



TeamWerk

THE OFFICIAL NEWSLETTER OF WERK THOROUGHBRED CONSULTANTS

The Sire of Sires Factor *Anatomy of Contemporary sire lines*

by Jack Werk and Vincent D'Angelo

Many millions of dollars are spent each year, both on stud fees and the purchase of weanlings, yearlings, and two-year-olds sired by unproven stallions. With so many racehorses retiring to stud each year, how do you decide which ones will go on to achieve success as breeders? Most of the better prospects sport stakes-winning race records and big pedigrees, and many of those bring with them a heavy dose of hope and hype. Yet, year after year, the majority of the new stallions that retire to stud end up falling short of the expectations heaped on them by owners and breeders. Few will meet, much less exceed, their expectations. Why do breeders and buyers invest so heavily in these unproven prospects? They hope to end up with the next Storm Cat or Mr. Prospector. They recall painfully that they could have bred to Storm Cat in 1991 for \$20,000 or Mr. Prospector for \$7,500 during his early years at stud.

Sire lines rise and recede like the tide. The key is knowing how to catch the next big wave. Speculating on stallion prospects can bring a windfall or financial disaster, and this makes the selection of stallion prospects one of the most important considerations in the thoroughbred business. In the next several issues of TeamWerk, we present some of the factors we consider the most revealing when it comes to identifying future stallion superstars. In this installment, we will look at the *sire of sires* factor.

Phalaris was born in 1913, just 88 years ago. Today, approximately 85% of all stakes winners are sired by stallions descending from him. They include Turn-to (Hail to Reason), Nearctic (Northern Dancer), Nasrullah (Bold

Ruler), Tom Fool (Buckpasser), Native Dancer (Raise a Native and Mr. Prospector).

If you thumb through the stallion register and look at the names of the fourth- and fifth-generation sires in the stallions' tail-male lines, you will see just a handful of names. Why is it that just a few stallions are able to sire a significant number of sons, from the upper end of the stallion market all the way down to the regional market, that account for such a large proportion of superior runners?

The survival of the fittest rules the stallion ranks in Thoroughbred racing, just as in the wild. Only a few males are able to pass on the conformation, heart, and skill needed to survive. With thoroughbreds, man, not nature, has decided what traits are most essential. We demand *athletic ability, soundness, and competitive spirit* from our racehorses. Just as in the wild, only a handful of the 20,000+ male thoroughbreds each year will be able to pass these traits on to future generations. Many horses have the athletic ability to outperform their pedigrees, but it is a rare occasion when a stallion outproduces his pedigree on a consistent basis.

To illustrate the importance of the *sires of sires* factor, we need to look no further than this year's stakes winners (SWs). As of July 31, there have been 991 individual winners of unrestricted stakes races in North America and Europe in 2001. The chart on page 2 breaks them down into the eight most dominant sirelines and shows that one of every three of these SWs traces back to the Northern Dancer tail-male line. Nearly one out of every five SWs were sired by a stallion tracing back to Mr. Prospector. Thus,

over half of all 2001 SWs were sired by either Northern Dancer or Mr. Prospector line. The eight most dominant sire lines in North America and Europe account for 80% of all SWs. Of course, the other six sire lines pale by comparison with Northern Dancer and Mr. Prospector.

Additional figures show that 179 of the SWs trace to Nasrullah (1940), 222 to Native Dancer (1950), and 200 to Raise a Native (1961).

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The Sire of Sires Factor

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SIRE LINES OF 2001's 991 STAKES WINNERS (through 7/31/01)

STALLION	YOB	SWS	% SWS
NORTHERN DANCER	1961	329	33.2
MR. PROSPECTOR	1970	178	18.0
TURN-TO	1951	79	8.0
(HAIL TO REASON)	(1960)	(60)	(6.1)
BOLD RULER	1954	63	6.4
(SEATTLE SLEW)	(1974)	(25)	(2.5)
BLUSHING GROOM	1974	43	4.3
DAMASCUS	1964	22	2.2
RIBOT	1952	33	3.3
IN REALITY	1964	31	3.1
OTHERS		213	21.5

We will now look at the dominant sire lines in North America and Europe today to see which ones have met the challenge and which ones have not.

RAISE A NATIVE LINE

Affirmed and **Alydar**, the former a son and the latter a grandson of Raise a Native, are forever linked in racing lore as rivals in the most unforgettable Triple Crown challenge ever run. Their story continued in the breeding shed. In fact, they are currently tied in number of unrestricted SWs with 66 each! Of course, **Affirmed**, who died this year, took longer to do it than **Alydar**, who died in 1991.

Affirmed was a great racehorse and a solid stallion. However, with all due respect to the recently deceased champ, he has not proven to be a sire of sires. None of **Affirmed's** sons have been a major success at stud. **Peteski** and **Charlie Barley** were two of his best sons on the race-track, but their performance in the breeding shed has not lived up to their racing performance. Recently deceased **Peteksi** has sired seven SWs from four crops to race (one graded winner) and **Charlie Barley** five SWs from seven crops to race (three graded winners). By far the biggest statistical blow to **Affirmed's** sons as sires is that they have sired a combined total of just 19 unrestricted SWs.

Alydar doesn't come away unscathed either! In fact, considering the quality of his sons, he has been an even bigger disappointment as a *sire of sires* than **Affirmed**. For example, Kentucky Derby winner and champion **Alysheba** is the sire of just 17 SWs from nine crops to race and only one of those is a G1 winner. Bred to top-quality mares early on in his stud career, he has averaged fewer than two SWs per crop.

Strike the Gold is another Kentucky Derby-winning son of **Alydar**. After producing just eight non-graded SWs from his first four crops to race, he now stands in Turkey.

Perhaps the most dramatic example of **Alydar's** failure as a *sire of sires* is **Easy Goer**. He had everything going for him. As a racehorse, he won 12 stakes in 20 starts, nine of them G1 races, never finished out of the money, and earned over \$4.8 million. He was out of Phipps family champion mare **Relaxing**, descending from the immortal **La Troienne**, and stood at **Claiborne Farm**. He sired four crops before his untimely death. He produced just nine SWs from those four crops. Three of them, **Will's Way**, **My Flag**, and **Furlough** were

G1 winners, but when you consider the quality mares bred to him (C.I. 4.46), nine SWs from four crops is woefully low for a stallion with his pedigree, race record, and opportunity.

Another son of **Alydar**, Horse of the Year **Criminal Type**, gave it the old college try at stud in the US before moving his tack to Japan. But, from six crops to race, he only managed to sire six SWs, none of them graded, while standing in the US.

Alydar does have a few solid sons at stud—**Jeblar** in Florida, **Saratoga Six** in Kentucky, and **Turkoman** in California, but each of them are standing for \$3,500.

Affirmed and **Alydar**, two of the best racehorses during the second half of the twentieth century and both successful sires in their own right, have been unable to sire a son who could equal their own accomplishments at stud.

Kentucky Derby winner **Majestic Prince** (1966-1981) is one of the two branches of the Raise a Native sire line still very active today. **Majestic Prince** sired 33 SWs from 348 foals in a shortened career at stud. His son **Majestic Light** (1973-2000) has tallied 71 SWs. **Majestic Light's** son **Wavering Monarch** has thus far sired 33 SWs. **Wavering Monarch's** son **Maria's Mon** is off to a great start at stud with five SWs from his first crop, including 2001 Kentucky Derby winner **Monarchos**.

MR. PROSPECTOR LINE

But the long-term future of the Raise a Native line rests with **Mr. Prospector**, and a secure future it is! **Mr. Prospector** has become one of the most prolific sires of sires of the 20th century and his dominance is growing as we enter the 21st century. His sons **Miswaki** and **Crafty Prospector** are each closing in on 100 SWs, with **Gone West**, **Seeking the Gold**, **Kingmambo** and **Carson City** in hot pursuit. **Forty Niner** was off to a strong start in the US before being sold to Japan. **Machiavellian** is **Mr. Prospector's** top representative in Europe. He has many other good sons at stud, including **Conquistador Cielo**, **Gulch**, **Jade Hunter**, **Silver Ghost**, and second-year sire and Kentucky Derby winner **Fusaichi Pegasus**. Let's not forget **Mr. Prospector** still has a crop of 2YO's and yearlings yet to run! Now his second- and third-generation sons are also just beginning to make their mark, stallions such as **Zafonic**, **Thunder Gulch**, and **Marquetry**.

