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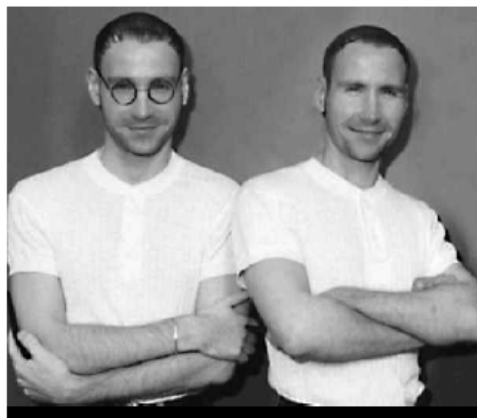
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Twins Alexander and Andrew Fingelkurts (whom I profile below) were associated with the State Scientific Centre of the Russian Federation — Institute of Medical and Biological Problems, in Moscow, from 1990 to 1993. They were part of a group investigating brain processes of Russian cosmonauts. The project used twins to study (1) individual differences in adaptive responses to factors of simulated microgravity conditions and (2) heritability of brain dynamics and personal characteristics during intense experimental operators' activity and during sleep deprivation under simulated flight conditions.

## Professional and Personal Portraits of Russian Twins: Drs. Andrew A. and Alexander A. Fingelkurts

I have never met Drs. Andrew A. and Alexander (Alex) A. Fingelkurts, but I know them well. These thirty-two-year-old, Russian-born MZ twins are psychophysicists at the Laboratory of Computational Engineering and Centre for Computational Science and Engineering, at Helsinki University of Technology, in Finland. In the spring, 2001 they had contacted my colleague, Dr. Richard Lippa, for information about his twin studies on gender identity and development. Knowing I would be visiting Russia that summer, Lippa put us in touch and we have corresponded about twins and twin research ever since. We just missed meeting in Moscow because my day of arrival was their day of departure.

Alex and Andrew were born on November 23, 1969 in the city of Krasnodor, the capital of the Krasnodor territory near the Black Sea. Alex was



**Figure 3**

Drs. Alexander A. (left) and Andrew A. Fingelkurts.

first born and the larger of the two, but both twins had very respectable birth weights (3,900 grams and 3,600 grams, respectively). Currently, they are separated by only 5 kilograms (11 pounds) and 4 centimeters (1.50 inches), with Alex maintaining the physical edge. Responses to Nichols & Bilbro's (1966)

physical resemblance form were consistent with MZ twinning at the highest certainty level.

Alex and Andrew's common second name (Alexandrovich) is their father's first name, a Russian custom for naming sons and daughters. They explained that Dr. Ravich-Shcherbo's middle initial (V.) stands for Vladimirovna, so her father's first name was Vladimir. They have no other brothers or sisters.

The twins' father is an engineer by training, but now works in public administration for the Krasnodor city region. Their mother graduated from high school before becoming a hairdresser. Her talent was apparently transmitted to her twins whose hair style creations have been exhibited in fashion shows. They crafted a style called "New Romanticism" for an event honoring the 19th century Russian poet, Alexander S. Pushkin.

Their artistic flair is also expressed in paintings, original in both style and method; more will be said about that momentarily.

Alex and Andrew are individually impressive and collectively dazzling. Each is an accomplished academic with numerous publications, presentations, memberships, honors and awards. Each is a professional painter with a style common to just two. Each recalls interests in human intellectual functioning and drawing emerging as early as age seven. As MZ co-twins, they exemplify conclusions from twin studies of intelligence and achievement showing genetic effects on trait-relevant measures (McGue, Bouchard, Iacono, & Lykken, 1993; Chambers, Hewitt & Fulker, 2000). Their current academic passion (the failure of MZ male twins to realise their potential giftedness), is approached with the same extraordinary zeal. Adding to their interest in human behavior (and our interest in them) is that Alex is left-handed and Andrew is right-handed, although laboratory studies suggest a reverse pattern! Thus, these twins are magnificent sources of information and ideas concerning human cognition, personality, sociability and productivity.

