

# The Fundamental Right to Be Free of Arbitrary Categorization: The Brain Sciences and the Issue of Sex Classification

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## I. INTRODUCTION

There are two basic approaches to identifying a person's sex for legal purposes. First there is the traditional approach, a practical approach, followed for the entire 100,000 year history of our species. This approach is simple and precise. There are two sexes, male and female, and which sex a person is is indicated at birth by a person's genitalia. We now know that the type of genitalia is determined by the chromosomes. *In re Estate of Gardiner*<sup>1</sup> is a recent judicial expression of this approach to sex classification.

The second approach, a biological approach, is more complex and is still emerging in the medical literature. There are basically two sexes,<sup>2</sup> male and female, though some persons are anatomically not clearly members of either of those two categories. Which sex a person is would usually be indicated by the genitalia, but not always. Indeed, in the real world, sex is more than just chromosomes. The argument of this article is that classification schemes based on the identification of a person's sex in cases of sex ambiguity must consider more than just genitalia because sex identification is a matter of chromosomes plus brain functioning plus brain structure. All three of those things in synthesis indicate a person's sex.<sup>3</sup> Thus, a person may anatomically look like a female, but if that person's brain organization and functioning is not female, then that person is not a female.<sup>4</sup> This second approach is the *real* world and is just as different from the *Gardiner*-embraced world as space flight is different from the early diasporas of homo sapiens from Africa.

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1. 42 P.3d 120 (Kan. 2002).

2. Some argue that there are more than two sexes. See, e.g., Julie A. Greenberg, *Deconstructing Binary Race and Sex Categories: A Comparison of the Multiracial and Transgendered Experience*, 39 SAN DIEGO L. REV. 917 (2002). As an academic theory, that might be correct. But, the odds are that it will not be incorporated into American law any time soon. Rather, the biological approach I am describing accepts a binary classification and argues that which class a person belongs to is a function of more than just chromosomes.

3. These three things *indicate*, but do not *determine*, a person's sex.

4. The Australian case, *Re Kevin* (2001) 28 Fam. L. R. 158, uses a variant of the biological approach. Justice Chisholm, in the opinion for the Family Court of Australia, noted that the use of the word "transsexual" implies that the person's sex was changed, but that actually no such change may have occurred. Instead the person's sex was misidentified at an earlier time, and that misidentification is simply being corrected. *Id.* at Introduction, ¶ 13.

The legal policy of *Gardiner* is that the initial assignment, albeit arbitrary, of a person into one of the two categories of sex (female or male) is presumptively accurate, and state laws intentionally based on such identifications are valid, barring problems of statutory interpretation. Kansas law presupposes that a person's official classification as a male or female is *per se* correct.<sup>5</sup> This is the methodology of the practical approach to sex classification. The medical literature for half a century, however, has made clear that in the real world a person's sex on occasion is not all that clear.

The traditional approach to sex classification violates the basic American legal principle that a person has a fundamental right not to be arbitrarily placed in one or another class by the operation of law. What is wrong with *Gardiner* is that, though arguably a plausible exercise of statutory construction, it perpetuates an arbitrary approach to classifying persons which is legally invalid even under the rational basis prohibition against arbitrary classifications<sup>6</sup> and out of touch with scientific reality.<sup>7</sup> Every level of equal protection scrutiny makes the assumption that arbitrary classifications are *per se* violations of the Equal Protection Clause. Accordingly, even under the lenient rational basis test, courts will strike down purely arbitrary classifications that have no rational relationship to a legitimate governmental interest.

There are obvious governmental and social needs that are satisfied by classifying persons according to their sex, but only if the classifying itself is not arbitrary. The conceptual inadequacy of *Gardiner*

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5. *Gardiner's* focus is KAN. STAT. ANN. § 23-101 (1995 & Supp. 2002), which provides for marriage to be between "parties who are of opposite sex." *Gardiner*, 42 P.3d at 135. A more attentive court could have noted that the statute is silent about how a person is classified as a particular sex, and then made the ready observation that both the Kansas Constitution and the federal Constitution forbid the government from making or utilizing arbitrary classifications.

