach an open path but he was bumped and held in by Like the King just as #9 Hard Rye Guy came out in front of him. Corrales had to steady and check Sainthood.

Having lost his momentum, Sainthood was in 5th place about 4 lengths back at the 1/8 pole and Like the King was moving to the lead. But Sainthood had another move in him! He re-engaged and surged late to finish 2nd, beaten just 1 length. This was a very impressive run. We love to see a horse overcome trouble and finish with that kind of competitive edge. We believe Sainthood's Herd Dynamic will grow off of his run in the Ruby.

Three races into his career, Sainthood's pattern of motion remains undefined, but we can see he has a nice balance of Group Herd Dynamic awareness and Individual Herd Dynamic competitiveness. Horses with this kind of mix of GHD and IHD often take longer to develop, as they are learning in multiple areas.

Sainthood has not faced any top tier Herd Dynamics, nor has he been in a race as fast as this Kentucky Derby will be. There are a lot of obstacles for him to clear in order to run a competitive race on Saturday, but we can't get away from the feeling that this horse is trending upwards.

The sustained run he showed in his maiden win and then the way he bounced back from trouble in the Ruby (final furlong in :12.57) makes us think he could be a great fit at 1 ¼ miles.

Sainthood is very early in a Herd Dynamic growth pattern that is just beginning to manifest. He might not be ready for the Kentucky Derby, but we see an emerging horse with considerable potential. Having snuck him into our Tier 2, we would not be surprised if he runs well and even lands a minor placing.

KEEPMEINMIND

Colt by Laoban—Inclination, by Victory Gallop
Bred in Kentucky by Southern Equine Stables LLC

Owner: Cypress Creek Equine, Arnold Bennewith, and Spendthrift Farm LLC

Trainer: Robertino Diodoro



Keepmeinmind was a very impressive two-year-old, but he enters the Kentucky Derby on a severely disrupted Herd Dynamic pattern.

We think blinkers – which were added in his third start when he was still a maiden running in the Breeders’ Cup Juvenile (G1) -- along with how he was ridden in some of his early races, had a negative effect on Keepmeinmind’s mental development.

We are glad to hear trainer Robertino Diodoro is removing the blinkers on Saturday. We think that gives Keepmeinmind a chance to restart his growth pattern, but we are still looking at a horse who was going backwards in his final Kentucky Derby prep.

Keepmeinmind debuted at Churchill Downs on September 2 in a 1-mile maiden race. Our trip notes from the race were extensive. Keepmeinmind broke slowly, and then rider David Cohen immediately started shaking the reins and hitting him. That revved up Keepmeinmind’s emotions. He intensified and caught up with the field, but he was hung out wide early.

Before the field hit the far turn, Cohen guided Keepmeinmind from the 8-path down to the 2-path, just behind the leaders. Keepmeinmind looked a little green, but he was responsive and willing. On the far turn Cohen urged Keepmeinmind to squeeze through an opening along the rail, inside of #7 Bryce Canyon. Again Keepmeinmind attacked that forward space willingly.

Keepmeinmind spun into the lane full of run but directly behind the leader, very tight to the rail and hemmed in by #12 Loumo. Cohen steered Keepmeinmind off the rail, bumping and pushing Loumo out of the way. The winner Arabian Prince had gotten the jump on him and was gone, but Keepmeinmind finished strongly for 2nd place.

Keepmeinmind ran great in that extremely eventful debut. It looked like he was ridden to win at all costs that day. There were a lot of signals for Keepmeinmind to interpret in that race.

After that debut, the connections knew they had an extremely talented two-year-old, and they entered Keepmeinmind in the Breeders’ Futurity (G1) at Keeneland.

Keepmeinmind broke to the outside and while under forward urging from Cohen, was involved in an extended bumping incident early. He must have bumped at least four times, and he was willing to try to fight through all the contact. Cohen eventually had enough and took him inside.

Keepmeinmind settled briefly, then advanced up to 6th place while covered up, between horses. After getting pinched back on the far turn, Keepmeinmind commenced his rally on the inside. In 4th place turning for home, Keepmeinmind moved laterally and bumped Super Stock while under a strong left-handed whip from Cohen. Then he bumped and herded Super Stock out another few paths while under additional left-handed whipping.

Keepmeinmind outfinished Super Stock and ran on for a good 2nd behind Essential Quality. That was another eventful trip, especially for a maiden. Keepmeinmind was still a little green, but he was giving everything he had.

Diodoro outfitted Keepmeinmind with blinkers and entered him in the Breeders’ Cup Juvenile (G1) in start #3. We loved to see the jock switch to Jose Ortiz. He is one of the most talented young riders in the sport, and he has shown us a good sense of feel for the mind of a young horse. But we hated the blinker decision, as it robbed Keepmeinmind of his environmental awareness during a key learning phase.

When the gate opened, Essential Quality to his inside broke outward and bumped Keepmeinmind. Behavioral overcompensation immediately kicked in. Keepmeinmind hopped and struggled to interpret the environment, slowing his physical pace dramatically.