The Fappiano branch of the **Mr. Prospector** sire line is an interesting one. While **Mr. Prospector** is best known for speed and brilliance, the Fappiano branch appears to be passing on more stamina with Kentucky Derby winners **Unbridled**, **Grindstone**, and **Real Quiet**; Preakness winner **Red Bullet**; and Belmont winner **Victory Gallop**.

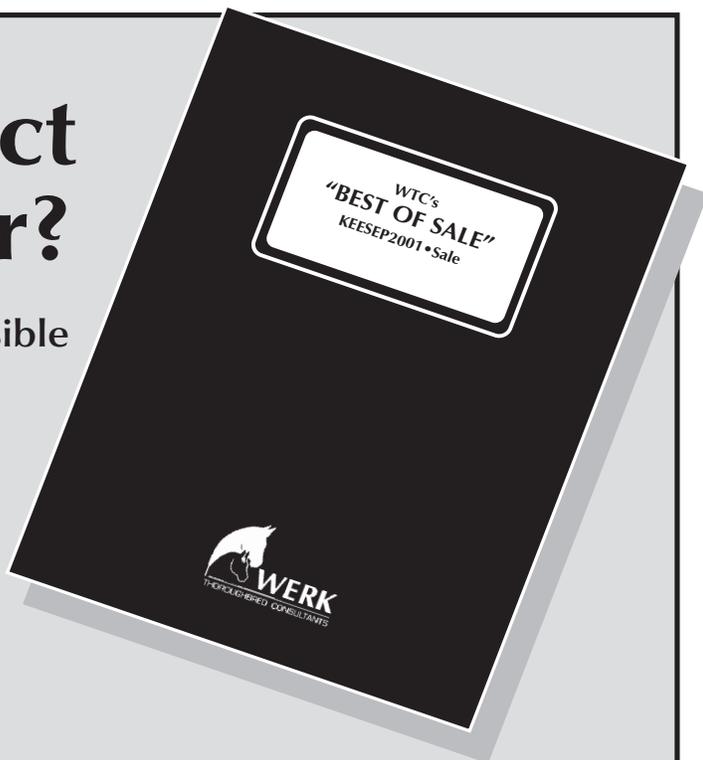
Fappiano, a Met Mile winner at four, is the sire of 48 SWs and 13 G1 winners. **Fappiano's** sons and daughters won 100 unrestricted stakes races, 10 of them at 10 furlongs and one at 11 furlongs. His three best sons at stud—**Unbridled**, **Cryptoclearance**, and **Quiet American**—have also become stamina influences.

Unbridled has sired 21 SWs from six crops to race. His 17 unrestricted SWs have won 41 stakes races at ages three and up, and 18 of those races were at nine furlongs or longer, including five at 10 furlongs. The average distance of the 41 stakes wins is 8.6 furlongs. Amazingly, one third (7/21) of **Unbridled's** SWs have won G1 races. They include two classic winners and one champion.

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How do you select a future superstar?

- ✓ Assemble the best advisory team possible
- ✓ Evaluate CONFORMATION
- ✓ Evaluate PEDIGREE



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HIP 477 KEESEF99

INTENT MY RECIPE ROUGHN TUMBLE
ILTS MAHMOUD
3 BLACKBALL
ROYAL NOTE
BEADAH
NORTHERN DANCER
CARO
KLAINIA
ROYAL CHARGER
3 BLUE EYED MOMO
CORRELATION
CEQUILLO

IN REALITY (B/C) MY DEAR GIRL
RELAUNCH (Q) THE AXE II (Q)
FOGGY NOTE SILVER SONG
HONOUR AND GLORY LYPHARD (C)
AL NASR CARETTA
FAIR TO ALL FRANCIS S.
GONFALON GRAND SPLENDOR

HIP 477 Elly

NATIVE DANCER (I/C)
RAISE A NATIVE (B) RAISE YOU
MAJESTIC PRINCE ROYAL CHARGER (B)
GAY HOSTESS 2 YOUR HOSTESS
LOVIN TOUCH 1 NASRULLAH (B)
FLEET NASRULLAH (B/I) HAPPY GO FLEET
FOREST PRINCESS 2 MY HOST
QUEEN HOSTESS DONUT QUEEN

POLYNESIAN
GEBHA
CASE ACE
LADY GLORY
NEARCO
SUN PRINCESS
1 ALIBHAI
BOUDOIR II
NEARCO
MUMTAZ BEGUM
COUNT FLEET
DRAEH
ALIBHAI
BOUDOIR II
ARCTIC PRINCE
WILHEMINE

Siblings: Identifiers: odd numbers - same dam only; even numbers - same sire and dam

Roman Dosage Profile (11-2-5-0-0)
Dosage Points: 18 D.I.: 6.20 C.D.: 1.33
Werk Quality Rating: Q7 Total Points: 32
Quality Points: 14

BEST OF SALE RATING: ★ 1/2 (+293%)
WERK NICK RATING: A (based on the RELAUNCH - MAJESTIC PRINCE cross)
INBREEDING RATIO: 14%
ROYAL CHARGER - 5m x 4f
NEARCO - x 5m, 5m
ALIBHAI - x 5f, 5m
BOUDOIR II - x 5f, 5m

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WTC's BEST OF SALE
recommendations
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The Sire of Sires Factor

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STAKES WINNERS SIRE BY SONS OF MR. PROSPECTOR			
SIRE	CROPS	SWS	G1
CARSON CITY	7	42	4
CONQUISTADOR CIELO	15	60	4
CRAFTY PROSPECTOR	14	76	2
FAPPIANO	9	48	13
FORTY NINER	9	43	6
GONE WEST	10	56	7
GULCH	9	38	5
KINGMAMBO	4	21	5
MACHIAVELLIAN	7	30	5
MISWAKI	16	82	8
SEEKING THE GOLD	8	41	10
SILVER GHOST	11	33	3

Quiet American is the sire of 19 SWs from six crops to race including three G1 winners. His 14 unrestricted SWs have won 21 stakes races at three and up at an average distance of 8.9 furlongs. Ten of the 22 stakes wins are at 9 furlongs or longer including six at 10 furlongs and one at 11 furlongs. Quiet American has a dual classic winner in Real Quiet and a pair of G1-winning fillies in Cara Rafaela and Hidden Lake.

Cryptoclearance is the sire of 27 SWs from eight crops to race, including four G1 winners. His 19 unrestricted SWs

have won 25 races at ages three and up with an average stakes-winning distance of 8.5 furlongs. Not surprisingly, 18 of the 25 races were at distances of 8.5 furlongs or farther, including nine wins at 9 furlongs and a Belmont Stakes win at 12 furlongs.

Not all of Fappiano's sons impart stamina to their offspring. Pentelicus and Rubiano are speedier influences. **Pentelicus's** stakes winners win their stakes at an average distance of 6.0 furlongs, while **Rubiano's** SWs win stakes at an average distance of 7.5 furlongs. Fappiano is one of the most active branches of the Mr. Prospector line today and, for the most part, passes on more stamina than is typical of the Mr. Prospector line.

NORTHERN DANCER LINE

Northern Dancer may be the most versatile sire of sires of the modern-day thoroughbred. His sons, grandsons, great grandsons and now great-great grandsons sire top-quality runners on dirt and turf, going short and long, and in just about every racing environment world-wide. Northern Dancer's best son at stud is Sadler's Wells. In North America, his best sons have been Danzig, Lyphard, Nijinsky II, Nureyev, Storm Bird, and Vice Regent.

It would be easy to make a case for **Danzig** as the best-ever son of Northern Dancer at stud in North America. His numbers are nothing short of sensational. Through 2000, he has sired 17 crops to race—850 foals, 583 runners (73%), 467 winners (59%), 200 juvenile winners (23%), and 156 SWs (18%). Over a quarter of his SWs, 41 to be exact, are G1 winners. Just six of his 156 SWs through 2000 are re-

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WERK THOROUGHBRED CONSULTANTS'
STALLION COMPATIBILITY ANALYSIS

Stallion Compatibility Analysis

Designed to assist stallion managers in the selection of mares that are best suited to their stallion. This leather-bound analysis provides the prospective Werk Nick Rating for over 13,000 broodmare sires and is indexed for quick reference. The SCA also includes: a catalog-style pedigree of the stallion, female-family table, four generation pedigrees of all the unrestricted stakes winners from the stallion's immediate sire line and Jack Werk's concise remarks about the stallion's strengths.

