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Idiots Savants, Retarded Savants, Talented Aments, Mono-Savants, Autistic Savants, Just Plain Savants, People with Savant Syndrome, and Autistic People Who Are Good at Things: A View from Disability Studies

Joseph Straus
Distinguished Professor, Graduate Center, City
University of New York
E-mail: jstraus@gc.cuny.edu

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Abstract

People identified as idiot savants have long comprised an identifiable group (a high level of skill in the context of perceived mental deficiency) whose story has mostly been told by psychiatrists and psychologists within a medicalized model of disability that assumes deficiency and seeks remediation and normalization. More recently, people identified as savants have become common figures of literary and cinematic representation. Both of these narrative frames have enfreaked them as alien Others, whose gifts and disabilities place them outside the normal run of human intelligence and creativity. With a focus on music, this article tries to see through these narrative scrimms to give a realistic account of the intellectual, musical, and creative lives of ten musicians identified as savants. Their distinctively autistic intelligence and autistic creativity are shown to enable their style of music making, and their musicianship bespeaks and makes visible/audible their autism. Specifically, they do at a high level and in a culturally valorized arena (music), what most autistic people do throughout their lives, namely pursue certain kinds of special interests in an intense and focused way.

INTRODUCTION

Idiots Savants *Within The Medical Model Of Disability*

A small group of people with a particular profile of strengths and weaknesses has been the subject of intense fascination and study over a long period of

time. [1](#) These people are generally considered "mentally deficient" in some way, and the apparent deficiency has usually been identified (depending on the historical period) as idiocy, feeble-mindedness, or mental retardation. At the same time, they demonstrate skill in some area involving notable powers of memorization, usually calendar calculation, arithmetic calculation, drawing, or music. Historically, they have been identified by medical professionals and others as *idiots savants*, *retarded savants*, *talented aments*, *monosavants*, *autistic savants*, just plain *savants*, and people with *savant syndrome*. What follows is a reconsideration from a disability-studies point of view of people thus categorized whose principal skill is musical. [2](#)

Until quite recently, published descriptions of these musical "savants" generally emerged from a *medical model of disability*, which sees naturally occurring variations in human ability as pathologies to be diagnosed and, if possible, remediated. Siebers 2008 offers this concise definition: "The medical model defines disability as an individual defect lodged in the person, a defect that must be cured or eliminated if the person is to achieve full capacity as a human being" (3). The slightly longer formulation in Linton 1998 emphasizes the role of the medical establishment in enforcing a medicalized understanding of deviations from normative standards of ability: "Briefly, the medicalization of disability casts human variation as deviance from the norm, as pathological condition, as deficit, and, significantly, as an individual burden and personal tragedy. Society, in agreeing to assign medical meaning to disability, colludes to keep the issue within the purview of the medical establishment, to keep it a personal matter and 'treat' the condition and the person with the condition rather than 'treating' the social processes and policies that constrict disabled people's lives" (11). [3](#)

A medicalized understanding of cognitive difference in the modern era has its historical roots in the second half of the nineteenth century, when people understood as mentally deficient were increasingly concentrated in asylums where they could be studied and classified. The modern field of psychiatry emerged in this period to manage the asylums and study their residents. [4](#) Idiocy was widely understood as a central diagnostic category for this population, but its cause and its extent were the subject of unending dispute. [5](#)

From an unreliable, shifting, heterogeneous stew of categories and concepts around idiocy, the term "idiot savant" emerges first in the writing of Edouard Séguin. [6](#) Séguin was a physician, an educator, and an early and influential theorist of idiocy, both in his native France and in the United States, to which he emigrated in 1848. His use of the term in 1870 is the first of which I am aware:

Among the wealthier classes, idiocy is not only oftener aggravated by accessory diseases, but also complicated with abnormal semi-capacities or disordered instincts, which produce heterogeneous types to an almost unlimited extent. It is from this class, almost exclusively, that we have musical, mathematical, architectural, and other varieties of the *idiot savant*; the useless protrusion of a single faculty, accompanied by a woeful general impotence. [7](#)

The use of the term became increasingly common during the remaining years of the nineteenth century (Grabham 1875, Down 1887), and by the first half of the twentieth century, the *idiot savant* had become a routinely accepted figure and a distinctive category within the larger world of idiocy and feeble-mindedness (Tredgold 1914). ⁸ In the period after World War II, we find an explosion of interest in *idiots savants* in the professional, medical literature of psychology and psychiatry. ⁹ Since the mid-1940s, we have entered a period not simply of clinical observation but of active experimentation: people identified as *idiots savants* are probed as medical subjects, to figure out how they do what they do. And these psychological studies often take on a distinctively quantitative aspect, with heavy reliance on standardized intelligence tests, those hallmarks and crowning achievements of modern psychology. Studies of *idiots savants* by medical professionals using apparently scientific language and methods continue to the present day. Indeed, the term "savant syndrome," coined by Darold Treffert, the principal psychological researcher on the topic, and now with wide currency, captures a thoroughly medicalized conception of individuals formerly known as *idiots savants*. ¹⁰ And, in the professional, medical literature, the deficiency and abnormality of the subjects under study are assumed throughout.

From Idiots Savants To Autistic Savants

The professional psychological and psychiatric literature on *idiots savants* (or savant syndrome) has been slow to make a connection to autism. ¹¹ Similarly, the professional literature on autism has largely ignored *idiots savants*. ¹² But in the popular imagination and in the literature and film of the period since 1990, the two terms are increasingly conflated: savants are assumed to be autistic; autistic people are generally represented as savants. As Murry 2008 argues,

If autism is the neurological condition of fascination of the moment, then savantism is undoubtedly the element of autism that appears *most* fascinating. Indeed, when seen through the contemporary lens of popular representation, autism and savantism appear to have become almost synonymous, to the point where it could be asked whether it is possible to be a savant *without* also having autism, or equally whether it might be supposed that all those who are autistic possess savant abilities" (65).

In earlier literary culture, the figure of the idiot is widely represented (Halliwell 2004), and among those figures, it is often possible to detect what Murray refers to as an "autistic presence." But it is only with the explosion of autism diagnoses in the early 1990s that one begins to find frequent representations in literature and film of the savant, now usually configured as an autistic savant. Beginning especially with the film *Rain Man* (1988), the autistic savant is often portrayed as a kind of living computer, a human database, with a mysterious, incomprehensible, and seemingly superhuman gift of memory and calculation (Murray 2008). If the medical model of experimental psychology looks down at savants as research subjects whose abilities are a symptom of a disabling "syndrome," recent literary and cinematic culture either looks up at the disabled figure in awe of difference, in what Garland-Thomson calls

wondrous mode, or across a wide expanse toward an alien object, in what she calls exotic mode (Garland-Thomson 2001, 2002). From any of these angles of perception, savants are thoroughly *enfreaked*, set apart from normal people by their seemingly bizarre, extreme, prodigious abilities (as well as their apparent cognitive deficiencies) (Hevey 2010, Garland-Thomson 1996). The enfreakment of savants has enshrined them as a species of *super-crip*, people whose unusual ability in one narrow area has enabled them to transcend their general disability. Savants have thus come to be seen as inspirational figures, whose apparent transcendence of disability makes the relative incapacity of their non-savant peers appear even starker by comparison, even as it is understood to offer compensation to the savants themselves for the depth of their deficiencies: "Savantism is seen to come at a price. The degree of awe savant talents produce is matched by the idea that these skills act to compensate for the disability with which they are associated" (Murray 2008, 66).

Autistic Intelligence And Autistic Creativity

My goal in what follows is to attempt to see through the scrim of both the medical and cultural narratives of the autistic savant by proceeding in Garland-Thomson's *realistic mode*, which suggests that the onlooker align with the object of scrutiny. People who have been labeled as savants are not otherworldly super-crips or bizarre freaks; rather they are people who, like the rest of us, are good at some things and not so good at others. More specifically, they are autistic people with the sorts of distinctive intelligence and creativity, as well as a predilection for special interests, pursued in an intense, focused way, that have come to be understood as central to the emerging culture of autism.

The most recent non-medical literature on autism identifies an autistic cognitive style that values local coherence and concrete details (at the expense of global, abstract meanings) and prefers orderliness and systematic repetition (Nadeson 2005, Osteen 2008, Murray 2008, Straus 2010). Furthermore, autistic people often direct their fixity of focus toward special interests, which may include music, art, calendars, puzzles, train timetables, TV shows and movies, and list-making activities of all kinds. Most autistic people have one or more special skills that they pursue systematically and intensively. Sometimes, these special skills fall into an acknowledged area of general cultural interest (like music or art) and are pursued at a sufficiently high level as to attract general notice, and thus invite the savant label. More commonly, however, autistic special interests are either in areas of little general interest, or are pursued at a level that is not particularly noteworthy, or both. From this point of view, I would like to propose that savantism is just a particular subclass of autistic special interests, namely those that attract general interest because they are in a culturally valued area and undertaken at a high level of proficiency.