Ortiz did the right thing and allowed Keepmeinmind to settle, but he was so far behind – 18 lengths early! Keepmeinmind

still came running 4-wide around the far turn. He passed them all save Hot Rod Charlie and Essential Quality. Mentally he was hunting the top two through the lane, but he couldn't quite get to them as he finished 3rd, beaten just two lengths. His internal fractions (:25.50, :22.41, :24.17, :30.35) showed what a great effort he gave. Keepmeinmind is a brave, willing horse.

Three weeks after his run in the Breeder's Cup, Keepmeinmind secured his maiden victory – in the Grade 2 Kentucky Jockey Club Stakes! He broke a little slowly and showed some tail stress early. Before blinkers were added, he was relying on his sensory system to assess the environment, so it is natural that he didn't feel comfortable charging forward as quickly.

But Keepmeinmind made the adjustment. Charging widest of all through the lane, he successfully executed a last-to-first rally and won the Kentucky Jockey Club Stakes by $\frac{3}{4}$ of a length. That was quite an eventful two-year-old campaign.

Keepmeinmind made his three-year-old debut at Oaklawn Park in the Rebel Stakes (G2). Still wearing blinkers, he broke to the inside and bumped at the start. He was dead last early. This has become his pattern of motion.

Deep closing patterns of motion are not the best for dirt racing, but we don't mind when it fits the horse. The thing we didn't like to see in the Rebel is that Keepmeinmind was running with a lot of emotional intensity on the backside. A horse shouldn't be expending emotional energy in that position.

When Keepmeinmind tried to rally widest of all in the lane, he was over-reactive to stimulus, drifting out in reaction to Cohen's left-hand whipping and another horse. He finished

6th, beaten 8 lengths. The Rebel certainly could have been a needed race from a physical fitness standpoint, but we didn't like what we saw from the emotional/behavioral standpoint.

Keepmeinmind's final prep for the Kentucky Derby came in the Blue Grass Stakes (G2). He had the outside post in a field of nine, and they tried to change up his pattern of motion by asking him for speed. Initially trying to press for the lead, he got caught 5-wide into the first turn.

Stalking just behind the leaders on the backside, Keepmeinmind was under a big hold while looking a little frantic. He tried to kick on from that position. but he got left like the rest of them when Essential Quality and Highly Motivated accelerated on the far turn. His final surge of emotional energy was used to drift out and smash into Hidden Stash, who was trying to pass him. Keepmeinmind finished 5th, beaten 16 lengths. We didn't like to see him fading like that.

Keepmeinmind is slipping down the Herd Dynamic ranks at age three, and we are concerned about where his head is at. We hope he can find himself again with the blinkers coming off because we loved what this horse showed us at age two.

Had his early development gone a different way, Keepmeinmind might be up near the top of our rankings. A return to that growth pattern is not likely but also not impossible.

TIER 2 ★★☆☆

MANDALOUN

Colt by *Into Mischief*—*Brooch*, by *Empire Maker*
Bred in Kentucky by *Juddmonte Farms*

Owner: Juddmonte

Trainer: Brad Cox



Mandaloun was one of the trickier studies in this year's Kentucky Derby.

When we review races, we are looking at how a horse translates its sensory interpretations and emotions to physical output. In the case of Mandaloun, we sense a slight disconnect between the mental and the physical. From a purely physical standpoint he is running one way, but his body language is telling us something else.

There are a number of possible reasons for what we are seeing. Sometimes a horse hasn't found the best surface to express its physical speed. Other times we later find out the horse was dealing with a physical issue. There also can be associated stimulus to prior events that don't appear in past performances or race videos.

Whatever the case, Mandaloun has shown us a very unique psychology. He has certainly looked powerful at times, but we do see some inconsistencies in the profile.

Mandaloun debuted at Keeneland on October 24 in a field of 11 two-year-olds. He broke well and nearly had his head in front at the start, but then he slid backwards to 8th place. Shuffled in traffic on the far turn, Mandaloun appeared expressive to us. In this case we interpret that as meaning he was not happy with his herd position, buried in traffic.

In the lane Mandaloun looked like a bull in a china shop trying to get out from behind horses. He came out 4 or 5 lanes as he repeatedly bumped into #3 *Americanrevolution*, pushing him to the outside. Still lacking a clear path, Mandaloun and jockey Florent Geroux dove left and rallied inside of leader *Bob's Edge* to win by a half length.

It was an impressive, powerful, and slightly reckless rally. Mandaloun seemed indifferent to space awareness and physical contact. His 8th-9th-3rd-1st running line has the look

of a Group Herd Dynamic closing pattern of motion, but to us Mandaloun's fast internal cycling and close-space targeting looked more like an Individual Herd Dynamic slanted horse who was impeded by physical traffic.

Indeed, Mandaloun sought out a more forwardly placed trip in his second start, an allowance race at Churchill Downs on November 28. He dropped down just slightly at the start – we think Mandaloun could be prone to pressure build-up when he is standing in the starting gate – but he recovered quickly and secured a good stalking position.