(Annual updates available: only \$495.) **PRICE: \$995**

Stallion Prospect Evaluation

A research report written by Roger Lyons with the purpose of identifying 1) genealogical factors which, when found in the ancestries of the subject stallion's mares, are likely to be favorable to foals by the stallion and 2) genealogical factors that are likely to be unfavorable. The report is based on hard statistical evidence, including information drawn from Lyons' populational surveys of the ancestries of mares bred to stallions of similar ancestry to that of the subject stallion **PRICE: \$500**



The Sire of Sires Factor

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stricted SWs. And there are 31 individual stallions, descending from Danzig, who have sired SWs in 2001, and that doesn't include Australia!

Danzig's best son to date is the Coolmore stallion, **Danehill**, who has quickly filled the shoes of the immortal Sir Tristram in Australia. That's not to say that he hasn't done well in the Northern Hemisphere. As of July 31, 2001 he is tied with Sadler's Wells as the leading sire of Northern Hemisphere SWs with 16.

Meanwhile, in the US, Danzig's best son at the moment is probably **Belong to Me**. While standing in New York for \$5,000, this young stallion produced 14 SWs from four crops to race, including three G1 winners, all while standing for \$5,000. Now at Lane's End Farm in Versailles, his first Kentucky-bred crop races this year. It will be interesting to see how he does with better mares.

Lane's End also stands another son of Danzig, classic winner **Pine Bluff**. From four crops to race, he has sired 13 SWs including G1 winner I Ain't Bluffing. Nine of his 13 SWs have won stakes on turf.

Polish Numbers is probably Danzig's second-best standing in the US. This Maryland-based stallion is the sire of 24 SWs from six crops to race, including G1 winner Tenski. Like Pine Bluff, Polish Numbers' progeny have a fondness for grass, 15 of his 25 SWs winning on the turf.

Two other young North American-based sons of Danzig to keep an eye on are **Boundary** with six SWs from three crops to race and **Honor Grades** with 16 SWs from six crops to race.

Danzig has also had a few disappointments at stud. Early on **Dayjur** was bred to some of the best mares in Kentucky and has yet to achieve the level of success his connections and many insiders expected. With seven crops to race through 2000, Dayjur has sired just 17 SWs. One of those is Irish 2YO Champion Asfurah. Dayjur went to stud commanding a \$50,000 stud fee. He now stands for \$10,000. Like most sons of Danzig, the Dayjur's runners like turf, 13 of his 17 SWs having won stakes on grass.

Deceased **Chief's Crown** never lived up to the very high bar and the \$125,000 stud fee set for him when he retired to stud in 1986. By 1997, his stud fee had plummeted to \$15,000. Even so, with 45 SWs from 12 crops to race and seven G1 winners, his stats are pretty good. Now his son Grand Lodge, champion 2YO Colt in England in 1994, is bidding for recognition as a top sire in his own right with five G1 winners from his first 12 SWs, including dual Derby winner and Arc winner Sinndar. While Chief's Crown excelled on dirt, two-thirds of Chief's Crown's unrestricted SWs (24 of 36) won stakes on turf.

Perhaps Danzig's biggest failure as a sire of sires was his Belmont Stakes winner **Danzig Connection**. With 11 crops to race through 2000, he has sired an anemic 18 SWs, fewer than two per crop. He retired to stud a year after Chief's Crown and commanded a \$40,000 stud fee. By 1997, he was standing for \$5,000, and in 1998 he was moved to Colin Stud in England where he stands today for 4,500 pounds. It is somewhat surprising that he now stands in England when you consider that he is the least prolific turf sire among sons of Danzig, fewer than half of his SWs winning stakes on the turf.

Before being sold to Japan, Danzig's **Polish Navy** sired just 12 SWs from nine crops to race. Granted, he did sire Kentucky Derby winner Sea Hero, but one big horse does not make a stallion. Nine of his 12 SWs won stakes on turf.

The progeny of Danzig and his sons definitely show a liking for turf. Even Danzig's three biggest winners on dirt—Chief's Crown, Pine Bluff, and Danzig Connection—all have passed on the Danzig line's preference for turf. Danzig also proves that even the best *sires of sires* will have his share of failures.

Nijinsky II was surely one of the best stallions in the latter half of the 20th Century. He sired 143 SWs and his sons and grandsons have sired in excess of 1,000 SWs. They include Caerleon, Baldski, Green Dancer, Niniski, Royal Academy, and Sky Classic. Like Danzig, Nijinsky II has had some high-profile disappointments as well—Ferdinand, Shadeed and his son Alydeed, and Classic winner Sportin' Life, (and his son Bet Twice)—come to mind. Nijinsky II, in our opinion, has been a moderately successful sire of sires, but his tail-male line appears in trouble with his grandsons.

Although Nijinsky and Danzig are quite different aptitudinally and physically, they are very much the same in their progeny's preference for turf. **Caerleon**, by far his best son at stud, stood in Europe for most of his stud career before moving to Japan just before he died. Of his 108 listed SWs, 106 of them won on turf. **Green Dancer**, who stood his entire career in Kentucky, has 61 unrestricted SWs, and 51 of them won on turf. Even Florida-based **Baldski**, who wasn't really considered a turf sire, ended up with over half (19/33) of his unrestricted SWs winning on turf. Pin Oak Stud's **Sky Classic** is off to an impressive start with 17 unrestricted SWs from his first six crops to race. Thirteen of them have won on turf.

Nureyev is probably the most intriguing son of Northern Dancer from a statistical standpoint. From 19 crops to race, Nureyev has sired a phenomenal 125 SWs (25 G1 winners), 117 of them unrestricted SWs and 109 of those winning stakes on turf. Like Danzig and Nijinsky, one would expect to see his sons excel at stud. And yet, his only son who has proven to be a major success at stud is Theatrical. Meanwhile, the list of his sons who have disappointed at stud include seven champions—Zilzal, Stately Don, Soviet Star, Polar Falcon, Wolfhound, Alwuhush, and Robin Des Pins. But, as Yogi said, "it ain't over till it's over" and it's not over yet! Two of his best sons—champions Peintre Celebre and Spinning World—give Nureyev two more shots to continue his sire line in tail-male. Spinning World's first crop has been well received in the sales ring and they are 2YO's of this year. Peintre Celebre's first Southern Hemisphere runners will appear this year, his first European crop runs next year, and his first Japanese crop runs in 2004.

If Nureyev's position as a sire of sires is in question, comparing him to Danzig makes it even more questionable. To date, Danzig's sons and grandsons have sired 665 unrestricted SWs compared to 183 by Nureyev's descendents. Danzig has two more crops racing than Nureyev, but the difference in SW production is a whopping 482 SWs in favor of Danzig.

What branch is most likely to lead North American contingent of the Northern Dancer tail-male line during the

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first half of the 21st century? In two words, **Storm Bird!** While Storm Bird has sired a modest 61 SWs from 17 crops, his son **Storm Cat** is sensational. With 11 crops now racing, Storm Cat has sired at least 92 SWs, including 21 G1 winners. He commands the highest stud fee in the world and early indications suggest he is a sire of sires.

With just two crops to race, Storm Cat's son **Hennessy** has six SWs including one of Europe's best 2YO's in Johannesburg. Off to a slow start last year with just one SW, **Forest Wildcat** now has five SWs for his initial crop, including G1 Acorn Stakes winner Forest Secrets. **Tabasco Cat** was an early disappointment when his first two crops yielded just two SWs after two racing seasons. His move to Japan appears to have been fortuitous for Japanese breeders, as Tabasco Cat has six SWs so far in 2001. In Europe, Storm Cat's **Catrail** sired six SWs from his first three crops before moving to Kentucky. Storm Cat is not without a failure or two. Enter **Mountain Cat!** Even Overbrook Farm, with its reputation for making sires, couldn't make Mountain Cat. After a discouraging seven SWs from four crops to race, he now stands in Turkey.