Under the medical model of disability, the achievements of the idiot savant represent a remarkable counterbalance to an underlying deficiency: the savant skill is understood to come *in spite of* the general lack of intelligence. By contrast, under the sociocultural model promoted by Disability Studies, we

imagine disability as part of the naturally occurring variation in human minds and bodies and as something that may actually *enable* certain sorts of achievements. For the autistic person, the special interests or skills arise not in spite of the autism but precisely *because of it*. The skill—both the area of the skill and the manner in which it is pursued—is a manifestation of the autism. Autism enables the skill; the skill makes the autism visible. It should thus be possible to understand the group of people identified as idiot savants not as medical prodigies, or freaks, or super-crips, but simply as autistic people who are good at things.

In what follows, I offer a close look at ten musicians who have been identified as *idiots savants* (or by equivalent labels), with a particular focus on the qualities of their musicality, intelligence, memory, and creativity. I will argue that in each of these domains, they operate not as medical patients afflicted with deficiencies and syndromes, and not as mysteriously alien, non-human (or superhuman) databanks and calculating machines, but as artists who have chosen an activity for which they have affinity and aptitude and pursued it with diligent study and practice through which their skills are developed. The exercise of their skill is an outlet for self-expression and self-realization and a source of pleasure to them (and others). Recognizing the simple humanity of each of these aspects should permit us to celebrate both the special skills and the disability (autism) that enables them.

TEN MUSICIANS CLASSIFIED AS SAVANTS

Thomas ("Blind Tom") Wiggins

Thomas Wiggins (or Thomas Bethune), widely known as "Blind Tom," was one of the most famous musicians in nineteenth-century America. Born a slave in Georgia in 1849, Wiggins was apparently autistic as well as blind, and probably cognitively impaired as well. ¹³ Wiggins was a skilled improviser and composer and, to judge from his performance repertoire, a highly accomplished pianist. His concerts were spectacles, designed to showcase his remarkable talents. Over the course of an evening, he would play works from the standard piano repertoire, including some that posed significant technical challenges, some parlor songs, and some of his own compositions, all from a repertoire of several thousand works played from memory upon request. In addition, he would perform prodigious feats of musical memory and coordination, including playing back any work upon hearing it for the first time, simultaneously playing two different songs (one with each hand) while singing a third, and identifying all of the notes in complex harmonies. Throughout his concerts, Wiggins displayed unusual verbal and physical behaviors, talking about himself in the third person, pacing and spinning around, flicking his fingers, singing, humming, grunting, and making unusual facial gestures. His concerts were extremely popular public spectacles, part musical entertainment, part freak show (O'Connell 2009; Southall 1979, 1983, and 1999; Jensen-Moulton 2006; Rowden 2009). Wiggins's extensive concert tours of America and Europe (including a concert at the White House for President Buchanan) were widely covered in the press.

Virtually all contemporary descriptions stress the incongruity of the spectacle: beautiful, highly cultivated music emerging from a monstrous, uncivilized body (with African descent, blindness, and apparent idiocy all construed as disabilities). [14](#) They also emphasizes Wiggins's complete lack of formal musical training and the perfection of his playing, especially his ability hear a complicated piece for the first time and to play back without errors. [15](#)

Wiggins's managers had a strong economic interest in enfreaking him by exaggerating both his intellectual disability and his prodigious musicality, and Twain and other observers seem to have been fully and willingly taken in. [16](#) In fact, Wiggins was a highly talented musician who had the benefit of professional instruction at the highest level throughout his career and who practiced his instrument and his craft assiduously. He was without any question a remarkable musician, but as we shall see, not necessarily a miraculous, inexplicable, or inhuman one.

Leslie Lemke

Leslie Lemke, born in 1952 and raised in rural Wisconsin, is blind and has some sort of developmental disability along with an unusual musical talent. [17](#) In his younger years, Lemke made a thorough round of television appearances, including the *CBS Evening New with Walter Cronkite*, *That's Incredible*, *Donahue*, *60 Minutes*, *AM Chicago* (with Oprah Winfrey), *Regis and Kathie Lee*, *Oprah*, and *Geraldo*, and he is a subject in several documentaries about savants, as well as a made-for-TV movie and a *People Magazine* television special. [18](#) These shows, with their interest in inspirational tales of heroic overcoming—the triumph of the human spirit over adversity—fill the role of the modern freak show: a place where people can look down in pity, up in awe, and across a vast expanse in amazement at a strange, abnormal body, so reassuringly unlike their own. [19](#)

At the present time, Lemke maintains a modest career as a musical performer in mostly religious, Christian settings. His concerts are typically in two parts. In the first, he plays hymns, popular songs, and an occasional light classical composition. In the second part, he takes audience requests, which are almost always for hymns and popular songs. He plays these in his own improvised arrangements, and his performances have become increasingly improvisatory as he has aged, occasionally involving the composition of original songs. As with Wiggins, descriptions of Lemke's musicianship emphasize his utter lack of professional training, his prodigious memory, his mimetic ability, and, hovering above the musical specifics, his severe cognitive impairments (Treffert 2000).

One would do well to be skeptical of claims about Lemke's abilities, especially his memory. The extensive video evidence of Lemke's performances shows a pianist with good (although unexceptional) technical skills and an unusually retentive memory, both for works he has just heard and works he has known for many years. [20](#) At the same time, his playing and his memory are hardly flawless, and the longest piece in his repertoire appears to be only a few minutes in duration. I will comment later on the nature of Lemke's memory as well as his alleged lack of practice and professional training.

Derek Paravicini

Like Thomas Wiggins and Leslie Lemke, Derek Paravicini is blind and almost certainly autistic. [21](#) Born in 1979 to an upper-class British family, he showed an early affinity for music and developed his own idiosyncratic way of addressing the piano keyboard. In contrast to Lemke, he then had the good fortune to come under the tutelage of a skilled, reputable teacher (Adam Ockelford), who shaped his technique and guided his artistic development. As a result, he has developed into a performer, improviser, and composer of considerable interest and originality, and he continues to grow and develop as a musician. Although, like Lemke, he did the circuit of inspirational television shows and high-toned documentaries, which position him as an inspirational super-crip by focusing on the disparity between his evident cognitive limitations and his musical accomplishments, he has managed to create a genuine public career as a mature musician.

Paravicini's performances usually center on jazz standards, but his remarkable ability to recall and instantly play a large repertoire of music in any key and, most impressively, to tweak them spontaneously into a variety of musical styles, has attracted the most critical attention. There is inevitably something of the freak show about this, but the purely musical achievement is undeniable, and Paravicini has attracted a significant audience, both in the concert hall and on the Web.

Like Wiggins (but unlike Lemke), Paravicini has had the advantage of sustained, superior training and instruction. Unlike Wiggins, however, Paravicini is under no compulsion to earn money for his handlers or to tailor his musical interests to conform to narrow and destructive racial and ableist stereotypes. As a result, he has been free to pursue his talent and interests wherever they lead, and they have led him quite far.

Eddie, NP, TR, S, Harriet G., Martin A., And L

Wiggins, Lemke, and Paravicini have not only been the subject of extensive discussion in the professional, psychological literature, but have also achieved significant notice and success in the larger world as well. An interested observer can see and hear them perform either live or on videotape, or at least read extensive accounts from a variety of sources. There is another group of people, similarly classified as *idiots savants* (or by other, equivalent labels), whose lives and abilities are described and made available to a general public only as case studies in the professional literature, where they are generally identified only by a first name or an initial. [22](#) Interested observers can gain only indirect access to them, through the clinical descriptions of medical professionals.