The twins' talents are captured in a single resume accessible from their shared web site (<http://www.lce.hut.fi/~fintw1>). It is a fascinating read, not just for the scientific accomplishments, but for the oneness of effort and credit that fill each page. Both twins names appear at the top, yet the bundling of two careers in a single package is not immediately obvious. The document's duality is understated, evident only by the use of plural nouns when single forms are expected: "Objective: Ph.D. researchers;" "1987–1989: Privates, USSR Infantry," and first name labels (placed in parentheses) when such details seem extraneous: "Nov. 1998: Successfully defended Ph.D. dissertations: 'Time-spatial organization of human EEG segment's structure' (Andrew), 'Some regularities of human EEG spectral pattern dynamics during cognitive activity' (Alexander)." Two e-mail addresses are also listed, with user names differing by one digit (1 vs. 2, corresponding to order of birth). It is a stunning economy of effort if one considers that the twins' individual

resumes would be virtually identical to the shared one. I found this so fascinating that I pursued the matter with the twins themselves. Their response was a rare glimpse into the subtle psychological aspects of twinship that are often missed. (Note: All written comments were signed "Andrew & Alex" or, more simply, "A & A"):

It is a very practical decision — since we have the same records, achievements and dates it is rational to make one CV. Another reason [for doing so] is that when we do not stress that we are identical twins then, very often, people perceive our documents [to be] documents of the same person.

This counterintuitive comeback is well reasoned. Logical singleton minds might suppose that a pair's common vita suggests two individuals presenting as one. Alex and Andrew maintain the opposite, namely that separate papers paint an impression of one person with vitas to spare. The single document with two names preserves the twins, as well as the twinship.

The Fingelkurts's publication and presentation list is an especially interesting feature of their resume. It boasts 15 publications, 7 manuscripts (in press, under review or in preparation), and 21 conference abstracts. All entries bore both twins' names with four exceptions: the two Ph.D. dissertations and two student presentations. All papers, but two, and all abstracts, but three, were co-authored with other investigators, no doubt reflecting the twins' collaborative work situation. Still, I wondered if the twin' authorship would show balanced ordering. Counting revealed that Alex preceded Andrew on 8 papers and 11 abstracts, while Andrew preceded Alex on 12 papers and 8 abstracts. The final tally was 19 (Alex) and 20 (Andrew)! I was reminded of Von Bracken's (1934) marvelous experiments showing greater equality in output by MZ than DZ co-twins when working in close proximity. Again, the twins' sharp insight resolved the question of whether authorships were decided by earning credit, "taking turns" or tossing coins:

This is very simple. Although we are working in the same branch of neuroscience, each of us has his own specialty. On everything associated with spectral descriptions — Alex is first; on everything associated with functional relations of different cortical

areas — Andrew is first. In other articles, whoever generates the idea is first author. We *never* have problems with that.

Studying these words, it seems that what appeared as a deliberate decision (i.e., maintaining publication/presentation equality) was not that at all. It is more likely that equality flowed naturally from according greater credit to the rightful owner, a role each twin fills about half the time. Thus, the twin's matched abilities and motivations form the core of their similar productivity.

Why did Alex and Andrew choose to work in Finland? The economic situation for Russian scientists has been poor for some time. With the 1991 dissolution of the Soviet Union, many scientists sought employment abroad (Stone, 1991). Some improvements have occurred, owing to efforts by the International Science Foundation and other organisations supporting research opportunities. However, serious obstacles remain in the form of antiquated equipment and limited funding initiatives. Alex and Andrew faced the additional hurdle of finding an academic residence for two. The Helsinki University of Technology proved an acceptable compromise for several reasons. Its close physical proximity to Russia allowed the twins to maintain research relations with colleagues at the Moscow Brain Research Group, headed by Prof. Alexander Kaplan. It also offered positions to both twins, a situation seemingly difficult to come by.

Are joint academic appointments more easily found by MZ twins than by spouses? Alex and Andrew are the third set of MZ twins I know who secured positions in the same department and academic institution. David and Dean Kopsell, MZ twins from Hebron, Illinois, who participated in my dissertation research when they were nine, have a similar story to tell. Upon receiving doctoral degrees in horticulture from the University of Georgia, they became assistant professors in the University of New Hampshire's Department of Plant Biology (*University of New Hampshire Magazine*, 2000). Like their Russian counterparts, each twin pursued his own research specialty: David integrated research findings into educational programs and Dean investigated how plants use nutrients more



efficiently. (David recently left New Hampshire to teach at a small college in rural Illinois.) Twins in a third set are from my campus, California State University, Fullerton. Professors. Hallie Yapp Slowik and Ruth Yapp Edwards are faculty members in the Elementary Education Department.