6. The rational basis test requires that the classifying of persons into various categories not be arbitrary and be rationally related to achieving a legitimate governmental objective. Though the rational basis test gives deference to the legislature, "where . . . the only basis for the classification is to deny a benefit to one group for no purpose other than to discriminate against that group, the statutory classification is not only mathematically imprecise, it is without a rational basis and is arbitrary." *Thompson v. KFB Ins. Co.*, 850 P.2d 773, 782 (Kan. 1993). Since the substantive right to not be arbitrarily categorized is arguably a fundamental right, the proper level of scrutiny is strict scrutiny, and obviously if the proposed classification scheme does not pass rational basis, as a fundamental right, it cannot pass strict scrutiny. What makes the classification in the Kansas law arbitrary is that it is entirely without factual foundation to classify a person as one sex or the other based on a criterion that *in fact* cannot make the classification for that person.

7. The *Gardiner* Court accepts that a person's initial classification as a male or female is indelible. The methodology was perhaps most honestly stated in *Littleton v. Prange*, 9 S.W.3d 223, 227 (Tex. App. 1999), as "once a man, always a man." The initial sex identification is presumptively accurate and permanent. *Gardiner* uses the same methodology: "We are not blind to the stress and pain experienced by one *who is born a male* but perceives oneself as a female." *Gardiner*, 42 P.3d at 137 (emphasis added). That is exactly wherein the arbitrariness lies. Petitioner J'Noel may have been identified anatomically as a male at birth, but arguably, that identification was inaccurate. However, as long as one accepts the methodology of the permanence and accuracy of the initial sex identification, then J'Noel cannot win.

might be most clearly demonstrated by analogizing to a law classifying persons according to their height. Such a law could be passed as a safety measure to keep persons below, say, fifty-four inches from going on certain roller coasters. This law divides the world into two groups, the NOT TALL ENOUGH and the TALL ENOUGH. The rational basis test would support the conclusion that such a classification is a rational means of achieving the legitimate governmental interest of safety. Assume further that the routine application of the law was that for persons whose height is not a whole number but involves a fraction, such as fifty-six and two-thirds inches or sixty-five and three-fourths inches, such persons would be classified as either NOT TALL ENOUGH or TALL ENOUGH based not on their own height but on another physical characteristic of their bodies, namely arm length. Arm length is the surrogate for height because of the high correlation between the length of one's arm and one's overall height. Such an application of the law would be arbitrary and an obvious violation of equal protection. Moreover, such a law would be a mockery of reality because it placed people into the NOT TALL ENOUGH and TALL ENOUGH groups based on a criterion that was inadequate to make the classification in the first place and that bore no rational relationship to the achievement of the objective of safety. Indeed, that is usually what is wrong with completely arbitrary laws. They are simply out of touch with reality.

Likewise, arbitrarily designating someone's sex according to that person's physical appearance at birth is out of touch with the reality of what sex is *for some people*, and as such is totally arbitrary *for those persons for whom the genitalia criterion is inadequate to make the identification*. What we know about sexual identity today as compared with just a few decades ago confirms that one's physical appearance, specifically what the genitalia look like, *usually* is a reliable indicator of one's sex, but *not always*. If a person is in that small percentage of persons whose physical appearance does not reliably indicate sex, to use physical appearance anyway as the classifying criterion is just as shamefully arbitrary as classifying the person who is sixty-two and two-thirds inches tall as NOT TALL ENOUGH because of that person's arm length.

## II. THE MULTIDIMENSIONALITY OF SEX IDENTIFICATION

Recent biological research suggests that a person's sex can be most reliably identified by considering together (1) chromosomes, (2) brain functioning, and (3) brain structure. Usually, chromosomes, brain functioning, and brain structure are all in sync so that a person with an XY chromosome has male genitalia and has brain structures

and functions which are “male.” However, such in sync alignment is not always the case. For some persons, more than physical appearance has to be considered to make a reliable classification of that person’s sex.

### A. *Chromosomes*

Humankind has always taken it for granted that a person’s genitalia infallibly indicated a person’s sex. A person with a penis was a male, and a person with a vagina and ovaries was a female. In that simple world, there were no major problems in pigeon-holing people into the male or female categories. Because there was no real knowledge about sex determination and chromosomes, and because there were so few apparent problems presented by this shorthand approach to sex identification, the assumption that physical equipment was an infallible indicator of sex went unquestioned. There were, of course, problems in that a small percentage of persons felt that somehow they had been misclassified. For example, the person might have the sex equipment of a male, but he felt in his heart and mind like a female must feel and felt he was experiencing the world around him as a female would, not as a male would. However, the number of people who felt miscategorized was so small that the basic assumption of classifying from genitalia was not questioned.<sup>8</sup> However, in the 1950s, the technique of visually counting chromosomes was developed,<sup>9</sup> and the old assumption was quickly exposed as false. We began to discover chromosomal deviations from the ordinary. “[T]he extraordinary range of sex-chromosome genotypes that was compatible with both a male and female body form or phenotype meant that it was no longer feasible to equate XY exclusively with male and XX exclusively with female.”<sup>10</sup> In the legal world, that assumption has recently been questioned, but retained, while at the same time the scientific world has discarded it because the reality is that sex is more than just physical equipment. The assumption of the simpler world worked for centuries, but, at least in western law, as individual treatment and fundamental fairness have gained stature, for a small percentage of people, the old assumption has been shown to be untrustworthy in some cases, and thus fundamentally unfair.