The best known musical savant in the professional literature is probably Eddie Bonafe, who was the subject of a series of articles and then an entire book by Leon Miller. [23](#) Eddie (as he is known in the literature) was born in 1980 with a serious vision impairment and was soon classified as "severely retarded." Miller accepts the classification of Eddie as "mentally retarded," although it is evident from his description that Eddie would now (in 2013) be placed on the

autism spectrum. By the age of ten (the period covered by Miller's studies), he had begun to display musical skills comparable to those of Paravicini at the same stage: the ability to play works of moderate technical difficulty (at the level of the Mozart sonatas), a good long-term musical memory, and a good ability to play music back on a first or second hearing. Also like Paravicini, Eddie had the good fortune to be taught by a reputable and skilled teacher (Nancy Newman, who worked with him weekly for five years, 1985-89). [24](#) His musical abilities stand in apparent contrast to his apparent mental deficiencies, detailed through an extensive battery of intelligence tests. Although Eddie attracted a small flurry of journalistic attention in the late 1980s, there is no public record of Eddie's present life or musical activity. [25](#)

At the time he was studied (Sloboda, Hermelin, and O'Connor 1985), Noel Patterson (known in the literature as NP) was a nonverbal, autistic 19-year-old, with low scores on standard intelligence tests and an unusual ability to recall and play back musical works upon first hearing. The psychologists tested NP's musical memory using a pair of musical works (a relatively traditional work by Grieg and a relatively modernistic work by Bartók) and showed that in contrast to a prevailing mythology, NP's memory was responsive, active, and recreative rather than mechanistic and rote in the manner of a tape recorder. [26](#) The 1985 study of NP is referred to frequently in the professional literature, and he is featured in a 1996 BBC documentary called "The Foolish Wise Ones," but I can find no more recent account of his life or his musical activities.

TR, "a prodigious musical savant who is autistic," was twelve years old at the time he was studied (Young and Nettelbeck 1995). The psychologists tested TR's musical memory using the same Grieg/Bartók pair of musical works that was used to test NP, and with similar results. They also tested other musical abilities and his general intelligence, finding a "full-scale IQ" of 105, or slightly above normal. His musical memory and recall were apparently exceptional, roughly on a par with those of NP. As for his other musical skills, the psychologists observe, "he can sight-read and play from memory and his pianistic interpretation has been commented on very favorably by adjudicators in local Eisteddfod competitions in which he regularly participates" (235). As with Eddie and NP, there is no available information on how TR lives now.

S is described in Anastasi and Levee 1960 as "a high-grade, adult mental defective with exceptional musical talent, as well as superior rote memory of an apparently eidetic nature" (695). The authors tested his IQ at 67 and, even by the much more restrictive standards of the day, considered him autistic: "The present subject's general behavior also shows many similarities to that of the autistic children first described by Kanner" (702). Starting at the age of seven, S was taught and coached by a series of outstanding musicians (his parents were affluent and committed to nurturing S's musical talent). S practiced intensively, usually six to nine hours per day, and achieved a high level of professional accomplishment as a pianist.

Viscott 1970 describes Harriet G as "a 40-year-old, single, Italian woman who had been known as 'mentally retarded' all her life" (495). She grew up in a musical home (her mother was a voice teacher), and her exceptional musical skills became apparent early in her life. According to Viscott, Harriet G

achieved a remarkable level of musical proficiency, including exceptional skill as a pianist and improviser. Despite her high level of musical skill, Harriet G apparently attracted no attention outside of the professional literature that cites Viscott 1970, and I can find no subsequent trace of her.

Sacks 1970 takes a dim view of Martin A. (then 61 years old)—his remarkable musical abilities are seen as freakish and merely rote:

He enjoyed a modest fame as a 'walking encyclopedia,' who knew not only the music of two thousand operas, but all the singers who had taken the roles in countless performances, and all the details of scenery, staging, dress and décor.... Thus he was an opera-buff, and something of an "idiot savant" too. He took a certain child-like pleasure in all this—the pleasure of such eidetics and freaks... . His eidetic memory—the freak part of him—did not in itself form, or convey any sense of, a "world." It was without unity, without feeling, without relation to himself. It was physiological, one felt, like a memory-core or memory-bank, but not part of a real and personal living self (188-89).

In the least sympathetic of these studies (Scheerer, Rothmann, and Goldstein 1945), the authors acknowledge L's musical skills (including his piano playing, his ability to improvise, and his remarkable memory), but nonetheless consider him scarcely human in his inability to be taught or to learn, and his apparent lack of creativity and imagination. L.'s music making, which he obviously enjoys and is good at, is an inherently bad thing, in the authors' view: not a pleasurable activity done well, but inherently malformed and symptomatic of a deep pathology and abnormality. His talent, such as it is, is "sterile," and "anomalous."

This astonishingly unsympathetic understanding of this young musician leads to a devastating conclusion both about him and about *idiots savants* in general. For most observers, the essence of the *idiot savant* is a disjunction between the idiocy and the special skill. But for these authors, because the savant skill flows from and is a manifestation of the pathological idiocy, there is no incongruity at all: the musical skill is only another expression of idiocy. Even the term "idiot" is apparently too flattering for L. and others like him: the authors prefer the brutal "ament" instead: "The term *idiot savant* is a misnomer. Idiot savants are talented aments who possess an amented talent" (60).

L. enjoys making music and does so with considerable skill, but his pleasure is of no account and his skills are pathological—his memory is the wrong kind of memory, his playing is the wrong kind of playing, and his personality is the wrong kind of personality. The investigators' contempt for their human subject is palpable in every sentence of this lengthy study. They reveal in an exaggerated form a sense one finds in many commentaries that this group of people, whatever their abilities may be, is scarcely human—incomprehensible, alien, and irreducibly strange. Although seen here in an extreme form, the pathologization of both the skill and the individual are typical of the medical model in relation to disability.

INTELLECTUAL, MUSICAL, AND CREATIVE ABILITIES

Intelligence

The question of intelligence lies right at the center of any discussion of *idiots savants*, and they in turn pose an important challenge to received ideas about intelligence. Musical skills are understood as savant-like only against an explicit or implicit background of general intellectual deficiency, itself measured against some standard of intellectual normality. In all of the professional studies of *idiots savants* since 1940, the researchers have attempted to measure the intelligence of their subjects using standard IQ tests. ²⁷ The presumption is that *idiots savants* will have low measurable intelligence, in contrast to their high level of skill in music (or some other area). But rather severe problems arise almost immediately. First, it turns out that that many people labeled as idiots savants actually perform reasonably well on standard IQ tests, although typically better on the subtests that involve memory and spatial organization and less well on those involving verbal ability and logical inference. A standard definition of "idiot" during the middle of the twentieth century was that of an IQ less than 25. Clearly, by that definition, most *idiots savants* were not actually idiots, and in fact had normal or near-normal IQs.

Second, and more seriously, researchers have had to acknowledge that the musical or other skills themselves seem to manifest intelligence, quite apart from whatever turned up on an IQ test. To be able to grasp the structural principles of a musical idiom, to be able to remember and reproduce long passages of music, to be able to improvise or create original music—all of these seemed like manifestations of intelligence, even if that intelligence isn't well accounted for by IQ tests. Perhaps, then, there are many different kinds of intelligence and many different ways of being intelligent, rather than a single, measurable quality of "general intelligence."

The argument that there are multiple, uncorrelated intelligences rather than a single intelligence (IQ) is most closely identified with Howard Gardner, who has identified a list of different intelligences, including linguistic and logical-mathematical intelligences (these are the ones that are central to traditional notions of general intelligence), musical intelligence, bodily-kinesthetic intelligence, spatial intelligence, and interpersonal and intrapersonal intelligences (Gardner 2011). It seems unlikely we will ever have a definitive list, but the central idea—that intelligence is a multiple rather than single quality—seems hard to deny. Certainly, whether or not you care to label it intelligence, musical ability is not reliably correlated with linguistic or logical-mathematical ability. There are lots of wonderful musicians, including many discussed here, who are weak in these areas, and a much larger group of people (including many psychology researchers) who have excellent language and logical skills, but not much musical aptitude. Even without insisting, as Gardner does, that musical aptitude is itself a form of intelligence, it seems hard to deny that powerful memory and a flexible grasp of complex structures are marks of intelligence.

The category and concept of the *idiot savant* depend crucially on an underlying incongruity of low general intelligence and high level of ability in some

particular area. But if disparity among different sorts of abilities (which Gardner calls intelligences) is widespread among broad human populations, then the apparently incongruous ability levels of the idiot savant are no longer remarkable. If there is no such thing as general intelligence, then there is no such thing as idiocy, and people labeled as *idiots savants* come to seem indistinguishable from the rest of the human population: good at some things and less good at others. An extreme variability in the components commonly thought to comprise intelligence was noted in the earliest studies of autism, and has been repeatedly acknowledged since. [28](#) In that sense, the quality of intelligence displayed by people classified as *idiots savants* can be likened to a distinctively autistic sort of intelligence.

Memory

Remarkable memory is often taken as the distinguishing feature of the savant, in music and in other areas—prodigious in its capacity and impeccable in its detail. Savant memory is often understood to be purely rote, without intelligent or creative intervention, operating in the manner of a tape recorder, a camera, a computer, or other mechanical device. [29](#) Needless to say, these mechanistic analogies have a strongly dehumanizing effect.