With the likes of Giant's Causeway, Forestry, High Yield, Exploit, Cat Thief, and Tactical Cat, as well as cur-

rent European sensation Black Minnaloushe and countless sons in the future to carry on the Storm Cat legacy, his position as the next major sire of sires appears to be solid.

Before we move on, we should mention that Storm Bird has another pretty good son in **Summer Squall**, who's had 21 SWs and two champions from his first six crops, including Kentucky Derby winner Charismatic, himself now a well-received sire. Even Storm Bird's Ireland-based son **Bluebird** has sired 54 unrestricted SWs, including 13 G1 winners.

Vice Regent (1967-1995) sired 105 SWs including five G1 winners. His two most successful sons at stud are **Deputy Minister** with 69 SWs, including 16 G1 winners, and **Regal Classic** with 34 SWs. And two of Deputy Minister's sons are doing well. **Salt Lake** has 23 SWs, two of them G1, and **Silver Deputy** has 39 SWs. But the best of Deputy Minister brood may be yet to come. **French Deputy** has eight SWs from his first two crops and is now standing in Japan. **Dehere** already has 20 SWs from three crops to race and now shuttles between Japan and Australia. Florida-based **Open Forum** is off to a fast start as North America's third-leading freshman sire this year by progeny earnings and already has two SWs. Waiting in the wings are Touch Gold, Awesome Again and Deputy

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WERK THOROUGHBRED CONSULTANTS'

BROODMARE ANALYSIS



Broodmare Compatibility Analysis

An attractively bound collection of research reports assembled from the WTC's database identifying distinctive pedigree and performance information associated with the pedigree of the mare. Once you select the stud fee range and geographical location, we provide hypothetical matings of the mare with a number of stallions selected for quality and compatibility with the mare. Additionally, WTC compiles a listing of all the unrestricted stakes winners produced by the mare's sire line along with a four-generation pedigree of every stallion in the geographical location with your mare. We provide analysis and commentary from the WTC pedigree staff, headed by Jack Werk, resulting in ten stallion recommendations ranked in order of preference. We offer follow up phone consultation at no additional cost. **PRICE: \$495**

Annual BCA Update

Clients who order a Broodmare Compatibility Analysis (BCA) are eligible for the Annual Broodmare Update for the life of the mare. It includes 1) a reassessment of the mare, 2) a revision of the previous year's recommendations in the light of changes in the mare's status (performance of runners, family, etc.), and changes in the stallion population (retirements, stallion deaths, emerging nicks), and 3) a written explanation of the changes.

PRICE: \$195 annually

(Important: Must be ordered in each consecutive breeding season following the purchase of a BCA)

Compatibility Report

This functional report provides the ten recommended stallions in alphabetical order. It also includes a hypothetical dosage report with each stallion in your geographic location. The report may be upgraded to the expanded analysis above if requested in the same breeding season and for the same mare. **PRICE: \$295**

Sire-Line Nicks

Lists all sire lines that yield 'A' and 'B' nicks with the sireline of the mare. This report is useful to breeders who are well acquainted with the available stallions and wish to incorporate the Werk Nick Rating™ into their own methods of stallion selection. **PRICE: \$195**

Pick Four

This report is designed for breeders who need guidance in making a final selection from a group of stallions selected by the client for an individual mare. Prospective pedigrees with Werk Nick Rating™ are ranked in order of preference and delivered by fax and/or mail. Also includes 15 minutes of consultation with WTC pedigree staff. **PRICE: \$125**

(for up to 4 stallions per mare; additional stallions \$25 each)



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Commander, whose progeny have all been well received in the sales ring.

Lyphard (1969-pensioned 1996) is yet another of Northern Dancer's sons who excelled at stud. He sired 115 SWs, including 21 G1 winners. He has had several successful sons at stud, the best being Alzao, Bellypha, and Dancing Brave. But only one branch of the Lyphard tail-male line is strong today, that of **Bellypha**. A G3 winner in France, Bellypha retired to stud there, then moved to Walmac International in Kentucky for the 1987 season. He then finished out his stud career in Japan and sired 27 lifetime SWs. One of those SWs was **Mendez**, a top-class miler in France who stood one season before joining the Lyphard-rich gene pool in Japan. But one of his sons from that lone French crop was G1 winner **Linamix**. Unexpectedly, Linamix has become one of France's leading sires. From his first seven crops, Linamix has sired 29 SWs, including seven G1 winners, his latest being 2001 French 2000 Guineas winner Vahorimix. Considering Lyphard's success as a sire, it is indeed surprising that his tail-male line is hanging on for dear life through just one branch and one horse: Lyphard-Bellypha-Mendez-Linamix! Lyphard was not without opportunity. Many of his top-class sons reached the breeding shed, including G1 winners Manila (now in Turkey), Rainbows For Life, Al Nasr, Monteverdi, Esprit Du Nord, Pharly, Dahar, Ends Well, Lyphard's Wish, Goldmark, Au Point, and Lydian. Six of the 12 were champions and all of them disappointments at stud.

Being a son of Northern Dancer is certainly no guarantee of becoming a sire of sires. **The Minstrel** (1974-1990), Horse of the Year in England and Ireland as a 3YO, sired 58 SWs from 511 foals (11%). His best son at stud is **Palace Music**, considered by most a failure while standing in the US before going to Australia where he has enjoyed moderate success with 25 lifetime SWs, including five G1 winners. Palace Music left America and appeared to be a sure bet to continue the line—Cigar. But the line hit a brick wall when Cigar was declared completely infertile after one season at stud.

Sovereign Dancer (1975-1994) was not much of a racehorse, but a decent sire. He produced 56 SWs from 579 foals (10%). They included **Gate Dancer** and **Leo Castelli**. They are both sires themselves with 25 and 20 SWs, respectively. But neither of them has a son with a shot to carry on the line. Sovereign Dancer's European champion **Priolo** went to stud there and has sired a disappointing 11 SWs from six crops to race. Sovereign Dancer's last shot lies with classic winner **Louis Quatorze**, a freshman sire this year.

Other successful North American-based stallions by Northern Dancer include Topsider, El Gran Senor, Northern Jove, and Dixieland Band. Neither Topsider nor Northern Jove have likely candidates to further their tail-male lines. El Gran Senor has two long-shots in America—Lit de Justice and Helmsman—and Rodrigo de Triano in Japan. Dixieland Band has a little better chance, with Dixieland Heat, Chimes Band, Dixie Brass, and Citidancer representing his branch along with promising first-year sire Dixie Union.

Even though we are primarily concentrating on the

prominent sire lines in America, we cannot move on without mentioning Northern Dancer's **Sadler's Wells**, arguably the best sire in the world. With 13 crops to race, Sadler's Wells has no fewer than 174 SWs, making him the all-time leader in that category. An average foal crop of 78 has been a big help, but let's not forget that he's sired 16% SWs lifetime, placing him among an elite group of sires. As a foal of 1981, Sadler's Wells is in his infancy as a sire of sires. And yet 11 of his sons have sired unrestricted SWs this year. In the US, his sons include El Prado, Desert Secret, Imperial Ballet, and Northern Spur. Horse Chestnut, a son of top South African sire Fort Wood (by Sadler's Wells), covered his first book of mares in Kentucky this year.

It is interesting to note that Sadler's Wells' full brother, non-winner **Fairy King** (1982-1999), has sired 67 SWs to date, including 13 G1 winners. Fairy King's son **Turtle Island** now has 13 SWs from his first three crops to race.

Northern Dancer's success as a sire and as an enduring sire line can best be described by simply recognizing that he was the most important sire and sire of sires during the second half of the twentieth century.

BLUSHING GROOM LINE

Blushing Groom (1974-1992) has quietly and consistently produced sons that could sire on. A champion at two in France and champion 3YO in France and England at three, he retired to stud at Gainesway Farm in Lexington. It was a shrewd move by Gainesway as Blushing Groom was a miler, and milers often make the best sires. He was also an outcross for the North American broodmare population. Even so, the majority of his best runners starred in Europe, including champions Nashwan, Rainbow Quest, Crystal Glitters, Baillamont, Al Bahathri, and Groom Dancer. In North America, he sired champions Arazi, Blushing John, and Runaway Groom. In all, Blushing Groom sired 92 SWs from 13 crops to race with a lifetime record of 18% SWs and 22 G1 winners.