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8. Justice Jackson noted in his concurring opinion in *Railway Express Agency, Inc. v. New York*, 336 U.S. 106, 113 (1949), that “we are much more likely to find arbitrariness in the regulation of the few than of the many.”

9. In 1955, Joe Hin Tjio first established that homo sapiens ordinarily have forty-six chromosomes. See Pearce Wright, *Joe Hin Tjio: The Man Who Cracked the Chromosome Count*, GUARDIAN, Dec. 11, 2001, available at <http://education.guardian.co.uk/higher/medicallscience/story/0,9837,616921,00.html>.

10. JOHN MONEY, SEX ERRORS OF THE BODY AND RELATED SYNDROMES 100 (2d ed. 1994).

In the old world, everyone was either XY (male) or XX (female). A person was presumptively one or the other. We now know that males are males because, after the first six weeks of the embryonic stage, a genetic signal triggers the production of testosterone that in turn bathes the embryo, and testes are produced.<sup>11</sup> Voila, we have a male; at least on the surface we have a male.

However, sometimes things do not work so smoothly. Errors occur. John Money has identified the following chromosomal errors where the traditional XX or XY pattern does not occur:<sup>12</sup>

1. Triple X Syndrome (XXX)<sup>13</sup>
2. Supernumerary Y Syndrome (XYY)<sup>14</sup>
3. Klinefelter Syndrome (XXY)<sup>15</sup>
4. Turner Syndrome (X)<sup>16</sup>
5. 45,X/46,XY Syndrome<sup>17</sup>

All of these errors do not automatically trigger sexual ambiguity or uncertainty in the subject of his or her own sexual self identity. Sometimes the Klinefelter Syndrome, but more often the Turner Syndrome and the 45,X/46,XY Syndrome, implicates sexual self identity issues. With these three errors, there is often gonadal or sexual ambiguity at birth; that is, it is not clear whether the person has a penis or a vagina.<sup>18</sup> Eventually, sex assignment surgery may be used.

The point of this brief discussion of chromosomal errors is to demonstrate that the traditional assumption that sex is a matter of genitalia, that is, of chromosomes, is too facile and does not reflect the more complex reality of the human chromosomal condition. Indeed, a baby born with gonadal ambiguity may undergo sex assignment surgery. For example, the genitalia of a male may be surgically created for the baby even though, unbeknownst to the surgeon or parents, the brain structure and function of the baby is distinctly female.

Sex identification, as opposed to surgical sex assignment, has been handled in the past somewhat as the following hypothetical conversation portrays:

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11. JOHN ARCHER & BARBARA LLOYD, *SEX & GENDER* 72 (2d ed. 2002).

12. See generally MONEY, *supra* note 10, at 7-18. In addition to chromosomal errors, there may also be gonadal, hormonal, hypothalamic, and physiological errors which confound accurate sex identification. See generally *id.*

13. Some females have an extra X chromosome, but because there are no prominent physical or mental symptoms, such persons often go through life never knowing of their chromosomal abnormality. *Id.* at 9.

14. Some males have an extra Y chromosome. Though there may be a relationship with impulsive behavior, the XYY pattern does not implicate sexual ambiguity. *Id.* at 10-11.

15. In apparent males, there is an extra X chromosome. Normal, masculinized physical development might be able to be achieved by hormonal therapy. *Id.* at 13.

16. An apparent female is missing one X chromosome and has no ovaries. Because there are no ovaries, no female hormones are produced, and hormone therapy is indicated. *Id.* at 14-15.

17. Similar to the Turner Syndrome, this syndrome is usually characterized by ambiguous sexual organs. *Id.* at 17.

18. See generally *id.* at 19-22.

BIRTHING MOTHER: [*giving final push*] Ohhhhhhhhh!!