The limitations of the concrete memorizing achievements of some *idiots savants* are not totally unlike the restrictions that exist when sounds are retained on magnetic tape. Compared with normal human memory, there is the advantage of greater surface accuracy, but this occurs at the expense of all the abilities that depend upon meaningful understanding; for example, being able to find and use particular items of information. (Howe 1989, 14). [30](#)

Descriptions of musical savants often claim they have a memory of near-miraculous fidelity. Here, for example, is Treffert 2010 repeating familiar assertions about Thomas Wiggins: "Without any instruction whatsoever he could listen to a piece of music and play it through note for note, accent for accent, without error and without interruption....Every note of every piece Tom heard was indelibly imprinted on his mind, and he was able to reproduce any piece from beginning to end without a moment's hesitation" (89). Similar notions of an inconceivable, immaculate, computer-like, superhuman memory are a commonplace of savant representation in recent novels and films (Murray 2008). Claims of this sort masquerade as praise, but have the effect of enfreakment—the superhuman is still something other than human.

In fact, while the musical memory of Wiggins, Paravicini, and others is extraordinarily good, there is nothing ultimately inexplicable or inhuman about it, either in its capacity or in the way it is achieved. For Wiggins, we have the valuable contemporary account of Anna Tutein, a skilled and accomplished pianist who worked closely with him for several years during the 1880s. Here is her description of his musical memory, first from her attendance at one of his concerts and then from her experience as his teacher:

After his concert the audience was invited to play anything before Tom for test purposes. Several people went up and played little trite

pieces of a popular type which Tom readily repeated without difficulty. One skeptical friend induced me to go to the stage and play something really difficult. I played the *Third Concerto* of Beethoven, in part and found, as I supposed, that it was absolutely impossible for him to repeat it with one playing.... I must also dispel the idea that Tom could repeat anything after having heard it once. The lessons were two hours in length, and it was often necessary for me to play over the compositions fifty times before he would acquire them. He could, however remember an astonishing number of measures. I would "feed" him eight or ten measures at a time and then he would play them over several times and we would go on with others. After he had a fair impression of the piece I would play it as an entirety and he would listen intently. In this way I taught him Beethoven's *Third Concerto in C Minor*; Liszt's *E Major Polonaise*; Beethoven's *Sonata Apassionata*; Chopin's *Polonaise Op. 53*; Mendelssohn's *Concerto in G Minor*; etc. etc. (Tutein 1918, 91).

According to Ockelford, Paravicini's memory is not eidetic or "photographic," and does not operate in the manner of a tape recorder. Rather, it is creative, interpretive, and reconstructive—Paravicini is intelligently engaged with the musical materials, and shapes them in a personal way:

His memory functions much more like a "sonic jigsaw puzzle solver" than a tape recorder. The first time he hears unfamiliar music, he remembers features and fragments of it, rather like the pieces of a jigsaw in sound. He also retains a good idea of its overall size and shape. But as he reconstructs the music (when he is asked to play it back), the musical chunks that he can remember are quite likely to appear in the wrong order... The result is that whatever Derek comes up with always makes, at the very least, good musical sense. (Ockelford 2007, 159).

There is no reason to doubt that memory is similarly restricted for musical savants in general: their musical memories are extremely good, but not miraculous or superhuman.

Furthermore, their memories operate not like cameras or tape recorders but in the same intelligent, flexible, creative way in which human memory always operates. This is one area in which the psychological studies have made a valuable contribution. In these studies, a musician is typically asked to play back a musical work on first hearing and the errors are noted and studied. In the study of NP described in Sloboda 2005, the investigators presented him with recordings of two short piano works, one by Grieg and one by Bartók. He did better in playing back the Grieg, written in a more familiar tonal idiom. The errors he made in reproducing both works were "structure preserving," that is, suggested the working of a responsive musical mind, competent in the regularities and rules of traditional tonal music, and thus likely to replace any misremembered details with an idiomatic substitute. These reveal clearly that "NP is not the possessor of some primitive but high-capacity 'echoic' or 'mimicking' memory, but has a narrow but intensely highly-developed window

of 'normal' memory which operates, as in most known cases of expertise, by representing material in terms of familiar higher-order structures" (Sloboda 2005, 111). [31](#) The same test, with the same pair of pieces, was given to Lemke, Eddie, and TR with similar results. [32](#)

All of the research on this topic confirms this central point: none of the people identified as savants remembers music in a mechanistic, rote manner; rather, they all remember via rule-based hierarchical chunking. [33](#) There is thus no need to enfreok the memorative abilities of these musicians as divine or superhuman, and no need to "other" them as alien and machine-like. [34](#) In fact, these musicians are doing what good musicians always do, namely remembering in a structured, responsive, creative, and intelligent way. Although so-called savant musical memory may dazzle and amaze scientific researchers who are not themselves musicians, it differs neither in power nor process from the memories of excellent musicians who are understood as mentally "normal." [35](#) Like variability in kinds of intelligence (i.e. variable subscores in the individual components of standard intelligence tests), powerful memory has been understood as an aspect of autism from the very beginning (see Kanner 1943). In this way, savant intelligence and savant memory can be understood as autistic intelligence and autistic memory.

Learning

One of the persistent myths about musical savants is that their musical abilities emerge full-blown, in virtually a final state, all at once and without previous training, and that thereafter the musical abilities remain more or less the same, without the possibility of significant growth or change. [36](#) Savants are often described as untaught and unteachable. Sacks 1995 argues for "the peculiar isolation, uninfluenceability, and automaticity of savant talents" (226) and asserts that savant powers appear "fully fledged from the start." [37](#) Indeed, for Sacks, the untaught, autonomous, automatic quality of the talent is precisely what makes it so alien, so freakish. [38](#) Similar ideas of the savant as one whose gift is immaculate—neither taught nor learned, and incapable of development—is a commonplace of recent cultural representations in literature and film (Murray 2008).

In some cases, simple economics drives the myth of the savant as untutored intellectual savage: inspirational miracles are good box office, and the less teaching and practice involved, the greater the apparent miracle. Ignorance of music may also play a role; it can be hard for non-musical observers to know which musical abilities are truly remarkable and which the common property of any decently trained musician. Both the managers of these musicians and the people who study them thus often participate in the process of enfreakment—treating savant musicians as though their abilities are abnormal and somehow inhuman.

The reality is somewhat more prosaic. Like other musicians, the people discussed in this essay learned from either informal or formal music instruction and honed their skills with long periods of dedicated, focused practice. Wiggins, for example, had early, informal exposure to the piano through the domestic music making of General Bethune's daughters. When the extent of

Wiggins' talent and remunerative potential became clear, Bethune was eager to secure the best possible teachers, even as he insisted publicly that Wiggins was entirely self-taught (O'Connell 2009, esp. 201-204). Lemke received informal musical training from an early age: "[His mother] would put his hands over hers on the piano she had gotten for him at about age eight or nine and she would play some simple English tunes for him, and, in that way, with him. Leslie learned to play and sing some of those same simple tunes" (Treffert 2010, 5). Paravicini studied with several teachers, principally with Adam Ockelford, with whom he still works. Among the private individuals who have been the subject of psychological studies, apparently only Eddie had the good fortune to study with a high-quality teacher. [39](#)

Even more important, all of them worked hard to perfect their craft by constant, intense, focused practice. Just as the psychological studies generally agree about the flexible, creative nature of savant memory, they also universally acknowledge that musical skill develops through practice. And truly, for anyone who does not readily believe in miracles, that conclusion must seem self-evident: to get good at something you have to work at it. People get better at things by working hard, and they work hard at things they have some talent for and enjoyment in. Some observers have found both the duration and intensity of the practice habits of savant musicians (and, I might add, all good musicians) disturbing in its apparent obsessiveness. They worry that the practice might be excessive and thus possibly damaging to the practitioner by isolating him or her in the practice room. In fact, most skilled musicians (and people with other sorts of skills) find practice intensely rewarding, both for the improvements in skill it brings and for its intrinsic pleasures. A preference for repetition has been recognized as a central, defining feature of autism from the beginning: Kanner 1943 refers to this as "an anxiously excessive desire for the maintenance of sameness" (242). In the case of music, a willingness to practice long and hard, to master a craft through diligent repetition, may be strongly associated with autism, but is obviously something shared by all successful musicians.