Three of Blushing Groom's sons, **Rahy** (46 SWs/six G1 winners), **Mt. Livermore** (51 SWs/six G1 winners), and **Runaway Groom** (50 SWs/four G1 winners) have proven to be top-notch sires in the US. In Europe, **Rainbow Quest** has 73 SWs from 12 crops to race including 17 G1 winners and 12% SWs lifetime. Several of Rainbow Quest's sons are making their mark at stud. **Saumarez** has 11 SWs and **Spectrum** has three SWs from his initial crop including Golan, this year's English 2000 Guineas winner. **Quest for Fame** has 20 SWs including four G1 winners. His best European-based son at stud is **Nashwan** with 24 SWs from eight crops to race, including five G1 winners. Nashwan's champion son Swain stands in America.

Conventional thinking would place Seattle Slew ahead of Blushing Groom in a discussion of *sires of sires*. But the Blushing Groom sireline is responsible for 43 individual unrestricted SWs this year while the Seattle Slew line has produced 25. Blushing Groom and Seattle Slew are both foals of 1974.

DAMASCUS LINE

Damascus is another sireline hanging on by a thread. He is the sire of successful stallions Private Account, Timeless Moment, and Time for a Change, but he is also

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The Sire of Sires Factor

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the sire of statistically-disappointing Bailjumper, Crusader Sword, Desert Wine, Eastern Echo, Highland Blade, and Ogygian.

Private Account sired 60 SWs, including 16 G1 winners. He is Damascus's most successful son at stud. However, Private Account has yet to make his mark as a sire of sires. It is true that Personal Flag has been a successful New York stallion and Private Terms sired millionaires Afternoon Deelites and Soul of the Matter while standing in Maryland. However, **Private Terms** has only 19 SWs from nine crops to race. His son **Afternoon Deelites** got off to a surprising start at stud last year finishing as North America's fifth-ranked first-crop sire with 16 winners (three SWs) and progeny earnings of \$707,275. To date, Private Account's sons Valley Crossing and Unaccounted For are off to so-so starts at stud while Corporate Report, Brunswick, and Party Manners have not offered any encouragement.

Timeless Moment (1970-1998) sired 35 SWs with four G1 winners, including last year's 16th-ranked leading sire Gilded Time. Another of his sons, Timeless Native, had a modest career with 17 SWs but it is **Gilded Time** who has the best chance of keeping the Damascus sire line alive. With 14 SWs from his first three crops and half of them graded SWs, Gilded Time is off to a strong start.

Time For a Change (1981-1996) was the 3YO who handed the 2YO champion Devil's Bag his first defeat in the Flamingo Stakes. He died after just 10 crops but not before he sired 41 SWs, a pair of G1 winners, and 10% SWs from foals. One of those G1 winners was **Technology**, but he has sired just three SWs from four crops to race. The other is **Fly So Free**, who is currently the world's leading sire by progeny earnings for 2001, primarily because of the efforts of Captain Steve, winner of this year's Dubai World Cup. But even Fly So Free is light on SW production—just six SWs from five crops to race. But when he hits, he hits big. He is also the sire of Canadian champion Free Vacation.

RIBOT LINE

After an undefeated racing career, **Ribot** stood three years in Italy and one year in England before going to Darby Dan Farm. He became a major breed-shaping stallion.

Ribot sired four major sons—Art and Letters, Graustark, His Majesty, and Tom Rolfe. Arts and Letters was a better runner than sire, but did account for Preakness winner Codex who sired Lost Code. Graustark, a brilliant racehorse, had a successful career at stud but left only Key to the Mint to carry on his branch. Key to the Mint, in turn, left Sauce Boat and Java Gold, who now stands in Germany. It literally looks like the “end of the line” for Graustark. Tom Rolfe left Hoist the Flag, who sired Alleged, who sired Law Society. Law Society's best son is **Homme De Loi**, sire of three SWs. Tom Rolfe is at the end of the same road as Graustark and Arts and Letters. **His Majesty** was the least accomplished of Ribot's big four on the racetrack. Ironically, he has the only chance of surviving as a sire line. His son **Pleasant Colony** has sired 68

SWs, 12 of them G1 winners, and has 13% lifetime SWs.

But whether or not Pleasant Colony is going to sire on is questionable. His first major son was champion **Pleasant Tap**. He would have to be considered a moderately successful stallion with 17 SWs from five crops to race, two of them G1 winners. But Pleasant Colony's next big stallion prospect, Irish champion 2YO and 3YO **St. Jovite**, retired to stud in Kentucky for \$25,000 and then went to \$50,000 off the performance of his initial 2YO crop. Five years later, St. Jovite still stands in Kentucky, but now for \$5,000, primarily because he has sired just seven SWs from six crops to race. **Lac Ouimet**, St. Jovite's less accomplished full brother, has actually out-shown him in the breeding shed with 22 SWs from seven crops to race.

Another son of Pleasant Colony, **Colonial Affair**, was sold to Japanese interests after a slow start. In fact, he was the sire of just two SWs from his first three crops. Pleasant Colony's best racing son to date has been Behrens, who covered his first crop this year. We will have to wait and see with him. There is no doubt that the once-mighty Ribot sire line is on very shaky ground in tail-male. His daughters, however, will live on in pedigrees for decades to come.

TURN-TO LINE

Of the 79 individual stakes winners this year descending from Turn-to line stallions, 60 descend from the Hail to Reason branch, **Halo** and **Roberto** being the two stallions best equipped to carry on. Halo's son **Saint Ballado** has been sensational in the sales ring since he moved to Kentucky. He is the current rags-to-riches story in the stallion world. From \$2,500 stud fee in Florida he now commands \$125,000. From his first five crops, all of them produced in Florida, Saint Ballado has sired an amazing 26 SWs, including three G1 winners. His first Kentucky-bred crop runs this year.

Saint Ballado's full brother, champion **Devil's Bag**, hasn't fared quite so well, siring 37 SWs from 13 crops to race with four G1 winners. Halo's other prominent sons include **Sunny's Halo** with 31 SWs from 14 crops to race, and **Southern Halo**, South America's leading sire during most of the 1990s with 81 SWs from 10 crops to race. He now stands at Ashford Stud and is the sire of G1 winner More Than Ready from his first US crop.

In Japan, Halo's son **Sunday Silence** has already established himself as the most successful stallion in the history of the Japanese breed. In 2000, he was the sire of 18 graded SWs and has 10 so far in 2001.

From 15 crops, **Roberto** (1969-1988) sired 85 SWs (10 G1 winners) and is credited with a phenomenal 17% lifetime SWs. Today, his sons are very active in America—**Silver Hawk** (58 SWs/12 G1), **Lear Fan** (50 SWs/seven G1), **Kris S.** (58 SWs/10 G1), **Dynaformer** (32 SWs/three G1), and **Red Ransom** (35 SWs/two G1). In Japan, Roberto's son **Brian's Time** is second only to Sunday Silence. Roberto's biggest failure as a sire of sires was **Sunshine Forever**, who, not surprisingly, now stands in Japan. Before he left, he sired 10 SWs from eight US crops.

Another branch of Hail to Reason that is still reasonably active is Stop the Music through Cure the Blues. **Cure the Blues** has 78 SWs (five G1) from 16 crops to race, and

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The Sire of Sires Factor

(continued from page 8)

his sons American Chance and Take Me Out are off to moderate starts at stud.

The two other major branches of Turn-to are Sir Gaylord and Best Turn. The **Sir Gaylord** (1959-1981) branch is represented by Sir Ivor, Lord Gaylord, Habitat, and Drone. The three primary stallions in America today representing the Sir Gaylord branch are old-timers Lord Avie and Bates Motel plus second-year sire Richter Scale. It will take a miracle for the Sir Gaylord branch to survive in the Northern Hemisphere.

The Best Turn branch is responsible for **Cox's Ridge**, sire of 53 SWs (12 G1) from 18 crops. Cox's Ridge has left us some pretty good stallion prospects including Little Missouri, Lost Mountain, Out of Place, Pine Circle, Scuffleburg, Sultry Song, Trapp Mountain, and Vanlandingham. Cox's Ridge's flag bearer from this group turns out to be **Out Of Place**. With 11 SWs from five crops to race and no G1 winners, he's a long-shot. But he did this while standing in Florida for \$3,500. He now stands at Claiborne Farm for \$12,500 and has the opportunity to show his mettle.