I am unaware of data comparing twin-twin vs. spouse-spouse professional placements, but the former may prove a better investment. First, MZ twins' matched abilities and personalities probably make them better qualified, on average, for similar positions. (MZ twin correlations exceed assortative mating coefficients for most behavioral traits (Plomin, DeFries, McClearn, & McGuffin, 2001). Departments and laboratories might, thus, expect greater productivity from twins. Second, MZ twins' extraordinary closeness and cooperation reduce their chances of separation or "divorce," relative to marital partners, in the wake of within-pair dissent. Finally, MZ twins' intrinsic interest might make them more appealing to departments, owing to attention from the community and, conceivably, funding agencies and grant reviewers. MZ twins are often singled out at amateur and elite sporting events. Physical appearance matters more in athletics where it is part of the performance, than in academics where it is not. However, MZ twin college presidents, Harold Shapiro (Princeton University; he retired in June, 2001) and Bernard Shapiro (McGill University) and academics, Claude Steele (Psychology Department, Stanford University) and Shelby Steele (Race Relations, Hoover Institute) possibly gained some notoriety as twins, over and beyond what they could have accrued as non-twins (see Watters, 1995; Segal, 2000).

Twinship may also assist the Fingelkurts's careers:

We cannot say that we feel we are very special — this is more the feeling of others when they see us or communicate with us. But, of course, twinship is very influential on people. We always feel that people try to listen to us and follow our advice. We are always the leaders.

The foregoing ideas surrounding twins' achievements and occupational attainments await empirical testing. However, if the Fingelkurts's thesis is

correct (i.e., talented MZ male twins are relatively rare), then twins' vs. spouses' joint scholarship will be hard to compare.

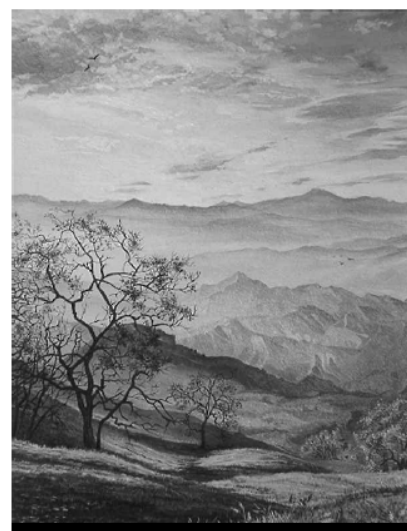
Perhaps MZ twins' close emotional connection, more than their matched talents, is what draws others to them. Studying Alex and Andrew's social relations is another great journey on the "twinship enterprise." They express the highest levels of ease and satisfaction in each other's company. The bond between some spouses, best friends and non-twin siblings may approach, or even match, this level of relatedness; however, I suspect it would be confined to specific contexts. In contrast, the attachment between MZ twins like Alex and Andrew seems to typify most areas of their shared experience:

We feel very comfortable being twins. We live in peace and never have conflicts. We have common interests and preferences, and we buy the same clothes. We have the same friends. But we can have different opinions on scientific questions — so sometimes we have arguments on scientific problems. Although we like to be twins, we are aware of many problems of twins' lives and attitudes of others toward twins (most of all it concerns personal life). But because we are conscious of it, we haven't any psychological complexes here.

The twins' relations seem able to weather even the fiercest of intellectual storms. I wondered if the spirit of their artistic lives paralleled that of their scientific ones. A different rendering of the same picture emerged, unimaginable to many, but inspiring to all:

We always draw the same work together — this always fascinates our friends, but for us this is very natural and ordinary. However, this does not mean that we divide the painting into two parts. Each of us uses the whole space, and later it is difficult to say who drew what! Actually, we tried to draw with someone else, but realized this was impossible because another person always has different feelings and perceptions which are not coincident with ours.