Creativity And Self-Expression

The view that savant memory operates mechanistically by rote is often accompanied by a notion that savants are incapable of true creativity. Rather, they are understood to perform in a constrained, rigid, repetitive, and echoic way, capable of skilled mimicry, but not of creative innovation. Even observers like Beate Hermelin, who acknowledge the normality of cognitive processes of savant musicians, still often insist on their creative sterility:

Another requirement for true creative ability, which is certainly missing in savants, is a search for new forms of expression that characterize the history of Western art...There are no savant geniuses about. None of them will discover a new mathematical theorem, or initiate a novel stylistic movement in the visual arts or in music. Neither will a savant pianist give a novel, revealing interpretation of a Beethoven piano sonata. Their mental limitations disallow and preclude an awareness of innovative developments in the areas of their special abilities. (Hermelin 2001, 176-177).

This seems to me to be setting the bar for "true creative ability" inappropriately high. Apparently subscribing to a romantic and modernist aesthetic that places a high value on innovation and novelty, Hermelin insists that savants can never be true creative geniuses because of an inherent inability to create a new artistic style or a new interpretation of a musical work. For my own part, I see no reason why Wiggins, Lemke, Paravicini, and others should not be credited with "true creative ability." Whether this ability does rise or could rise to the level of "genius" depends on one's personal understanding of that elusive and romanticized term.

Other professional observers similarly seek to deny the creativity of savant musicians, even as they (grudgingly) acknowledge their intelligence and the flexibility of their memory. Sloboda 2005, for example, feels obliged to insist on the fundamentally alien and non-human nature of NP's way of making music. He "failed to demonstrate 'musical understanding' in some very important sense." He was able to memorize and reproduce, "but after a very short time his performances became stripped of all expression (even that contained in the original from which his performance was derived) so that there was nothing of interest in his performance for an audience. He played totally mechanically. From a musician's point of view it is almost as if Noel Patterson had 'missed the point' of bothering to play the music at all" (166).

In a similar vein, Viscott 1970 considers Harriet's form of creativity to be too "autistic," that is, too inner-directed, to be real creativity.

Such creative thinking cannot exist alone and out of context with the creator's external world, for then it becomes autistic and without relevance. If like Harriet's talent it is not allowed to take on dimension beyond that of a transitional object, its meaning and relevance become concrete and too personal to share. Its meaning is too specific to the creator to have meaning in any other context (513).

By the exalted standard of creativity suggested by Hermelin, Sloboda, and Viscott, shockingly few people with any level of intellectual functioning would be considered truly creative. It is true that Wiggins, Lemke, and Paravicini have not created entirely "new forms of expression" or "initiated a novel stylistic movement," but they are nonetheless all improvisers and composers of skill and originality. To a similar but lesser extent, Eddie, NP, TR, L, and Harriet also show obvious creativity in their playing, by combining musical sounds in new ways, and if their playing has mostly been of interest only to themselves, that is as likely to be a consequence of their lack of public exposure as to any intrinsic defect. Wiggins and Paravicini's level of creativity is rare among people with intellectual disabilities, but that level is equally rare among people without intellectual disabilities. And as for a reasonable and accommodating definition of creativity, one that emphasizes inventiveness and imagination (as the *OED* does), then Eddie, NP, and all the rest are fully creative too.

Other observers locate the perceived deficiency in a related but different place, namely in an apparent lack of emotional self-expression, as in this observation

about TR: "However, here as elsewhere, despite demonstrating high musical competence, TR showed little affect or indication of emotional involvement. This lack of affect has been noted in other savants (e.g., Sloboda et al., 1985)." (Young and Nettlebeck 1995, 244)

Some, like Oliver Sacks, go even farther, suggesting that the real problem is that savant artists lack an inner life, and thus have no self to express. With regard to the painter, Steven Wiltshire, Sacks 1995 asserts, "Creativity has to do with inner life—with the flow of new ideas and strong feelings. Creativity, in this sense, will probably never be possible for Stephen [Wiltshire]" (241-42).

One issue here is that autistic expressions of selfhood, and especially of pleasure, are often illegible to observers. Many artists are unskilled at explaining how they do what they do, but autistic artists (including the savant musicians under discussion here) are often additionally unskilled at disclosing their inner emotional lives and the pleasure they derive from their activities. As a result, observers may derive the false impression that autistic artists have no inner life and no pleasure in the first place. A common metaphor for people with autism is the wall or fortress, which suggests concealment, imprisonment, and inaccessibility behind an impermeable barrier—the most egregious use of this metaphor is in the title of Bettelheim (1967), *The Empty Fortress*. The implication is that the person with autism is cut off in a separate world and, most punishingly, that behind the barrier the inner space may be empty. But a failure to read and understand autistic self-expression and autistic pleasure should not mislead us into such a false denial of common, shared humanity.

These professional observers seem to be operating under a strange compulsion to insist on the abnormality of these musicians. Their achievements are grudgingly acknowledged, and then immediately qualified and downgraded. Standards arbitrarily shift and rise precisely to deny that these musicians are what they seem so obviously to be, namely creative artists. Are they intelligent? Well, perhaps they are, but their memories are too machine-like. Do their memories operate in the usual, flexible, creative way? Well, maybe so, but they can't be truly creative. Are they in fact capable of inventive and imaginative music making? Well, if you insist, but their playing is insufficiently expressive. Are they intelligent, with powerful and flexible memories, inventive, imaginative, expressive, and creative? Perhaps, but they still can't ever be geniuses. Many observers seem intent on barring people they call savants from full admission into the human community. In fact, as far as I can tell, there is no good way of distinguishing the way that Wiggins, Paravicini, and others make music from the way any highly skilled musician makes music, and no good reason for distinguishing them. These are autistic musicians of high caliber, and we should be enjoying them (as they enjoy themselves) rather than pathologizing them.

AUTISM AND THE FIGURE OF THE SAVANT

Autism As Psychiatric Disorder

At the present moment, there are two distinct ways of thinking about autism: as a medical problem or developmental disorder (autism as deficit) and as an

emerging culture (autism as difference). The categorization of autism as a distinct psychiatric disorder dates from the early 1940s, when Leo Kanner (at the Johns Hopkins Hospital in Baltimore) and Hans Asperger (at the University Children's Hospital in Vienna) independently identified a group of children who did not seem to fit easily into existing diagnostic categories and used the term "autistic" to label them (Kanner 1943, Asperger 1991). [40](#) According to Kanner, children classified as autistic generally had a low measured IQ and their "activities and utterances are governed rigidly and consistently by the power desire for aloneness and sameness" (Kanner 1943, 249). They shared an "*inability to relate themselves in the ordinary way to people and situations*" and an "*anxiously excessive desire for the maintenance of sameness,*" and displayed "*an extreme autistic aloneness that, whenever possible, disregards, ignores, shuts out anything that comes to the child from the outside*" (Kanner 1943, 242, 245, italics in original). At that time, and for several decades thereafter, autism was understood as rare and severe psychiatric disorder affecting roughly 1 in 10,000 children.

Since the early 1990s, the definition of autism has expanded leading to a corresponding explosion in the numbers and diversity of people embraced by the diagnostic category. Currently, autism is understood as a broad spectrum disorder affecting more than 1 person in 100 (a 100-fold increase since Kanner's estimate). [41](#) It is still centered on ideas of excessive aloneness and sameness, but is now diagnosed according to three sorts of impairments: 1) "qualitative impairment in social interaction; 2) "qualitative impairments in communication"; and 3) "restricted, repetitive, and stereotyped patterns of behavior, interests, and activities." [42](#) Under these inclusive rubrics, and taking into account various sorts of stereotyped bodily movements (spinning, hand flapping), speech patterns (especially involving literal repetitions, or echolalia), and styles of play (lining things up, making lists), it is apparent that Wiggins, Paravicini, Lemke, Eddie, NP, TR, S, Harriet G, Martin A, and L would all nowadays be diagnosed as autistic. [43](#)

Under the medical model of autism, musical skill has often been seen as a symptom of the disorder—one of its "restricted, repetitive, and stereotyped patterns of behavior, interests, and activities." For some of the psychologists who have studied savants, their special skills are not only symptomatic of a mental illness, but worthless in themselves and possibly harmful to their possessor. The skills are worthless because they can never produce anything of value to others, and the value to the musician himself counts for nothing. The skills are manifestations of mental illness because they represent and crystallize the underlying idiocy/autism, with its social isolation, inability to communicate normally, limitations on language and logic, and general strangeness and abnormality. The skills are harmful to their practitioner because they are isolating and thus deepen the pathology. They should be actively discouraged as part of a therapeutic normalizing process.