Mandaloun runs with a lot of intensity. Again, we detect a fast-cycling, IHD-slanted rhythm. He stalked the leaders and then pounced to win by 1 ¼ lengths. It was a relentless run at 7 furlongs, as indicted by his physical fractions: :23.11, :23.39, :24.46, :12.19. There is very little deceleration in that curve. Three horses that finished behind him that day won their next race.

Mandaloun got his first taste of graded stakes competition in the Lecomte Stakes (G3). He was well positioned to execute his stalk-and-pounce pattern of motion again, but in the lane he could not get by 2nd-place finisher *Proxy*.

The head-on view of the Lecomte was very interesting. *Proxy* was running sideways in the stretch, continually drifting toward Mandaloun's path. Mandaloun appeared to be the stronger horse to us. He stayed the 1 1/16-mile trip just fine (he ran a solid :30.86 final 5/16), but he did not pass *Proxy*.

Mandaloun seems like a fairly straight-forward, IHD-slanted, close space fighter who bulldozes his own path. *Proxy* did not physically impede him. Was he distracted by *Proxy*'s drifting into his space?

Trainer Brad Cox decided to add blinkers in Mandaloun's next start in the Risen Star Stakes (G2). Blinkers didn't change the

pattern of motion or his overall energy very much – he still ran very intensely and got his preferred, outside stalking trip. But minimizing stimulus might have helped him pass horses and separate from the herd late, as Mandaloun powered to a 1 ¼-length victory. He stayed the 1 1/8 miles comfortably.

The growth pattern with blinkers did not continue in his next start, when Mandaloun finished 6th, beaten 11 ¾ lengths as the favorite in the Louisiana Derby (G2). He showed a little “down pressure” at the start and then, with his ears pinned, ran all the way up to join the leaders.

That intensity is not unusual for Mandaloun, and from a positional standpoint he got his trip. But he never advanced past 3rd place, and in late stretch he was running up and down, slightly withdrawn.

There is no denying Mandaloun is a very talented horse, but we sense a slight mismatch between his mental and physical. Maybe something is bothering him? Mentally he is revving a little hotter and heavier than his physical fractions tell us.

We would love to inspect Mandaloun to try to fill in the gaps in our profile. His best form makes him a contender, but he enters the Kentucky Derby on an interrupted growth pattern that gives us pause.

LIKE THE KING

Colt by *Palace Malice*—*Like a Queen*, by *Corinthian*
Bred in Kentucky by Horseshoe Racing LLC

Owner: M Racing Group LLC

Trainer: Wesley A. Ward



Like the King is a gritty, hard-trying colt who comes to Louisville on an interesting Herd Dynamic growth pattern, but surface and class concerns must temper our enthusiasm.

Like the King is 0-for-2 lifetime on dirt, and he has done all his best running on turf and synthetic tracks.

On video Like the King looks like a big, muscular colt, but he debuted fairly early (July 29) in a 5 ½-furlong dash at Belterra Park. We don't see many Derby horses running at the Cincinnati track formerly known as River Downs.

Like the King debuted wearing blinkers for trainer Wesley Ward. He was asked for speed from the start by rider Angel Serpa, and Like the King broke well and expressed his speed. He tried hard, though he had to settle for a distant 2nd-place finish. We don't hold the loss at Belterra against him too much though, as this rangey colt is probably not designed for such a short, rapid-fire race.

Ward removed the blinkers and stretched the King out to a mile on turf in his second start. He broke on top. Like the King has a little bit of a high head carriage, though that was being accentuated by the rider restraining him and Like the King trying to feel back with his ears to the pursuing herd.

Like the King enjoyed the added distance, and he dominated this field like you would want a good horse to do at a lower level track. He held a nice line as he drew off to win by 7 ½ lengths.

Next, Ward entered Like the King in a turf allowance race at Keeneland on October 24, but the race was moved to the main track.

Like the King pressed the pace, showing us a slightly heavy, fast cycling IHD energy. He finished 3rd, beaten 12 lengths, but he did not quit. Like the King looks like he could be a hair

cantankerous at times, and his body control and stride looked a little sloppy as he tired on the dirt, but mentally he is not a quitter. Even when well beaten, he battled hard for a minor placing.

Ward switched Like the King over to the synthetic Tapeta surface at Turfway Park in his most recent three races, and he earned his way into the Kentucky Derby by winning that Northern Kentucky track's flagship race for three-year-olds – the Jeff Ruby “Steaks” (G3).

Like the King dominated a 1-mile, NW1X allowance race on December 4. He broke well and was under a big hold while continuing to learn to conserve energy on the front end. He won by 3 ½ lengths, without being asked for his best. He ran every quarter mile in :24-and-change. There are signs of good stamina here.

Like the King got his first taste of stakes company in the Battaglia Memorial, going 1 1/16 miles on the Tapeta. He did a stutter step at the start, then fell into a pace stalking trip. He attacked the leaders while 3-wide in the lane, but he in turn got pounced on from behind by the winner Hush of a Storm.

Like the King looked like he was surprised in that moment, and he lost body control briefly, crowding Gretsky the Great inside of him. But he didn't sulk. He dug in and outfinished Gretzky for 2nd place. Like the King appears to be a single-target focus horse – this is not a multi-tasking mind – but he enjoys competing and he is willing.