DOCTOR: Here it comes!! It's a . . . boy!!

NURSE: Doctor? Are you sure?

DOCTOR: [*timidly*] Well, yes, yes, it is a boy. I think it's a boy. Let me look closely. [*sub voce and confused*] It's got to be either a boy or a girl. Yes, it *is* a boy.

One must wonder, was that baby *really* a boy? If there is such physical ambiguity at birth that sex is unclear, any decision regarding sex is inherently arbitrary.<sup>19</sup> That hypothetical conversation and the sex decision can have profound, even devastating, legal and social consequences for the individual. When the law embraces such a sex identification decision for an individual, and rigidly adheres to it in the light of overwhelming evidence of the falseness of the assumption underlying the decision, the individual has been treated in a fundamentally unfair way.

#### B. *Functional Differences in the Female Brain and the Male Brain*

Findings are accumulating that there is a “male brain” and a “female brain.” These findings imply that whether a person is male or female is partially a derivative of how the brain functions. Certain brain functioning is being identified as “male” because it characterizes those persons whose genitalia is male and whose brain structures (as discussed below) are male. However, such congruence of physical appearance, functioning, and brain structure is not always the case. If a person relates to and experiences the world “as a female,” that is primarily because the brain is functioning in a certain way. If a person relates to and experiences the world “as a male,” that is probably partly because the brain is functioning in a certain, different way.

Research to date has identified the following ways in which male and female brains differ in how they function:<sup>20</sup>

- The male brain is more lateralized than the female brain.<sup>21</sup> This means that the male brain usually uses predominantly one hemisphere to accomplish a cognitive task whereas the female brain will ordinarily have proportionally greater contributions from both hemispheres. Especially for word and language tasks, the female brain is much more bilateral than the male brain.<sup>22</sup>

19. Thus, because of its efficiency and overall accuracy, the traditional approach should continue to serve as the default rule for sex identification, but whereas in the past there has been no contingency rule, biology has now supplied us with the ingredients of a contingency rule incorporating brain structure and brain function.

20. This listing is not exhaustive.

21. See Doreen Kimura, *Sex Differences in the Brain*, 267 *SCI. AM.*, Sept. 1992, at 118.

22. Susan L. Rossell et al., *Sex Differences in Functional Brain Activation During a Lexical Visual Field Task*, 80 *BRAIN & LANGUAGE* 97, 103 (2002); see also Bennett A. Shaywitz et al., *Sex Differences in the Functional Organization of the Brain for Language*, 373 *NATURE* 607 (1995).

- The female brain is quicker to respond empathetically to sounds of distress.<sup>23</sup> This functional finding is based on a study of one-day old infants and, therefore, precludes the confounding effects of socialization.
- The female brain outperforms the male brain on communicative and verbal tasks.<sup>24</sup> This is consistent with the finding cited below that the temporal cortex of the female brain has about eleven percent more neurons in it than does that of the male brain.<sup>25</sup> The temporal cortex is that part of the cerebral cortex involved most centrally in language processing.
- The male brain outperforms the female brain on spatial manipulation tasks.<sup>26</sup> Imaging studies consistently show that the male and female brain activate differently (more neurocognitive activity in certain areas and less in others) both for language tasks as well as for spatial tasks.<sup>27</sup>
- The female brain more accurately perceives facial expressions than the male brain, especially expressions of sadness.<sup>28</sup> Interestingly, the male brain is particularly poor at perceiving sadness in women's facial expressions as compared with men's expressions.
- The limbic system (the emotional center of the brain) of the female brain reacts to confrontational stimuli with a verbal response whereas the male limbic system triggers a more physical response.<sup>29</sup> This is consistent with the other findings concerning the female brain and verbal processing as well as with more stereotypical notions of the male as the protector and defender.

### C. *Structural Differences in the Female Brain and the Male Brain*

There are numerous differences in the structure and organization of males' and females' brains, though the significance of those differences and their relationships to function are not yet known. The following are the major structural differences:

- The male brain is on the average about fifteen percent larger than the female brain.<sup>30</sup> Males' larger body size does not seem to be the convincing explanation for the brain size difference. Deborah Blum notes, "[t]here are feminist scholars who simply say this preoccupation with size is meaningless, that the best pol-

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23. See Martin L. Hoffman, *Sex Differences in Empathy and Related Behaviors*, 84 *PSYCHOL. BULL.* 712 (1977).