Writing in 1989, Miller observes, "the prevailing view is that the presence of savant skill is disadvantageous for the child" either because it involves "a pathological channeling of the activities and interests of the child with consequent distortions in other areas of development" or because "savant behavior is inherently pathological." [44](#) Psychologists who hold these views

generally urge that the practice of the skill be minimized or entirely quashed. Barnes and Earnshaw (1995), for example, noticed that when their savant participant was forced to abstain from art, his social skills and language abilities improved dramatically, and admonish readers that "unless caution is observed, the presence of savant skills may be a disadvantage to the client" (126).

For a slightly more benevolent group of psychologists, savant skills may be of some therapeutic value—they may ease communication with the outside world and help to normalize behavior. [45](#) The exercise of special skills may thus be beneficial rather than harmful for the individual. Nonetheless, under the medical model of disability, the focus is on therapy, remediation, and normalization. The intrinsic value of the activity, including especially the pleasure it gives to the practitioner, does not enter into the equation.

Autism As Culture

While the medical model of autism remains dominant, an alternative cultural model has emerged in recent years under the banner of "neurodiversity." In this view, autism is not a defect or pathology, but rather an aspect of naturally occurring and inherently desirable human variability. Furthermore, autism is associated with a distinctive and characteristic cognitive style and creative imagination, including local coherence (a propensity to perceive the world in parts rather than as a connected whole), repetition and fixity of focus, and private meanings. [46](#)

As we have seen, one aspect of the autistic style is a preference for certain narrow areas of interest pursued with intense focus and concentration (obviously related to what Kanner calls "autistic sameness"). Lots of autistic people have certain "special interests," the most common of which are music, art, calendar calculation, arithmetic calculation, certain television shows and movies, and list-making and mnemonic activities of all kinds, including mass-transit timetables. [47](#) Special interests of this kind are a defining feature of autism—pretty much every autistic person has at least one and the existence of special interests is virtually diagnostic for autism (you don't have to be autistic to have one, but autistic people generally do). Although special interests of this sort are only implied by the DSM's diagnostic criteria for autism ("restricted, repetitive, and stereotyped patterns of behavior, interests, and activities"), within the informal autistic community, they are widely recognized as a central feature.

For autistic people, these special interests are often pursued energetically, systematically, and with a tremendous expenditure of time and effort. The skill is honed and developed through extensive practice. Autistic special interests are in some ways enabled by autistic aloneness—if you don't spend a lot of time socializing, you can concentrate on developing your skill. Autistic sameness can also contribute to the development of the skill—to get really good at something, it helps to do it in a systematic, repetitive, even slightly obsessive way. [48](#)

Some of these special interests are both pursued at a high level of success and (most important) fall into an area that is generally recognized as notable and significant (like music or art or math). These are the ones that are called savant skills. But there is no organic reason why musical skill, for example, should be valued more highly than the memorization of episodes of Thomas the Tank Engine or New Jersey Transit train schedules. One never speaks of a Thomas savant, or an NJ Transit savant, but that differential ascription of value is purely cultural, based on normative, neurotypical standards.

In addition to cultural snobbery, economic utility may also play a role in deciding which autistic special skills might be deemed savant skills. Whereas there is money to be made, at least potentially, from art and music, that is less likely to be true of calendar calculation or the memorization of transit timetables. From an autistic perspective, music is just one of a wide range of valuable skills and abilities, and savantism is just a particular form of autistic special interest. [49](#) The concept of savantism is thus about what neurotypicals tend to value, not what autists are mostly interested in.

Autistic special skills emerge not in spite of autism but precisely because of it. They are enabled by autism and its associated cognitive style, which values local coherence in the fullness of its concrete detail, sameness and repetition to the point of ritualistic obsession, and fixity of focus undistracted by a desire to please others or to engage socially in the typical ways. Autistic people have a wide range of special skills and interests, and the pursuit of special skills and interests, in a focused, systematic way, might be taken as a marker of autism. Some of these are privileged by researchers and the general public, and these tend to be things that the researchers (and general public) are not good at, and around which there has always been lots of mystification, like music, art, and math.

But it doesn't ultimately matter if the skill at issue is music or something culturally less valorized. Autistic special interests, whether or not they are culturally valorized and whether or not they are pursued at an extraordinary level of skill, are still worth celebrating. Even beyond the pleasure they give to their practitioners, which should perhaps be sufficient justification, they are intrinsically valuable and admirable human achievements and expressions of our shared humanity.

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Endnotes

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participants in the Columbia Seminar on the Future of Disability Studies, especially Stephanie Jensen-Moulton. I also thank an anonymous reader for this journal for incisive and helpful criticisms.

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2. The figure of the *idiot savant* bears an interesting, intertwined relationship with four other common figures, all of which would benefit (or have already benefitted) from analysis from a disability-studies point of view: 1) the romantic genius, understood as an empty vessel through which divine inspiration passes; 2) the child prodigy, whose astonishing ability in one area is understood against a background of the developmental and intellectual limitations of childhood; 3) the outsider artist, who may be understood as physically or mentally abnormal in some way; 4) the disabled artist, whose work may be inflected by and understood in relationship to their disability (Straus 2011).

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3. Similarly, see Scotch 2009, 602.

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4. The American Psychiatric Association was originally called the Association of Medical Superintendents of American Institutions for the Insane (founded in 1844). It did not take its current name until 1921.

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5. For valuable histories of idiocy (and related concepts of mental deficiency), see Trent 1994, and Halliwell 2004, and McDonagh 2008. As these sources make clear, despite the linguistic trappings of scientific knowledge, idiocy and similar terms cannot be taken seriously as reliable, technically secure, medical categories). This same instability is inherited by more recent terminology like "mental retardation," which similarly seeks to borrow the trappings of scientific language. In fact, idiocy is not a category given to us by nature or biology, science or medicine; rather it is a historically and culturally contingent way of grouping people. As McDonagh 2008 argues, "The idiot has been transformed into a resilient contrast group, a category of people against whom we rational modern (and postmodern) folk can identify ourselves, to affirm our intelligence and to assert our claims to respect and justice....the study of idiocy is the study of a particular form of exile, though which some humans are removed in order to enable the remainder to believe in their own unalloyed intelligence" (2).

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6. There is considerable confusion in the literature about the coinage of the term "idiot savant," although the historical record is absolutely clear. The *Oxford English Dictionary* correctly gives priority to Séguin. Treffert 1989 and most other published accounts attribute the concept to Down 1887. Hermelin 2001 and the many other publications with which she is associated attribute the term and concept to Binet 1894.

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7. Séguin 1870, 519. Séguin considered idiocy to be a physiological and curable medical condition, although here he gives an indication of the close relationship between idiocy and social class. The idiot savant is one particular kind of idiot observed mostly, according to Séguin, among the wealthier classes. In a somewhat earlier study (Séguin 1866), Séguin had provided a detailed description of Thomas Wiggins (to be discussed later in this essay) that sounded for the first time the themes that later became prevalent: the shocking incongruity of the idiotic demeanor and the musical ability; the perfection of the musical memory; the intense but isolated and private pleasure of the performer.

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8. The description by John Langdon Down (Down 1887) draws examples from inmates of the Earlswood Asylum for Idiots, of which he was the director. He observes that the by-then-familiar term *idiot savant* "has been applied to children who, while feeble-minded, exhibit special faculties which are capable of being cultivated to a very great extent" (99) and names residents of his asylum who are unusually skilled at building models, drawing, remembering literary texts, recalling names, dates, and addresses, and arithmetic calculation. The description in the then-standard textbook by Alfred Frank Tredgold (Tredgold 1914) placed the *idiot savant* in the context of established ideas about idiocy: "The mildest degree of mental defect is that known as high-grade feeble-mindedness, and while the majority of the members of this class resemble those of the preceding [i.e., the lowest members of the feeble-minded grade] in the fact that their intelligence does not come up to that possessed by primitive social man, they stand above them in that they have a relatively greater development of the capacities for thought and feeling. It may occasionally happen for one of the perceptive processes to be developed to an even extraordinary extent, and this is more often the case with that concerned in symbolic perception. We then have a variety of 'idiot savant,' such, for instance, as a calculating genius or an expert pianist" (153). Tredgold's reference to "primitive social man," gives a hint of the persistent racial (and eugenic) underpinning to much of the discussion of idiocy throughout its history.

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9. For a survey of professional psychological literature on idiots savants up to 1978, see Hill 1978. Nettelbeck and Young 1999 provides a similar survey for the period after 1978. Many of the cited studies that bear on music will be considered in detail in what follows.