The Jeff Ruby, at 1 1/8 miles on the Tapeta, is the key race in Like the King's development pattern, as he got a new rider (Drayden Van Dyke, who sticks with him for the KY Derby) and he successfully altered his running style.

Like the King broke well from the 1-hole. We like that he gave no indication of falling into open space in either direction.

Staying on the inside but in a rating gear, Like the King was in 7th place the first time under the wire. He seemed comfortable with that herd position.

Like the King got rolling about 5-wide on the far turn and swept into the lane with the leaders in his sights. As he was battling with #5 Sainthood – the King would not let that horse out -- #9 Hard Rye Guy drifted out into the King's path and bumped him.

Like the King shook off that contact and hit the lead inside the 1/8 pole. Sainthood rallied for 2nd place once he got clear, but it was too late.

Like the King is a fun horse to watch because he tries so hard. He looks raw at times, but he has been on a steady growth pattern ever since Ward removed the blinkers and stretched him out.

We like the positional versatility he showed in the Ruby. Pay attention when a horse switches its running style and runs well, as it signifies potential for further growth.

Still, there are significant hurdles that Like the King must clear just to be competitive in the Kentucky Derby. He is a big powerful horse, but his fluency and stride mechanics will be tested going 1 ¼ miles on dirt. Ward probably kept him primarily on turf and synthetic for a reason.

Like the King also will be facing faster, classier horses than he has previously matched up with. We don't expect him to shy from the competition, but we think he is probably in for an eye-opening, learning experience.

DYNAMIC ONE

Colt by Union Rags—Beat the Drums, by Smart Strike

Bred in Kentucky by Phipps Stable

Owner: Repole Stable, Phipps Stable and St. Elias Stable

Trainer: Todd Pletcher



Dynamic One is not a Herd Dynamic favorite for us, but this physically talented colt has been on a gradual pattern of improvement that provides some hope he can make good on his potential.

Sensory issues – how he interprets the world around him and how that affects his performance as an athlete – have played a major role in Dynamic One's performances.

If you watch his debut race at Aqueduct back on November 14, you will see the baseline he started from and how sensory interpretations can affect physical pace profoundly.

Breaking from the rail in an 11-horse field, Dynamic One was distracted at the start. As the rest of the field took off, he threw his head up and lurched out of the gate. He was instantly 3-5 lengths behind the field.

Dynamic One was chasing the field in a reactive mode, running very head high. He never completely filtered his stress and settled in. He tried to make a wide run, but it's hard to find efficiency with that high of a head carriage. He finished 9th, beaten 16 $\frac{3}{4}$ lengths.

That was all it took for trainer Todd Pletcher to add blinkers for Dynamic One's second start, a 1 $\frac{1}{16}$ -mile maiden race at Gulfstream Park. The move produced immediate improvement, as Dynamic One only hopped slightly at the start and broke with the field.

Unlike in the debut, Dynamic One was running in a fairly controlled manner, exhibiting competitive nature as he executed a wide, pace-stalking trip under Irad Ortiz Jr. The night and day difference tells us the blinkers fixed a sensory interpretation issue.

It was still a slightly bumpy road for Dynamic One, but he made major progress. He took over on the far turn and was in a strong position with a 2-length lead. Dynamic One probably would have broken his maiden in this race if not for the presence of a rising star (Greatest Honour) who ran him down in the lane.

We would have liked to see Dynamic One build on that runner-up finish, but he took a little step backward in his third start, another 1 $\frac{1}{16}$ -mile maiden race at Gulfstream.

He fell to the inside when the gate popped, but Ortiz corrected him quickly. Early in this race we saw a little return of the high head carriage. Kickback may have been contributing to Dynamic One's forward interpretational issues.

Dynamic One did dial into his competitive zone when making a 4-wide move on the far turn, but he was outgamed by the winner #2 Another Duke (has not run since).

Dynamic One's transitions looked delayed as he hung in late stretch. He might have been physically tired there, as he had a very wide trip. Whatever the cause, mentally he was yielding ground to his opponents late. He finished 4th, beaten two lengths, as the even-money favorite.

Dynamic One got the job done in his fourth start, a maiden race at Aqueduct going 1 $\frac{1}{8}$ miles. The race started with him falling to the inside and bumping with #3 Minuteman (Ger), who drifted out sharply at the start. Those two horses provided each other with a physical guard rail, then ran together for a while, with Minuteman on the lead and Dynamic One on his outside flank.

Stalking from 2nd place, Dynamic One's lead change looked good as he took over from Minuteman in early stretch. Dynamic One's head did come up a little as he took the lead, but then his head lowered and his fluency increased. He drew away to win by 5 $\frac{1}{4}$ lengths. There were good moments of progress in his maiden win.

Dynamic One earned his way into the Kentucky Derby via the Wood Memorial Stakes (G2), where his Derby rider Jose Ortiz rode him for the first time.

Dynamic One broke ok but a little hesitant and was brushed by #4 Risk Taking at the start. In 7th place early, Ortiz kept Dynamic One out wide. He started his move early on the far turn while about 5-wide!