Because of the saturation of Northern Dancer and Mr. Prospector blood in America, more and more breeders are faced with the prospect of breeding Northern Dancer-line mares who are out of Mr. Prospector-line mares with Mr. Prospector-line stallions who are out of Northern Dancer-line mares, and vice versa. Will so much inbreeding produce sound and superior runners? Time will tell. But even if it does, how many breeders will be interested in sending mares to stallion inbred to both Mr. Prospector AND Northern Dancer? Consequently, outcross sires will emerge by design and by chance. If we had to pick the line most likely to fill this role, our money would be on Turn-to through the Hail to Reason branch.

BOLD RULER LINE

The Bold Ruler sire line, once America's most dominant, survives today through an unlikely branch—Boldnesian! In the seventies, the Bold Ruler line sired two Triple Crown winners—Secretariat and Seattle Slew—and one “near miss”—Spectacular Bid, three of the best racehorses of the 20th century. Early on, all three of them were bred to the best mares the thoroughbred breed had to offer.

Secretariat (1970-1989) sired a respectable 55 SWs (nine G1) from 16 crops to race, but never got the respect he deserved at stud because of unreasonable expectations heaped on him by the public. As a *sire of sires*, Secretariat simply did not make the grade. Dual classic winner and champion 3YO **Risen Star** (1985-1998) sired just 15 SWs from nine crops to race with no sons to carry on. Multiple G1 winner **General Assembly**, who started out at stud in Ireland and now stands in Germany, sired 31 SWs from 18 crops but has no sons to carry on the Secretariat line. Academy Award, D'Accord, Dactylographer, Executive Order, Medaille D'Or, and Pancho Villa have done little to enhance their sire's image. So, who is the best Secretariat-line stallion around today? It may be Tour D'Or! Standing at Irish Acres Farm in Florida, **Tour D'Or** has sired 18 SWs from eight crops to race, including G2 UAE Derby

winner Express Tour, and he did this while standing for \$2,500.

All is far from lost for Secretariat. His immortality in pedigrees is assured through his daughters. Secretariat has become one of the breed's preeminent broodmare sires. Not only that, he has also become the breed's premier broodmare sire of sires with representatives like Storm Cat, A.P. Indy, Gone West, and Summer Squall.

Spectacular Bid was an absolutely great racehorse, winning 26 of 30 lifetime starts, including 23 stakes races. A champion at two, three, and four, he was the epitome of true grit. And he is an example of a horse who outran his pedigree. Bold Bidder enjoyed a moderately successful stud career with 50+ SWs from 15 crops to race, with Kentucky Derby winner Cannonade being his other big stallion prospect. Spectacular Bid's dam, the Promised Land mare Spectacular, descended from a family with only two minor California SWs to its credit under her first two dams. He retired to stud at Claiborne Farm but couldn't keep up with the high-class Claiborne stallion roster. Today he stands in New York for \$3,500. He has sired 44 SWs from 18 crops to race but just one G1 winner, Spectacular Love. For all his brilliance on the racetrack, “The Bid” did not equal that success as a stallion. It is interesting to note that he's actually done quite well in Australia. Three of his sons—Bite the Bullet, Spectacular Love, and Spectacular Spy—have sired 29 of the 32 unrestricted SWs to his credit as a *sire of sires*. To a lesser degree than Secretariat, he is making his mark as a broodmare sire.

This leaves us with **Seattle Slew**, and he is the one that gives the Bold Ruler line its only real chance of living on in tail-male. With his 19th crop racing this year, the venerable old-timer has 97 SWs to his credit with an amazing 24 G1 winners. His sons and grandsons already have sired 377 unrestricted SWs and counting. His record as a *sire of sires* has been hit and miss. His best son as a racehorse and as a sire is champion **A.P. Indy**. With five crops to race, he has sired 29 SWs, including eight G1 winners! A.P. Indy already has several high-profile sons recently retired to stud including Pulpit, Old Trieste, and Stephen Got Even.

What is A.P. Indy's secret to success? Well, he's by a sire of sires, descends from a great female family, is well conformed, and passes on his athletic ability and competitive spirit. He is also a complete outcross to much of the broodmare population. Not only is his pedigree void of Mr. Prospector and Northern Dancer, he has no Native Dancer, no Nearctic, and no strains of Blushing Groom, Damascus, Ribot, or In Reality. A.P. Indy is the ultimate home-bred outcross.

Slew City Slew has put up some good stats with 22 SWs from eight crops. **Capote** has 38 SWs (six G1) from 10 crops. After an incredible start at stud—four G1 winners in his first crop—**Slew 'o Gold** cooled of considerably. Now, after 14 crops to race, his lifetime SWs total 25 and his G1 winners total seven. Seattle Slew has some disappointments at stud, including **Houston**, with 11 SWs from seven crops and no graded SWs. **Williamstown** has seven SWs from four crops to race.

IN REALITY LINE

The final branch of the eight most dominant sire lines

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The Sire of Sires Factor

(continued from page 10)

in America today is In Reality. He is primarily active today through three branches—Known Fact, Valid Appeal, and Relaunch—the latter being the most likely to endure. Though never known as a sire of turf runners, one of In Reality's most successful sons on the track and in the breeding shed was **Known Fact**, champion 3YO colt in England in 1980. He stood in Europe during the early part of his career and finished up in Kentucky. He sired 46 SWs from 16 crops to race, including four G1 winners. One of those was his champion son Warning, who went on to become an even more successful sire before he died prematurely at age 15. After standing in Europe for the majority of his stud career, he finished out his career in Japan. He now has 42 SWs (four G1) from his first eight crops to race, but no likely sons to carry on this branch.

Another thriving branch of In Reality is **Valid Appeal**. The recently pensioned stallion was one of the best Florida stallions that didn't move to Kentucky. He is the sire of 87 overall SWs to date, and his sons and grandsons have added 48 more unrestricted SWs to that total. He is represented by top Freshman sire **Valid Expectations**, who has sired 13 individual juvenile winners through the first week of August, including a pair of SWs. Additionally, Valid Appeal is the sire of top 2000 juvenile sire Valid Wager, Kipper Kelly, Mister Jolie, Sezyou, and World Appeal among others.

In Reality was an important sire and sire line in America for three decades. Today the line's survival in tail-male rests with Relaunch (1976-1996). During his stud career, **Relaunch** sired a remarkable 87 SWs from 16 crops to race, with six G1 winners and 12% lifetime SWs. Four of his

G1 winners are colts. **Waquoit** has ranked among Maryland's leading sires throughout his stud career, with 22 SWs from nine crops to race and a G1 winner to his credit. Breeders' Cup Classic winner Skywalker retired to stud in California but moved to Kentucky after a fast start at stud which included champion Bertrando from his second crop. **Skywalker** now has 34 SWs from 12 crops to race. His son **Bertrando**, who stands in California, is turning out to be an even better sire than his dad. He has 18 SWs from his first four crops to race. Last year, he ranked as California's number two stallion by progeny earnings.

The stallion who beat Bertrando for leading sire honors in California last year is Cee's Tizzy, another son of Relaunch! **Cee's Tizzy** has not had the success that Bertrando has—just six SWs from seven crops to race—but two of those are 2000 Horse of the Year Tiznow and multiple G1 winner Gourmet Girl.

And now there is a new Relaunch on the block, 2000's leading sire of juveniles as well as leading freshman sire Honour and Glory, another son of Relaunch. With only his second crop running this year, **Honour and Glory** now has six SWs from his first crop, including a G3 winner, a G2 winner, and Breeders' Cup Juvenile filly winner and champion 2YO filly Carressing.