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10. See Treffert 1989, 2005, and 2010. Although Treffert's term, "savant syndrome," has achieved wide currency, many other labels have been proposed, and the older term, "idiot savant," remains in use, in both the professional and popular literature. Hill (1978) argues for dropping the "idiot"

portion of the label and defines a savant as "a mentally retarded person demonstrating one or more skills above the level expected of nonretarded individuals" (281). *Talented ament* is a coinage of Scheerer et al. 1945 (the term *ament* had broad currency through the first half of the twentieth century as a general term for mental deficiency). *Monosavant* is proposed in Charness et al. 1988). Spitz 1995 (note the late date) still uses the term *idiot savant* in the title, but prefers *monosavant* in the text.

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11. Treffert 2010, the best-known discussion of what he calls "savant syndrome," makes only a few passing references to autism, and in much of the earlier professional literature on idiots savants, to be surveyed later in this article, the autism connection remains largely unexplored. In some of the most recent literature, however, medical researchers have become increasingly likely to consider autism as something that might bind musical savants together (Heaton and Wallace 2004, Hermelin 2001). The concept of savantism depends on a discrepancy between the skill and a backdrop of some sort of cognitive deficiency or abnormality. These and other researchers have increasingly concluded that the underlying deficiency is not one of intelligence, but rather is that of autism (understood as a pathological medical condition). As Heaton and Wallace 2004 argue: "Many of the intellectually impaired savants described in the past research literature might meet current criteria for an autistic spectrum disorder....Taken together, this evidence strongly suggests that savant talent is most closely associated with autistic spectrum disorders (901)....In evaluating issues relating to intelligence in savants we have concluded that global measures of intelligence, derived from standardized IQ tests, fail to provide insight into the savant syndrome. However, specific cognitive mechanisms, underpinning intelligence and spared in autism, are proposed to be necessary for skill development in savants (907)...We thus conclude that autism (or autistic traits) and savant skills are inextricably linked and we should therefore look to autism in our quest to solve the puzzle of the savant syndrome" (899).

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12. The massive, authoritative *Handbook of Autism and Pervasive Developmental Disorders* (Volkmar et al. 2005) makes only two passing references to "savant skills" in its 1317 pages.

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13. Three recent accounts that place Wiggins on the autism spectrum are Jensen-Moulton 2006, Davis and Baron 2006, and O'Connell 2009. While posthumous diagnosis is a dicey business, and has often been undertaken indiscriminately (a shockingly varied list of historical figures have been speculatively placed on the autism spectrum, with shockingly little justification), it can be valuable in understanding the nature and extent of a phenomenon like autism, provided there is compelling evidence, including reliable first-hand accounts. I accept the conclusion offered in Murray 2008: "As a neurological condition, autism has been, in one form or another, an ever-present part of human history. Without a name, or bound up with a

different name ('idiocy,' 'retardation'), it has not been absent from any population. We should, therefore, not be surprised to find representations from before the twentieth century in which we can read a sense of autistic presence; and even if there are great complexities involved in untangling the workings of such representations, that does not mean we should not attempt to do so. Retrospective diagnosis is a fraught process that is all too open to the abuse of the lazy claim, but it can also be a radical critical intervention that is enlightening in extending the parameters of how we understand and read disability." (50-51)

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14. See, for example, numerous accounts by Mark Twain, who was one of Wiggins's biggest fans, including "Letter from Mark Twain," *The Alta California*, August 1, 1869 and "From the *Public Ledger*," September 1865 (accessed at www.twainquotes.com).

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15. In what follows, I will examine such claims skeptically.

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16. Wiggins's musical career was closely and profitably managed by James Neil Bethune, initially Wiggins's slave owner and then, after emancipation, his manager. Contemporary observers were fully aware of the exploitation of Wiggins by Bethune. The psychologist Eduard Séguin, whose professional assessment of Wiggins is among the most interesting and important contemporary accounts, offered this mordant side comment: "People flocked for miles to hear him, till the Southern insurrection put a stop to his success. As soon as cannon ceased to be the orchestra, Tom was brought north and exhibited by his ex-master, whose kind and gentlemanly manners cannot keep off the remark that he likely makes more by Tom than Tom would by him" (Séguin 1866, 405). Southall 1999 argues that the extent of Wiggins's cognitive impairments may have been exaggerated by his managers for commercial purposes and by the contemporary press for the sensationalism of an "idiot" with such astonishing musical abilities. By enfreaking him in this way, Wiggins's managers situated him as an embodiment of widely circulated cultural stereotypes of both disability and race (Rowden 2009).

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17. In my estimation, based on descriptions of Lemke in print and on the extensive video record of his musical performances, he would appropriately be placed on the autism spectrum. Wikipedia identifies him simply as a "blind American autistic savant."

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18. One such documentary is *An Island of Genius* (1987). The made-for-TV movie, which won an Emmy Award, is called *The Woman Who Willed a Miracle*, starring Cloris Leachman as May Lemke.

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19. Again, I am tracking the language of Garland-Thomson 2001 and invoking also the large disability-studies literature on freak shows, including Garland-Thomson 1996 and Adams 2001.

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20. The video record of Leslie Lemke includes the following:

http://www.wisconsinmedicalsociety.org/savant_syndrome/savant_profiles/leslie_lemke, <http://www.youtube.com/watch?v=ZWtZA-ZmOAM>, <http://www.youtube.com/watch?v=4ypj4rrjZQ>, http://www.youtube.com/watch?v=fvWf_roPXpM, <http://www.youtube.com/watch?v=Kuvvm5RuFw6M>

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21. According to Adam Ockelford, Paracivini's longtime teacher and mentor, "He has an autism diagnosis. He's not typically on the autism spectrum, but he certainly meets many of the criteria." Interview in ABILITY Magazine (<http://abilitymagazine.com/Derek-Paravicini.html#>, accessed 7/15/13). See also Ockelford 2007a, an important source for the following discussion. The video record for Derek Paracivini is extensive and confirms both the autism connection and his exceptional musical skill. Available videos include the following: <http://www.youtube.com/watch?v=fibZudrZUto&feature=b-vrec>

<http://www.youtube.com/watch?v=Ak2jxmhCH1M>

<http://tedxtalks.ted.com/video/In-the-Key-of-Genius-Derek-Para>

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22. Judd 1988 notes that "The phenomenon of musical idiot savants, mentally retarded individuals with normal or superior musical skills, is frequently mentioned, but there are only 18 cases in the English literature with any specificity at all in their descriptions" (137).

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23. See Miller 1987, 1989, 1995, 1998, and 1999. Additional musical savants studied in the professional literature but not discussed here include Paul (Lucci et al. 1988), J. L. (Charness et al. 1988), and an L different from the one discussed here (Owens and Grim 1941).

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24. Newman 1989 is a valuable account of her experiences as Eddie's music teacher. Newman has provided additional information in private correspondence.

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25. Epstein 1987, Fay and Epstein, *Life Magazine*, April 1989, *NBC Nightly News* 10 March 1988.

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26. The composition by Grieg is "Melodie" from his *Lyric Pieces*, Op. 47, No. 3. The composition by Bartók was "Whole-Tone Scale" from Book 5 of

Mikrokosmos. I will have more to say later about this study when I discuss savant memory.

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27. I am not going to get into the dark, checkered history of the concept of intelligence or attempts to quantify it. I will simply observe, with McDonagh, that like its polar partner idiocy, it is a social construction, heavily influenced by race, class, and national origin, not a natural, biological, or scientific category. McDonagh 2008: "Intelligence itself is a reification, a particularly malleable and squishy concept, open to conflicting definitions, that masquerades as a specific and identifiable quality or set of qualities that we can call our own... We have long assumed it to be an ideologically neutral designation, although nothing could be further from the truth" (9).

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28. As Hans Asperger observed in 1944, "We see here something that we have come across in almost all autistic individuals, a special interest which enables them to achieve quite extraordinary levels of performance in a certain area. This, then, throws some light on the question of their intelligence. However, even now the answer remains problematic since the findings can be contradictory and different testers can come to different intelligence estimates. Clearly, it is possible to consider such individuals both as child prodigies and as imbeciles with ample justification" (Asperger 1991, 45-46).