Dynamic One hit the lead in mid-stretch. His transitions still look a little delayed to us, and his head still wants to come up when he is unsure of his surroundings. Dynamic One opened a 1 $\frac{1}{2}$ -length lead inside the 1/16 pole of the Wood, but he was drifting to the outside late and could not hold off the wide charge of his stablemate Bourbonic. The entire field of the Wood was coming home very slow late (final furlong in :13.73)

Dynamic One improved a lot when blinkers were added in start #2. He has been improving incrementally in his recent races, but he still has a ways to go. If Dynamic One can continue to improve his mental efficiency, there is still upside here, but the Kentucky Derby will be a stern test for his sensory system.

BROOKLYN STRONG

Colt by *Wicked Strong*—*Riviera Chic*, by *Medaglia d'Oro*
Bred in New York by *Cheryl Prudhomme* and *Dr. Michael Gallivan*

Owner: Mark Schwartz

Trainer: Daniel Velazquez



Brooklyn Strong was the final horse to join this year's Kentucky Derby after a handful of horses dropped out the week before the race. He doesn't stack up too well with the top Herd Dynamics in this field, but Brooklyn Strong has a couple things going for him that could allow him to outrun expectations.

Brooklyn Strong earned his eligibility for the Kentucky Derby by winning the Remsen Stakes (G3) at Aqueduct back on December 5. At 1 1/8 miles, there is not a longer race for two-year-olds, and we think stamina is probably Brooklyn Strong's best trait when it comes to his chances in the 1 1/4-mile Kentucky Derby.

Brooklyn Strong also has an incremental but forward-moving Herd Dynamic pattern. Trainer Danny Velazquez has done a great job allowing Brooklyn Strong to develop at his own natural pace.

Owner Mark Schwartz bought Brooklyn Strong for just \$5,000 at the Ocala Breeders' Sales Co.'s April sale of two-year-olds in training. Expectations still couldn't have been too high when Brooklyn Strong, a New York-bred, debuted in a \$40,000 maiden claiming race at Delaware Park back on September 12. It was a slow 1-mile race, but Brooklyn Strong won it in workman-like fashion while getting to practice competing and body control over a route of ground.

Velazquez stepped Brooklyn Strong up to New York-bred stakes company next in the Bongard Stakes, a 7-furlong race at Belmont Park. It was a rocky, mistake-filled trip, but a good learning experience in his first race vs winners.

Checked at the start, Brooklyn Strong broke last, then rushed up on the outside. Rider Eric Cancel was having trouble controlling Brooklyn Strong's pace. Cancel hit the brakes hard, pulling his mount back to 5th place.

That is no way to win a race, but it forced Brooklyn Strong to go through his progressions properly. He waited, then rallied 4-wide on the far turn, and although he was running greenly, he was finishing fastest of all to get 3rd, beaten 2 1/4 lengths. We like it when a horse gets stopped but regains forward focus to finish strongly.

Brooklyn Strong was back in against New York-breds in the 1-mile Sleepy Hollow Stakes, and he applied some of his

lessons from the last race. He broke better and rated in 5th place early. This time he got his sequences in order, waiting for Jockey Jose Ortiz' command to attack in the lane.

The individual transitions within that pattern of motion still had some small gaps in them, but Brooklyn Strong got the job done and won by 2 1/4 lengths.

Brooklyn Strong next stepped up to face open graded stakes horses in the Remsen, and this is where he scored his signature win. He broke well and found a comfortable rating position in 4th place early. Brooklyn Strong was not fazed by and might have even liked the sloppy track on Remsen day.

He advanced into second place on the far turn, and from there it was a two-horse race between Brooklyn Strong and Ten for Ten (a Frosted colt trained by Shug McGaughey, has not raced since). Ten for Ten drifted toward Brooklyn Strong at one point in the stretch, and we like how Brooklyn Strong casually got out of his way, without overreacting or losing forward efficiency.

The Remsen was a big step forward for Brooklyn Strong on a number of levels. He continued to improve his body control in Individual Herd Dynamic competing mode. He ran his first relatively fast race. And his internal fractions from the Remsen (:24.18, :24.19, :24.66, :25.02, :12.56) suggest 1 1/4 miles could be within his scope.

Brooklyn Strong did not make his three-year-old debut until April 3 in the Wood Memorial (G2). He worked out a good, ground-saving trip, stalking the pace from 5th place. He tried to rally up the rail in the lane but the hole tightened and he had to wait. Brooklyn Strong was always behind horses during the stretch run, and finished 5th, beaten 4 3/4 lengths.

It looked to us that Brooklyn Strong pretty much has picked up where he left off last year. We can certainly see this honest, hard-trying horse moving forward in his second race at age three. And we think he is likely to get 1 1/4 miles.

Achievable goals await Brooklyn Strong in the New York-bred ranks if the Triple Crown dream ride ends, but for now we are rooting for this underdog to run well.

BOURBONIC

Colt by Bernardini—Dancing Afleet, by Afleet Alex
Bred in Kentucky by Calumet Farm

Owner: Calumet Farm

Trainer: Todd Pletcher



When Bourbonic won the Wood Memorial Stakes (G2) as the longest shot on the board at odds of 72-to-1, he shocked bettors and fulfilled a considerable Herd Dynamic growth pattern.