24. Larry V. Hedges & Amy Nowell, *Sex Differences in Central Tendency, Variability, and Numbers of High-Scoring Individuals*, 269 *SCI.* 41, 41-45 (1995). See generally Kimura, *supra* note 21.

25. S. F. Witelson et al., *Women Have Greater Density of Neurons in Posterior Temporal Cortex*, 15 *J. NEUROSCIENCE* 3418 (1995).

26. Hilmar Nordvik & Benjamin Amponsah, *Gender Differences in Spatial Abilities and Spatial Activity Among University Students in an Egalitarian Educational System*, 38 *SEX ROLES* 1009, 1017 (1998).

27. DEBORAH BLUM, *SEX ON THE BRAIN: THE BIOLOGICAL DIFFERENCES BETWEEN MEN AND WOMEN* 53 (1997).

28. Frank Schneider et al., *Standardized Mood Induction With Happy and Sad Facial Expressions*, 51 *PSYCHIATRY RES.* 19 (1994).

29. Ruben C. Gur et al., *Sex Differences in Regional Cerebral Glucose Metabolism During a Resting State*, 267 *SCI.* 528 (1995).

30. BLUM, *supra* note 27, at 37.

icy is to declare the difference irrelevant and leave the topic alone. This seems to me [Blum] a risky approach, particularly for us women. The difference is there; better to explore it, figure it out, and explain it rationally than to wish it away."<sup>31</sup>

- The male brain decreases in size as a function of age at a faster rate than the female brain.<sup>32</sup> This sexual dimorphism is more pronounced for the frontal lobe than for the temporal lobe.<sup>33</sup>
- The female brain has higher levels of estrogen receptor- $\alpha$  immunoreactivity in the hypothalamus than the male brain.<sup>34</sup> The same sex difference has been found in other primates, but the significance of the difference is unknown.
- The preoptic area of the female hypothalamus demonstrates a different synapse firing pattern from the male preoptic area.<sup>35</sup> The difference is apparently a result of the relative levels of testosterone and androgens in that area of the brain. In males, the preoptic area is involved in behavior associated with reproduction.<sup>36</sup> Several other structural differences between the male and female hypothalamus (and the preoptic area in particular) have also been identified.<sup>37</sup>
- MRI and PET scan methodology consistently reveal that the female brain, more than the male brain, uses areas spread through both the right and the left hemispheres to process cognitive tasks.<sup>38</sup> In contrast, the male brain is more lateralized, that is, more likely to concentrate cognitive processing in one or the other hemisphere rather than spreading it more evenly through both hemispheres.
- The male brain shows a higher proportion of white matter while the female brain has a higher proportion of gray matter.<sup>39</sup> Moreover, the distribution of gray and white matter between the two hemispheres is symmetrical in the female brain and asymmetrical in the male brain.<sup>40</sup>
- The temporal cortex of the female brain has an eleven percent greater concentration of neurons than the male temporal cortex.<sup>41</sup>
- The corpus callosum of the female brain is larger than that of the male brain.<sup>42</sup> This might relate to a higher transfer rate of infor-

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31. *Id.* at 38.

32. P. E. Cowell et al., *Sex Differences in Aging of the Human Frontal and Temporal Lobes*, 14 J. NEUROSCIENCE 4748, 4750-51 (1994).

33. *Id.*

34. See Frank P. M. Kruijver et al., *Estrogen Receptor- $\alpha$  Distribution in the Human Hypothalamus in Relation to Sex and Endocrine Status*, 454 J. COMP. NEUROLOGY 115, 135 (2002).

35. BLUM, *supra* note 27, at 43; see Michel A. Hofman & Dick F. Swaab, *The Sexual Dimorphic Nucleus of the Preoptic Area in the Human Brain: A Comparative Morphometric Study*, 164 J. ANATOMY 55 (1989).

36. BLUM, *supra* note 27, at 43.

37. Dick F. Swaab et al., *Structural and Functional Sex Differences in the Human Hypothalamus*, 40 HORMONES & BEHAV. 93, 93-95 (2001).

38. See BLUM, *supra* note 27, at 52.

39. Ruben C. Gur et al., *Sex Differences in Brain Gray and White Matter in Healthy Young Adults: Correlations With Cognitive Performance*, 19 J. NEUROSCIENCE 4065 (1999).

40. *Id.* at 4069.