The twins' artistic accolades are dispensed in a varied version of their scientific ones: "We have a very good system for signing our names on the paintings: Fingelkurts A & A." This approach to artistic creations reminded me of former MZ female twin students



**Figure 4**

Original painting by A. & A. Fingelkurts.

who recorded class notes in each other's notebooks during lecture. It is certain that neither recalled the scribbler's identity when studying for examinations, but it probably did not matter.

Running through A & A's comments are allusions to mechanisms underlying their collaborative compatibility: matched feelings, attitudes, responses and perceptions — a kind of coordination without consciousness. It is a situation that many desire, but which few truly achieve. Could this be the best part of being twins? I asked them to comment:

This question is difficult and the answer will depend on the side to which one looks. If we think about the main influence on our personality, then we can say that constantly being together creates in us a huge tolerance of people's natures. This means that we never react negatively or aggressively to anyone's deviations and peculiarities. And, as a result of that, we have an enormous number of friends. Many of our friends think it is very cool to be twins because you are never alone.

Without interrupting their train of thought, Alex and Andrew next described a curious consequence of spending uninterrupted time with someone, namely loneliness:

But in reality, it [twins never feeling alone] is not true, at least for us. When we are only two — we feel lonely because we need someone with whom to communicate. When we are only two we never communicate between each other because we haven't the topic

for conversation (all reactions and attitudes are known in advance!). So we always need someone else for communication. But we are aware that our experience of 'lonely' is quite different and distant from that of singletons.

This is not an isolated observation, but one that seems central to MZ twins' social experience. In fact, it replayed a conversation I had overheard several months earlier. MZ twin teenagers pleaded with their reluctant parent to accompany them on a walk. "Please come with us, we don't want to be alone!" Of course, they would not have been strictly by themselves, but like Alex and Andrew, sought stimulation from outside the pair.

I suspect that comfort in each other's company is what distinguishes twins' loneliness from that of others. In their thirty-two years, Alex and Andrew have never been separated for longer than a day at a time. "It feels OK when you know exactly what is going on. However, if one is absent more than it was agreed then the other one feels physically very bad."

Interviews with Alex and Andrew occurred as a steady stream of e-mailed questions and answers. It was an exhilarating experience, like having clearance to listen in on a classified conversation. Many twins may claim tacit understanding of what was said,

but attaching words to feelings is the hard part. Alex and Andrew are masters at this task.

Here is their personal tribute to Dr. Inna V. Ravich-Shcherbo whom they know well:

These words are in appreciation of Inna V. Ravich-Shcherbo's career: Inna Ravich-Shcherbo, Ph.D. is well known in Russia for her many pioneering contributions to psychogenetics (behavioral genetics in the West). Tragic events of the 1930s interrupted the existence of psychogenetics in Russia. Its re-emergence in the late 1960s – early 1970s coincided with the 1972 establishment of a laboratory for investigating the hereditary basis of individual psychological and psychophysiological characteristics. This laboratory is now the Laboratory of Developmental Psychogenetics at the Psychological Institute of the Russian Academy of Education. Its director since 1972 has been Inna V. Ravich-Shcherbo, a position she held until the end of 1993.

Today Inna V. Ravich-Shcherbo is senior researcher at the Psychological Institute of the Russian Academy of Education. Since 1982 she has given lectures on psychogenetics to the Psychological Faculty at the Moscow State University (MSU). In 1982, MSU was the only Soviet University to offer such a course in psychogenetics. Later, as a consequence of Dr. Ravich-



**Figure 5**

Drs. Alexander A. Fingelkurts (left), Inna V. Ravich-Shcherbo and Andrew A. Fingelkurts.

Shcherbo's intense activities, the psychogenetics course was approved by the State Educational Committee of the Russian Federation. It is now mandatory for all psychology students.

Dr. Ravich-Shcherbo is the author of 110 articles and editor of the first Russian language monograph on psychogenetics entitled, *The Role of Heredity and Environment in the Organization of Human Individuality* (1988), Moskva: Pedagogika. She is editor and co-author of the first Russian textbooks on this subject, *Psychogenetics* (1999). She was also the organiser of the Twins Registry in Russia and the Twins Club in Moscow. Now, at age seventy-four, Dr. Inna V. Ravich-Shcherbo is still very active. Communication with her (as always) is a real celebration of intelligence, truthfulness and optimism. ■