He will need to continue to build on that race in order to be competitive in the Kentucky Derby, but even if he never wins another race, this Calumet Farm homebred is a great story.

Bourbonic is a hard-trying colt who has overcome some fairly serious mental obstacles. Trainer Todd Pletcher and riders Joel Rosario & Kendrick Carmouche deserve credit for unlocking the talent inside him.

It didn't look too good after his first couple races. In Bourbonic's debut at Belmont Park back on October 11, he broke ok but then retreated through the field. There were signs of major interpretational issues. Bourbonic was trying to figure out the environment, but he was sliding backwards away from the herd. Mental issues were slowing his physical pace.

Gapped by the field and in open space, he didn't find his rhythm and extend at all until the final furlong. He finished 6th, beaten 15 lengths.

Pletcher tried stretching Bourbonic out of the turf in his second start. He broke ok, but then he was checked in traffic and the backwards slide became more pronounced. Horses with interpretational issues lose more ground and recover more slowly from trouble. Running a little head high, pushback from stimulus continued to alter Bourbonic's physical pace. He finished 11th.

The awakening began in start #3 when Pletcher outfitted Bourbonic with blinkers and dropped him in for a \$50,000 maiden claiming tag. The difference in forward extension was dramatic. He broke ok, stayed attached to the herd, then advanced up to 3rd place on the backstretch.

Joel Rosario is easily a top five rider for us in terms of having a feel for his mounts' psychology and getting them to finish strongly. He did a nice job encouraging Bourbonic to compete without overloading him. Bourbonic was feeling his way

through the stretch battle, but he gradually put the tiring speed horse away and drew off to win by 4 $\frac{3}{4}$ lengths. This was great for his confidence.

Kendrick Carmouche, who will be Bourbonic's rider in Kentucky, got on him next and also played a key role in his development. Bourbonic seemed to react very well to the quiet, patient ride Carmouche gave him in first race vs winners. When the rail opened up turning for home, Bourbonic rallied up the inside and scored a grinding, neck victory.

Following a troubled, 2nd-place finish in the slop in an allowance race at Parx, Carmouche and Bourbonic were re-united for an ambitious run at the Wood Memorial. The way Carmouche took him back early told us he has a good understanding with this horse.

Last of nine early, Bourbonic smoothed out with time in motion. Bourbonic and Carmouche put together a fairly nice sequence of transitions to win the Wood, moving laterally and passing them all in the lane. They did it despite being covered in dirt and rallying from far back at a slow pace.

We thought the Wood was by far the weakest of the final major Kentucky Derby preps, but still, this was a massive achievement.

Though still not a powerful Herd Dynamic, Bourbonic has learned to use his clean, balanced stride and physical stamina to his advantage. His body control in Individual Herd Dynamic competing mode continues to improve.

Bourbonic has overcome a lot of his own obstacles to reach the Derby. Even when struggling with sensory challenges, he tries hard.

We like his time-in-motion profile for 1 $\frac{1}{4}$ miles, but the herd chaos of a 20-horse field and stronger Herd Dynamic opponents pose significant challenges for Bourbonic.

At least he has a rider in Carmouche that understands and believes in him. For a horse like Bourbonic, who has some interpretational issues, that can be a huge help.

HIDDEN STASH

*Colt by Constitution—Making Mark Money, by Smart Strike
Bred in Kentucky by Rhineshire Farm LLC*

Owner: BBN Racing LLC

Trainer: Victoria H. Oliver



Hidden Stash will have to correct or overcome some major marks of inefficiency if he is going to have a successful run in the Kentucky Derby.

He has definitely improved on some things since his two-year-old campaign – namely his gate breaks and lead changes – but he continues to lug in when he tries to intensify during Individual Herd Dynamic competing mode.

The good news is that, although he makes a lot of mistakes, Hidden Stash tries hard and has physical talent.

Hidden Stash debuted at Ellis Park back on August 30. He drifted in after the start, either in reaction to his rider hitting him on the right shoulder or possibly to avoid chaos to the outside.

He stalked the pace for about a half mile and then looked floaty and distracted in traffic. It appeared the rider was frustrated with his antics. Hidden Stash tried to kick in the lane, but he was unable to pass any horses and finished 4th, beaten 8 lengths. It looked like a needed race, and his pattern of motion remained undefined.

Trainer Victoria Oliver added a shadow roll in Hidden Stash's second race, a 6 ½-furlong maiden event at Churchill Downs. Hidden Stash stumbled just after the start and then got a little rank after being checked.

Again he appeared very floaty in traffic -- not holding his path and occasionally bumping with other horses. Shuffled back on the turn, he came running in the lane to finish third, though he was having trouble holding a straight path again.

Oliver removed the shadow roll in Hidden Stash's third race and stretched him out in distance in a 1 1/16-mile maiden race at Keeneland. Both moves paid off with a win, even though Hidden Stash continued with his antics.