Bertrando has a pedigree free of Northern Dancer and Mr. Prospector, Raise a Native, Turn-to, Ribot, Damascus, and Blushing Groom. Honour and Glory has a pedigree free of Mr. Prospector and Raise a Native, Turn-to, Ribot, Damascus, Blushing Groom, and Bold Ruler. These two stallions are well suited to the North American broodmare population and should enjoy very successful careers at stud, and possibly produce a son or two that will take the In Reality sireline to the next generation. 🐾

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The Study of Failure

Top sires respond poorly to popular inbreeding patterns

by Roger Lyons

Population study is notorious for pouring cold water on commonplace notions. My first studies of popular patterns of inbreeding, much to my dismay, served only to put them on ice, beginning with the various gender-based patterns. Not one of them warmed to the fervor with which I pursued the easy solutions, and virtually every pattern I have studied has been met with this same chilly reception. My research program has long since turned away from such patterns, focusing rather on specific methods involving precisely defined genealogical affinities. However, this is a minority view. Some well-publicized studies have yielded results that disagree entirely with the conclusions to which I have been driven.

Clive Harper's study of sex-balanced inbreeding, as reported in his *The Thoroughbred Breeders' Handbook* (Highflyer International, 1997), concludes that inbreeding patterns involving certain arrangements of male and female ancestors are highly favorable. In another study presented in *Inbreeding to Superior Females* (The Australian Bloodhorse Review, 1999) Rommy Faversham and Leon Rasmussen (F&R) offer evidence that inbreeding to females has been favorable far beyond its opportunity. Yet none of my many studies of these gender-based patterns have shown any cross-sectional effect whatever.

Too different samples

Both of these studies employ the same research design I have employed, which is to compare the frequency of occurrence of a breeding pattern in a population of superior runners with the frequency of occurrence in a control group. If the pattern occurs significantly more frequently in the population of superior runners, then it is inferred—and rightly so—that the pattern is favorable. This design is perfectly suited to population studies of thoroughbred genealogy.

There is only one significant respect, other than their conclusions, in which both of these studies differ from mine. That has to do with the selection of a control group.

Harper selected his control group from "maiden fields listed in the New Zealand Turf Digest." He correctly established criteria which identified these runners as poor performers. That is essential to the study for, after all, performance is the variable that is up for grabs. However, his choice of everyday racehorses has consequences that ripple across the otherwise smooth surface of his presentation.

The problem first breaks the surface when Harper compares the two groups as to the average number of inbreeding occurrences within five generations. He finds that the individuals in the stakes group were, on average, inbred to significantly more ancestors than the individuals in the control group. The problem is that this implicitly establishes the expectation that the stakes group would have significantly more inbreeding of any specific kind, including not only those patterns for which Harper reports results, but also patterns for which he does not.

Harper does not see the problem. Instead, he concludes that "good horses have more inbreeding than poorer horses" and then reports significantly higher frequencies of the pre-

ferred patterns in the high-performing group. With so relatively little inbreeding in the low-performing group, however, any other result would have been highly unlikely. This alone undermines the validity of those comparisons, but could Harper at least be correct in his conclusion that "good horses have more inbreeding than poorer horses"?

The haves and have-nots

F&R select as their control group starters at two consecutive Del Mar and Oak Tree meets in 1996. They find that only 4.0 percent of these starters had inbreeding to females (what they call RF breeding, short for Rasmussen Factor) within five generations while 6.0 percent of graded stakes winners during the 1990s had it. They conclude from these two fortuitously round numbers that RF breeding occurs 50 percent more frequently among these graded stakes winners than is the norm for the population. This result has the meaning F&R attribute to it, however, only if those graded stakes winners do not have significantly more inbreeding of all kinds.

F&R do not report any difference in the levels of inbreeding in the two groups as Harper did, and this might have to do with the limitations of their technical resources. After all, their samples were much larger than Harper's. The ability to conduct computerized surveys in a fully automated way is crucial to comprehensive genealogical research.

My surveys reveal that inbreeding is distributed unevenly across the population. What determines this distribution is suggested by Table I, which shows RF frequencies in various yearling sales in the combined years 1998 and 1999, ranked in order of RF frequency. The Keeneland July, OBS August, and Keeneland September yearling sales all have RF frequencies in excess of 7.0 percent, and the breeding stock from which these yearlings were produced are far more typical of the breeding of graded stakes winners than starters, as a group, at the Del Mar and Oak Tree meets. In fact, it happens that the sale with the lowest RF frequency, of only 4.5 percent, is held in California.

The varying levels of RF frequency reflect the fact that better breeding stock tend to have more inbreeding of all

Table II: RF frequencies in Keeneland September yearlings, 1987-99

Keeneland September Sale	RF yearlings
1987	5.2%
1989	5.9%
1991	6.0%
1993	6.1%
1995	6.3%
1997	6.9%
1999	7.2%

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The Study of Failure

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kinds in the fifth generation and beyond than worse breeding stock. One reason for this is that better breeding stock are less distant from the ancestors that have contributed most favorably to the breed, but there is a more fundamental reason. Ancestries that are swirled into the shallows of the breed have less in common with one another than ancestries that are swept along in the mainstream.

Both Harper and F&R err in assuming that inbreeding is uniformly distributed across the thoroughbred population. Stakes winners, by and large, come from a much more restricted population of breeding stock than those different groups of starters used as control groups for these studies.

My own studies demonstrate clearly, as Harper's study does, that the more restricted population contains higher frequencies of inbreeding of all kinds at the fifth remove and beyond than the broader population. This does not mean, incidentally, that the higher level of inbreeding, per se, is the cause of better performance. The point that both Harper and F&R miss is that low-performing samples and high-performing samples taken from the same level of the population have not only the same overall frequency of inbreeding, but also the same frequency of any gender-based pattern than can be imagined. On a populational scale, therefore, patterned inbreeding is not a variable to performance, but, rather, a function of the relationship between the level of inbreeding of all kinds and the quality of breeding stock.

This is why comparing graded stakes winners with a population that is substantially constituted of a poorer breeding population cannot possibly be a fair test. My solution to this has always been to select a control group from a Keeneland September sale and to include in it horses that subsequently started in at least two years, but earned less than \$50,000. This kind of sampling makes it possible to compare a high-performing group and a low-performing group which are homogenous with one another in regard to overall frequency of inbreeding. Otherwise, any observed differences as to a given pattern of inbreeding would merely reflect the difference in frequency of inbreeding of all kinds.

Considering the trend

Based on F&R's survey, RF frequency for graded stakes winners appeared to them to have "been dropping since the early 1980s," which F&R attribute to "an antagonism for inbreeding" on the part of commercial breeders. The suggestion is that the more influential the commercial market became, the less use was made of inbreeding of all kinds and, consequently, of RF breeding.

However, RF frequencies in the Keeneland September sales of 1987-99, as shown in Table II, tell a different story. RF frequency was actually increasing incrementally during and just prior to the 1990s, from 5.2 percent in 1987 to 7.2 percent in 1999. It appears that, far from resisting RF breeding, commercial breeders were using it as a selling point long before F&R's study was published.

It would be surprising, therefore, if RF frequency in the population of superior runners had not increased during that time. Indeed, there does seem to be the trace of such an increase, as shown in Table III, which lists RF frequencies in non-graded (unrestricted) and graded stakes winners by

Table I: RF frequencies in yearling sales of 1998 and 1999 combined

<i>Sale</i>	<i>RF yearlings</i>
Keeneland July	7.8%
OBS August	7.3%
Keeneland September	7.2%
FTK July	6.5%
Texas August	6.5%
Louisiana August	5.8%
Washington August	5.0%
CTS August	4.5%

birth year from 1986-95, but the small increase hardly keeps pace with the growth of its use in the commercial market.

Table III seems to confirm F&R's claim that RF frequency varies with racing class since the RF frequency among graded stakes winners during the period slightly exceeds the frequency among non-graded stakes winners. But this is easily attributable to the greater potential for duplications afforded by the best breeding stock, to which graded stakes winners are largely accountable. Again, it merely reflects that group's greater frequency of inbreeding of all kinds at the fifth remove and beyond.

An indication of this, evident in Table III, is the fairly strong inverse relationship between RF frequency and the number of non-graded stakes winners from year to year, as suggested by the correlation coefficient of $-.53$. That is, in the years when the number of non-graded stakes winners was large, the RF frequency among them was relatively low—this during a period when RF frequency was actually increasing in the population! The most plausible explanation for this is that the production of these larger numbers of non-graded stakes winners dipped more deeply into a sector of the breeding population that had less potential for inbreeding of all kinds.

Begging the question

Convinced by their flawed study that the RF has virtually limitless value, F&R's case is largely argued from that conclusion, in relation to which every example of successful application is taken to constitute further proof. Anecdotal evidence, no matter how extensive, cannot establish a populational claim since any given case is no more likely to represent the rule than to be an exception.