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29. For both savants and people with autism, the machine is among the most commonly invoked metaphors. Here is a typical example, from a description in Sacks 1995 of the artist, Stephen Wiltshire: "I had the feeling that the whole visible world flowed through Stephen [Wiltshire] like a river, without making sense, without being appropriated, without becoming part of him in the least. That though he might retain everything he saw, in a sense, it was retained as something external, unintegrated, never built on, connected, revised, never influencing or influenced by anything else. I thought of his perception, his memory, as quasi-mechanical—like a vast store, or library, or archive—not even indexed or categorized, or held together by association, yet where anything might be accessed in an instant, as in the random-access memory of a computer. I found myself thinking of him as a sort of train himself, a perceptual missile, traveling through life, noting, recording, but never appropriating, a sort of transmitter of all that rushed past—but himself unchanged, unfed, by the experience." (218)

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30. Sacks 1995 similarly emphasizes the bizarre, abnormal nature of savant memory: "It is characteristic of the savant memory (in whatever sphere—visual, musical, lexical) that it is prodigiously retentive of particulars. The large and small, the trivial and momentous, may be indifferently mixed, without any sense of salience, of foreground versus background. There is little disposition to generalize from these particulars or to integrate them with

each other, causally or historically, or with the self. In such a memory there tends to be an immovable connection of scene and time, of content and context (a so-called concrete-situational or episodic memory)—hence the astounding powers of literal recall so common in autistic savants, along with difficulty extracting the salient features from these particular memories, in order to build a general sense and memory...Such a memory structure is profoundly different from the normal and has both extraordinary strengths and extraordinary weaknesses" (200).

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31. For additional discussion of NP's performance with the Grieg/Bartók pair, see Hermelin 2001, 157-62.

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32. On Lemke, see Hermelin 2001, 163-166. On Eddie, see Miller 1989, 138-45. On TR, see Young and Nettlebeck 1995. Ockelford 2011 tested Paravicini along similar lines and with similar conclusions.

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33. See also Hermelin and O'Connor 1986, Hermelin et al. 1987, Charness, Clifton, and MacDonald 1988, Young and Nettlebeck 1995, Spitz 1995, Miller 1995, Nettlebeck and Young 1999, and Miller 1999. There is a remarkable degree of unanimity among researchers on this point.

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34. Like the machine, the "alien" (from a foreign country or planet) is a common metaphor both for savants and for people with autism. Sacks 1995 invokes it here in a description of the artist, Stephen Wiltshire: "I had hoped to get behind Stephen's autism, to see the person underneath, the mind; but there had been only the merest intimation of this...I had still, in some sense, been expecting a relatively normal person, with certain gifts and certain problems—now I had the sense of a radically different, almost alien mode of mind and being, proceeding in its own way, not to be defined by any of my own norms." (221)

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35. Casual observers routinely overestimate the strangeness and exceptionality of the memories of musical savants. People like Wiggins, Lemke, and Paravicini certainly have impressive musical memories, but so do many excellent musicians. Just among pianists, I would guess that there are thousands who hold prodigious amounts of music in their memories. I recently heard a pianist play all 32 Beethoven Piano Sonatas in a single day, all from memory, in three four-hour concerts. It was a remarkable feat of both memory and physical endurance, but there are lots of concert pianists out there who also know these sonatas from memory, and lots of other music beside.

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36. In the case of Wiggins and Lemke, there are oft-repeated stories of the virtually miraculous birth of the musical talent, as though, in Treffert's mystical formulation, they "seem to know things they never learned" (2010, xvii). For Wiggins, who is alleged by his slave master, James Bethune, to have spontaneously played a variety of difficult pieces at the age of four without ever having touched the piano previously, see O'Connell 2009, 46 (which also debunks the obvious falsehood of the story). For Lemke, who is alleged to have played Tchaikovsky's Piano Concerto flawlessly having heard it only once in a televised film score, see Treffert 2010, 96-97 and Treffert 2000, 137 (which credulously repeat the obviously exaggerated story).

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37. Treffert 2010 and Scheerer et al. 1945 make similar assertions.

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38. It is notable that so many commentators use the term "gift" in referring to savant skills. That term is associated with romanticized notions of divine intervention (the wondrous, the miraculous, the inspirational) and, more darkly, with the idea that savant skill is resistant to growth through teaching, learning, and practice. All of these connotations have the effect of dehumanization. I think it makes more realistic sense to speak instead of aptitude and skill.

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39. The public successes of Wiggins and Paravicini may be attributed, at least in part, to the teaching they received. The relative lack of public success of Lemke and the psychology subjects may be attributed, at least in part, to their lack of systematic instruction. If instruction is unavailable for economic or geographical reasons, that is unfortunate. If it is withheld either in order to preserve the purity of the musical gift (as was apparently the case with Lemke) or because the musical abilities were insufficiently valued (as was certainly the case with L and the other psychology subjects), that may be considered an injustice.

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40. For useful histories of the autism diagnosis, including its origins and early history, see Nadesan 2005, Grinker 2007, and Feinstein 2010.

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41. According to the Center for Disease Control, in 2008, 1 in 88 children in the United States were classified as having an Autism Spectrum Disorder, with the prevalence varying considerably from state to state and community to community. Prevalence of Autism Spectrum Disorders — Autism and Developmental Disabilities Monitoring Network, 14 Sites, United States, 2008. *Surveillance Summaries* March 30, 2012 / 61(SS03):1-19.

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42. This language is from the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV). The DSM (Diagnostic and Statistical Manual of Mental Disorders) is produced by the American Psychiatric Association and is the standard reference for medical practitioners and insurers in defining mental illness. In the most recent edition (DSM-V, published in 2013), the first two members of the older diagnostic triad (impairment in social interaction and communication) are conflated into one of two core areas (fixed or repetitive behavior is the other). DSM-V thus moves closer to Kanner's original dyad of impairments: aloneness and sameness.

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43. It is impossible to get good statistics on the numbers of savants in the general population or in the autistic population. There are two surveys frequently cited in the literature. Hill 1997 gathered information from 107 institutions, which identified 54 savants among their residents, a prevalence rate of approximately .06% or 1 in every 2000 cognitively impaired residents. Rimland 1978 asked parents of 5,400 children with autism to say if their child had savant abilities, and 531 (9.8%) said yes. Hermelin 2001 refers to two additional studies: "In a recent survey of the relevant literature, Leon Miller found that between 70 per cent and 80 per cent of savants had a diagnosis [of autism]. In our own sample of about 50 savants, between 80 per cent and 90 per cent were autistic or suffered from Asperger Syndrome" (48). Rapin 1996 reports that, among those with a diagnosis of autism and a nonverbal IQ of 80 or above, over half (36 in a sample of 51) have special memory skills, with memory for specific dates emerging as an additional particular strength (23 of 51). All of these studies are highly problematic because the definitions of cognitive impairment, autism, and savant abilities are all contested and in constant flux. It seems obvious that a child's parents are not in the best position to identify either autism or savant skill, but there is no reason to think that the professionals do a much better job in either case. If you can't reliably say what a savant skill is and what autism is there will never be a secure estimate of the frequency of savant skills among autistic individuals.

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44. Miller 1989, 157-76, cites a number of psychological authorities who maintain this view, although Miller himself thinks the practice of savant skills may have a beneficial normalizing effect.

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45. Treffert 2010 makes this point repeatedly, e.g. "By seizing the opportunity to 'train the talent' we can help the savant use his or her special ability as a productive conduit toward normalization that can ameliorate, to some degree, the 'dis-ability' and in so doing increase language, socialization and daily living skills overall" (11).

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46. On autistic cognitive style generally, see Straus 2013. On local coherence, see Mills 2008 and Belmonte 2008. On repetition and fixity of focus, see Nazeer 2006 and Tammet 2006. On private meanings within an "autistic idiolect," see Chew 2008. Valuable related discussions may be found in Nadeson 2008, Murray 2008, and throughout the essays in Osteen 2008.

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47. This list is by no means exhaustive. A cursory look at autism websites and conversation with members of the autism community shows hundreds of special interests, ranging from ceiling fans and fried eggs to dinosaurs and running water.

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48. This point—that practice makes perfect—seems perfectly obvious and not in need of scientific confirmation, but in fact there is empirical evidence in the population of savant musicians to support it: "Several lines of evidence support the view that obsessions and restricted interests might play a role in the development of savant talent. First, although individuals with autism represent a relatively small proportion of the cognitively impaired population, the majority of talented, but cognitively impaired individuals have been diagnosed with autism. Second, in cases where savant talents are reported in individuals without autism, they frequently have developmental or acquired disorders that include obsessive behaviors and/or restricted interests as clinical features (e.g., Tourette's syndrome and frontotemporal dementia). Finally, mild autistic features have been noted in some professional groups, for example musicians with absolute pitch (Brown et al., 2003), who are noted for high achievement. Therefore, converging evidence highlights the significance of obsessive and restrictive interests in the development of savant talent." Heaton and Wallace 2004, 909.

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49. While special interests, including topics of only marginal general interest, are typical of autism, it is obvious that many "neurotypicals" also have the capacity to concentrate intensively on activities that most people would regard as pretty meaningless (think of hitting a tennis ball over a net, or amassing a collection of refrigerator magnets, or any of the vast numbers of repetitive activities to which "normal people" devote their time and energy). In short, you don't have to be autistic to have an apparently strange, lonely interest.

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