He appeared rank as the gate opened, throwing his head up and sideways. Rider Rafael Bejarano got him under control, and Hidden Stash was showing a big forward projection while sitting close up in 6th place early.

Bejarano moved him turning for home. Hidden Stash hit the front in the short stretch but lugged in and would not change leads. Moving very awkwardly, he nevertheless won the race while weaving through the lane on the wrong lead.

Hidden Stash completed his two-year-old campaign with another win going 1 1/16 miles, this time in an optional claiming/allowance race at Churchill and again while doing things oddly. Bejarano was aboard again, and we think it's good that he will ride him in the Kentucky Derby, as it seems he handles this colt's quirkiness very well.

Hidden Stash threw his head up at the start again. To us it appears he is having trouble interpreting the environment in that moment the gate opens, and then he is over-reacting. Bejarano got him to settle for the most part.

Even though Hidden Stash runs a Group Herd Dynamic closing pattern of motion, we don't see that much functioning GHD in him. He appears to be outsourcing his reads to the other horses a lot. He was floating laterally and also cocking his head trying to eyeball other horses during the GHD "rating" portion of the race. This must be a wild horse to ride. He wants to run though.

Bejarano set after the leaders while three-wide on the far turn. Hidden Stash hit the lead in early stretch though he kept wanting to lug in toward the other horses. Bejarano corrected him several times then went with a left-handed whip late, and that helped Hidden Stash stay in his path.

He won that allowance race by a half-length. There is physical talent here but he would need to iron some wrinkles out at age three to compete in graded stakes.

Hidden Stash made his three-year-old debut in the Sam F. Davis (G3) at Tampa. Breaking from the rail, he drifted inward at the start, but his overall momentum was forward. His body control through the middle rating portion of the race also looked better.

Saving ground all the way, he had a clean run at the three leaders in the lane, but Hidden Stash struggled to move laterally, find an open path and change leads. After being stuck briefly, he got rolling late to finish third, beaten just a neck and a length for the win.

Hidden Stash reportedly ran off during the post parade before his next start in the Tampa Derby (G2). It's a shame if that incident cost him, as he might have run the best race of his career.

He broke pretty well, made a nice transition on the far turn, and he changed leads in the lane. He looked like he was going by Helium, but they bumped a couple times, and then Helium upped his intensity while Hidden Stash hung.

Hidden Stash stepped up to face top company for his final Kentucky Derby prep in the Blue Grass Stakes (G2). He broke fine and overall this race featured some of the best intra-race sequences we have seen from Hidden Stash.

Bejarano got him moving on the far turn, and Hidden Stash responded willingly. He was doing well until early stretch when Keepmeinmind drifted out and bulled into him twice. He was able to get by Keepmeinmind, but when it came time to try to catch Rombauer for third place, Hidden Stash lugged in again and wound up almost directly behind his target.

We respect the gritty effort Hidden Stash puts into his races regardless of the mistakes he makes.

However, he is likely to have a difficult time interpreting the environment at the Kentucky Derby. Hidden Stash seems to possess good physical stamina, but his inefficiency, particularly in IHD competing mode, makes it hard for us to envision him succeeding in this race.

SOUP AND SANDWICH

Colt by Into Mischief—Souper Scoop, by Tapit
Bred in Florida by Live Oak Stud

Owner: Live Oak Plantation

Trainer: Mark Casse



Soup and Sandwich stands out as one of the more unusual horses we have studied in our 11 years of providing Herd Dynamic analysis for the Kentucky Derby.

This handsome gray colt moves with tremendous presence and power during the body of his races, but when he is asked to change leads in the stretch run –especially when he is in open space – he loses it.

Soup and Sandwich earned enough points to qualify for the Kentucky Derby by finishing second in the Florida Derby (G1). The physical talent is there, but we question whether he is mentally ready for what awaits in Louisville. He has only run three times and he demonstrated behavioral over-compensations in all his races.

A quick look at Soup and Sandwich's pedigree suggests where the issues might be coming from. Soup and Sandwich is by Into Mischief, one of the most successful commercial stallions in the world. On our metrics, Into Mischief is one of the most consistent stallions in handing down physical speed and above-average forward efficiency and competitive traits. Simply put, Into Mischief produces fast, efficient horses with competitive minds.

Soup and Sandwich is out of the Tapit mare Souper Scoop. Tapit is also one of the best stallions in the world and a Herd Dynamic favorite, though for different reasons. Tapit can pass down exceptional Herd Dynamic power, but his progeny often need more distance than Into Mischief's progeny to show their best. As great as Tapit is, he gets more than his fair share of quirky mental/behavioral profiles. It's just part of the package.

Looking at the race charts for Soup and Sandwich's dam we see a couple giant wins (by 8 or more lengths) and a lot of trouble comments that suggest mental quirks: "Bumped, stumbled start, never recovered," "Off slowly and bobbled, did not factor," "Pulled and was steadied while attempting to settle."

Soup and Sandwich debuted at Gulfstream Park on January 28 in a 6 ½-furlong maiden race restricted to Florida-breds. He drifted inward just slightly at the start and bumped lightly with the horse inside of him.