F&R prove that the RF can play an important role in the success of an individual stallion by citing the case of Chief's Crown. Out of a Secretariat mare, that stallion responded in an extraordinarily favorable way to mares returning Secretariat's half-brother Sir Gaylord. Had their interpretation of the effects of inbreeding to Somethingroyal included other important stallions out of Secretariat mares, however, it would have shown that Chief's Crown was the exception, not the rule.

Considering only the mares that have produced four-year-olds and older as of 2001 and that returned Somethingroyal through Sir Gaylord, the number of these mares that produced superior runners (winner of an unre-

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The Study of Failure

(continued from page 13)

stricted stakes or at least second in a grade or group one or two) for A.P. Indy, Summer Squall, Gone West, and Storm Cat is far from encouraging. Keep in mind, too, that the figures below indicate production from mares, not foals, since some of these mares produced more than one foal by the stallion.

With mares returning Sir Gaylord, A.P. Indy has achieved results that do not differ significantly from his overall record (15.3% of his mates produce superior runners), only three of his 19 mates having produced a superior runner, and the same is true of Summer Squall, only two of his 17 mates having done so. Gone West's record with returns of Somethingroyal through Sir Gaylord is considerably worse, relative to his overall record, four of his 33 mates having produced superior runners. Inbreeding to Somethingroyal has been extremely detrimental to foals of Storm Cat, only four mates having produced superior runners from the 38 returning Sir Gaylord to him, and these 38 mares produced 45 foals.

Returns of Secretariat to stallions with Sir Gaylord in their ancestries have had even worse results. Bates Motel, Cozzene, Lord Avie, El Prado, A.P. Indy, and Summer Squall, all together, have had foals out of 44 mares returning Secretariat, and only two of these mares produced a superior runner.

What the case of Chief's Crown shows is that inbreeding to Somethingroyal may have enormous value under certain conditions. After all, A.P. Indy and Summer Squall are included in both of these groups of sires because their dam, Weekend Surprise, has both the Secretariat and Sir Gaylord strains. Still, one must conclude that the cases for which this has been so highly favorable occupy a very small area of the normal distribution of outcomes. That Storm Cat became one of the best stallions in the world without benefit of the RF—indeed, he seems to have done so in spite of it—is difficult to square with the scope that F&R accord their claims for this breeding pattern.

Their tendency to exaggerate the benefits of the RF even threatens to eviscerate their own definition of it—"inbreeding to superior female families through different individuals." They reason that, "when female family inbreeding occurs, it is principally to superior families" since it would be unlikely, they argue, for both a sire and a dam to be descended from a non-superior female. In other words, they define superiority in terms of virtually any opportunity to inbreed to a female. This circular argument spins the concept of superiority out of their definition altogether, nullifying the delimiting effect it could otherwise have on the range of useful applications.

The standard of superiority ought to have been established empirically on the basis of population study of specific methods of application. Had they ventured into this territory, however, they would have discovered that inbreeding to some indisputably superior females, not to mention the questionable ones that offer plenty of opportunity, has had systematically unfavorable results.

When less is more

It often happens that the first successful instances of an inbreeding method involve average to poor stallions. It

seems intuitively reasonable to infer that, if the method works so well for these stallions, then it should work even better when involving better stallions. However, intuition is often confounded by observation.

The case of inbreeding to Somethingroyal serves to illustrate what I have found to apply in a highly general way to the many cases I have investigated: that a given inbreeding method can be expected to have detrimental effects on the foals of more top stallions than for which it has favorable effects. This is true of even the most popular methods, including the combination of full brothers Graustark and His Majesty.

This should alert us to a concern about the current fashion of such intense inbreeding in the foals of the best stallions. As we have seen, their foals tend to be more inbred at the fifth remove and beyond than runners, as a group, that populate a given backstretch. Foals of the top stallions might for this reason more frequently have unfavorable reactions to the more intense inbreeding methods than foals of average stallions. This would explain why some inbreeding methods would more readily be found among the successful offspring of average-to-inferior stallions than among those of top stallions.

Individual prepotence is ordinarily understood as an independent variable, one that is opposed to, or that balances or complements, the genealogical relations between mates. Unfavorable relations can be overcome, it is assumed, by individual genetic power. Accordingly, it seems paradoxical to observe that only a poorer stallion can benefit from a poor method of breeding, but this seems to be the case. There is not a single graded or group stakes winner inbred to Spy Song, for example, within four generations, and the only unrestricted stakes winners so inbred were all sired by stallions that were average at best. Above-average stallions that have been eligible—Royal Academy, Green Dancer, Mt. Livermore, Liloy, and Lord Gaylord—have all failed to do so.

Population research can uncover the special conditions of favorable use of a method of inbreeding. 🐾

Table III: RF frequencies in unrestricted, non-graded and graded US stakes winners, 1986-95, by birth year.

	<i>Non-graded</i>			<i>Graded</i>		
	<i>RF</i>	<i>N</i>	<i>Pct</i>	<i>RF</i>	<i>N</i>	<i>Pct</i>
1986	22	375	5.9%	10	224	4.5%
1987	22	420	5.2%	13	254	5.1%
1988	18	467	3.9%	20	245	8.2%
1989	22	507	4.3%	12	231	5.2%
1990	28	494	5.7%	13	253	5.1%
1991	22	464	4.7%	11	256	4.3%
1992	27	471	5.7%	15	238	6.3%
1993	24	477	5.0%	17	247	6.9%
1994	24	456	5.3%	14	238	5.9%
1995	29	419	6.9%	13	185	7.0%
Total	238	4550	5.2%	138	2371	5.8%

WTC Announces New Program for Breeders

by Matt O'Neil

As an organization achieves a high level of success in certain areas, it naturally looks for new worlds to conquer. The past 13 years of providing products and services oriented toward the needs of breeders and building a network of industry professionals has put Werk Thoroughbred Consultants in just such a position. WTC has grown from Jack Werk's imaginative spark in 1987 to the industry leader in pedigree consultation services. We are now proud to announce the newest chapter in the WTC story: WTC's Breeding Advisory and Administrative Services program.

WTC has for many years provided consultation in all areas related to the new program. The time has now come for us to offer these services in a comprehensive framework that matches the broodmare management needs of each client. Clients who need the more comprehensive approach will find it much more convenient, efficient, and, above all, cost-effective to pay one fee based on an annual assessment of all of the client's needs, taken together.

Of course, each breeding program is unique, but here's a glimpse of what we will be able to offer to our clients of our new program.

The first order of business will be to undertake a comprehensive evaluation of the given broodmare band. With the goals of the client in mind, we will offer a frank assessment of the mares and advise the client as to changes that would better serve the client's goals.

Over the years, Jack Werk has helped many clients find just the right mares for their individual needs. Hundreds of mares cross Jack's desk annually, and clients of the new program will have priority when a mare is found that fits a specific program and offers good value.

Recommending matings for each of the client's mares is an important part of the new package. We also work closely with farm managers, via phone and personal visits, to incorporate the necessary conformational considerations into the stallion selection process.

Once the client has approved the matings, we then assist in securing stallion seasons. We can often give the client an edge in gaining access to high-demand stallions because stallion managers will know

that the mating has our seal of approval. Clients will be kept informed on the status of each mare with a weekly report throughout the breeding season.

Once the foals are born, we keep close tabs on the progress of each foal, keeping in mind the goals of the client. We work with the client to decide which weanlings or yearlings are best suited for a client's racing program and which ones should be sold. For foals that are destined for auction, we advise the client as to the best time to sell—whether as a weanling, yearling, or two-year-old—and what sale would most likely bring the best price.

As all horse owners know, considerable paperwork goes into the process of nominating horses for various racing programs and entering them for public sale. We handle these administrative tasks, as well as keeping the client's equine insurance policies updated to reflect the current values of all stock. There are obvious advantages in having all of these matters handled under one roof.

WTC's Breeding Advisory and Administrative Services program enables the client to retain the entire WTC team, a team with an impeccable reputation for putting the best interests of the client first. By combining our mating and bloodstock advice with administrative assistance in implementing it, WTC does its part to make the trip to the winner's circle as smooth as it can be. 🐾