Wearing no head gear and looking forward but relaxed, Soup and Sandwich quickly settled into a good rhythm as he pressed the pace from 2nd place, outside of the leader. He had a very strong expression, his ears flopping and a good head carriage. His movements were very forward and fluent. His tail was relaxed.

When #3 Twice Too Many tried to join the leaders, jockey Irad Ortiz Jr. gave Soup and Sandwich a couple taps on the shoulder. It didn't take him long to open a 5-length lead.

When Ortiz asked Soup and Sandwich to change leads, he lost his forward expression and became mentally stuck. He galloped home 7 lengths in front, but he ran most of the stretch with his head cocked to the outside, on the wrong lead.

The dichotomy between the good Soup and Sandwich and the bad one was even more pronounced in his second start. That Feb. 24 allowance race going 1 mile & 40 yards at Tampa featured just a 3-horse field.

Soup and Sandwich looked very casual in the gate before the race started. He was looking around, his ears articulating. He does not appear at all stressed before his races.

When the gate opened, Soup and Sandwich fell to the inside, then was checked hard by rider Antonio Gallardo as #4 Foreman came over into his path. Soup and Sandwich then settled close-up in third place, just behind the leader and covered up by the outside pace presser. During the body of the race, Soup and Sandwich moved with good presence and space awareness.

When Foreman came off the rail on the far turn, Soup and Sandwich moved through the opening without hesitation. He seized control of the herd impressively in a just a few strides.

The trouble started in early stretch when Gallardo asked Soup and Sandwich to switch to his right lead. Soup and Sandwich ducked in twice, almost losing his action at one point as he got close to the rail. To us it looked like Soup and Sandwich was feeling some anxiety. His mind and body are becoming disconnected in these moments.

We have no way of knowing for sure what was going through his head. It could be related to him being in open space without other horses. When a horse is isolated, herd dependencies can come to the surface.

Or it could be an anticipatory response to some stimulus he associates with changing leads.

Even with the disruptions, Soup and Sandwich beat 2nd-place Foreman by 2 ¼ lengths, and that colt was open stakes placed (and won a Florida-bred stake in his next start).

Soup and Sandwich ran in the Florida Derby next. He was a little frantic at the start, bumping with the horse outside of him, then pressing the pace three-wide into the first turn. He took over the lead on the backstretch and looked good until Known Agenda hooked him turning for home.

With Known Agenda looking him in the eye, Soup and Sandwich lost some of his efficiency as his body drifted inside while his head was looking to the outside. When a horse is looking one way but his body is going the opposite direction, that is a sign of a mental/physical disconnect.

Soup and Sandwich still managed to finish second in the Florida Derby. He has bigtime physical talent, but there is a major sticking point in his psychology.

Soup and Sandwich is what we would classify as a project horse, as he is yet to maintain fluency for an entire race. This is not a psychology we would trust to put it all together in the Kentucky Derby.

About the Authors

Kerry M. Thomas is a pioneering researcher of equine athletic psychology. His work began with the study of wild horse social structures and communication, and how those areas affect herd motion. He is the founder of the Thomas Herding Technique (THT) and author of *Horse Profiling: The Secret to Motivating Equine Athletes*. Kerry co-founded THT Bloodstock with Pete Denk. For more information, visit www.thtbloodstock.com or follow Kerry on Twitter @thomasherding.

Pete Denk is a writer, consultant, handicapper and director of Equine Services with THT. He and Kerry are partners in THT Bloodstock. Pete can be reached at (859) 699-7890, peterdenk@yahoo.com and @petedenk on Twitter.

GLOSSARY

Behavioral Overcompensation: Occurs when one sensory avenue either by physical limitation or psychological aberration overcompensates, resulting in body language eruption and/or loss of mental and physical efficiency.

Buddy-Up: Occurs when a horse seeks the comfort of movement with another horse. When a horse buddies up, it is depending on another horse for environmental reads involving safety, direction and rhythm of motion.

Group Herd Dynamic (GHD): GHD encompasses a horse's awareness of the environment, including the herd around them and its overall ability to interpret stimuli. A horse with a good GHD can see/feel the big picture of herd motion (a race) and where the horse itself fits into that picture.

A healthy GHD usually is integral for a horse to consistently run well through traffic. Many horses with big group herd dynamic slants will prefer to be near the back of the field early in a race in order to read the other members of the groups' intentions. GHD horses can literally feed off of the energy of herd motion and are comfortable letting it unfold over time and distance.

Horses with high-functioning GHDs usually have the ability to travel with a herd while rating/conserving energy. For this reason, horses with good GHDs tend to get the most out of their physical bodies in terms of distance aptitude.

Herd Dynamic: a general term we use to describe a horse's overall herd level (its GHD and IHD combined with physical ability)

Individual Herd Dynamic (IHD): IHD is the dynamic that involves the self and a singular target. IHD mode is one-on-one competing mode, hence it is very important in racing.

A good IHD is integral to being a racehorse. IHD is the ability to turn on the intensity, fight for space, and vanquish an opponent.

Pattern Of Motion: A naturally occurring or learned response to the stimulus of a horse race that forms the basis of a running style.