41. Bruce S. McEwen, *Permanence of Brain Sex Differences and Structural Plasticity of the Adult Brain*, 96 PROC. NAT'L ACAD. SCI. U.S. 7128, 7129 (1999).

42. Helmuth Steinmetz et al., *Corpus Callosum and Brain Volume in Men and Women*, 6 NEUROREPORT 1002, 1003-04 (1995).

mation from one hemisphere to the other in the female brain, and that in turn could be related to the greater degree of non-lateralization in the female brain; that is, greater usage of both hemispheres for a cognitive task as opposed to specialized use of one hemisphere. In addition to the basic finding that there is a sex difference in the size of the corpus callosum between the female and male brain, that size difference in the male brain, but not the female brain, is related to whether the subject is right or left handed.<sup>43</sup> Handedness is often associated with hemispheric specialization, and the association with corpus callosum volume is consistent with the other structural dissimilarities between the female and male brains.

- The male brain consistently has a proportionately larger language region in the left hemisphere.<sup>44</sup> This is consistent with the greater language specialization of the male brain as compared to the female brain.

The above references to “male brain” and “female brain” take some latitude with some of the studies because the sexual description of the brain is derived from an a priori traditional identification of sex. Thus, a person is identified in the old fashioned way as a male or female, and then the brain is accordingly classified as male or female. If that were all there was to it, then this approach would be as bankrupt as the traditional approach. However, the biological approach recognizes that for the high percentage of cases, the traditional approach is indeed efficient and accurate. The biological approach goes the additional step, however, in providing for a way to classify individuals for whom the traditional approach is inadequate. Indeed, we now know that the female brain function pattern can be found in an anatomical male and that the male brain function pattern can be found in an anatomical female.<sup>45</sup>

### III. BRAIN FUNCTIONING AND STRUCTURE IN TRANSEXUAL PERSONS

There are very few studies focusing specifically on the brain function and structure of transsexual persons, and these studies usually have involved very small samples.<sup>46</sup> The few studies that have been carried out so far are consistent with the idea that these persons have a pattern of brain functioning which is not necessarily consistent with a particular anatomical designation. These studies are immensely complex because there are confounding hormonal influences on brain

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43. McEwen, *supra* note 41, at 7129.

44. See Thomas E. Schlaepfer et al., *Structural Differences in the Cerebral Cortex of Healthy Female and Male Subjects: An MRI Study*, 61 *PSYCHIATRY RESEARCH-NEUROIMAGING* 129 (1995).

45. An enlightening and entertaining discussion of this cross-patterning is *WHY MEN DON'T IRON* (First Run/Icarus Films 1998).

46. See Peggy T. Cohen-Kettenis et al., *Cognitive Ability and Cerebral Lateralisation in Transsexuals*, 23 *PSYCHONEUROENDOCRINOLOGY* 631, 634 (1998).

development and functioning, and these influences can be either prenatal, postnatal, or both. In addition, certain persons who claim to be transsexual will actually be diagnosed under DSM-III-R as non-transsexual<sup>47</sup> (or under DSM-IV as nongender dysphoric).<sup>48</sup> Once these various methodological interferences have been removed, the data are not voluminous, but are still consistent with the idea that the biological approach rather than the traditional approach to classifying a person's sex is more in touch with the real world.

Male-to-female (MF) transsexual persons, that is, persons who went from a male designation to a female designation, were classified as males at birth. Under the "once a man, always a man" mentality, they were arbitrarily always to be males. However, the MF's brain function pattern is similar to the female brain in that it is higher on verbal scores and less lateralized than male controls.<sup>49</sup> Female-to-male (FM) transsexual persons surprisingly show the female brain pattern of reduced lateralization, but, in keeping with the male brain pattern, score lower than the control group of females on verbal tasks.<sup>50</sup> In other neurological functioning tests, MF's resemble the female brain pattern, and FM's resemble the male brain pattern.<sup>51</sup> The individuals of both groups under the biological approach to sex identification are classified differently from the way the traditional approach per *Gardiner* would classify them.

Brain structure findings also align MF's with the female brain structure rather than with the male brain structure. For example, the bed nucleus of the stria terminalis in size is closer to the female structure than to the male structure.<sup>52</sup> Early attempts to disentangle sexual orientation from transsexual persons' sex identity refute the idea that what these studies are really measuring is homosexual brain structures and functions.<sup>53</sup> Indeed, they rather robustly support the idea that MF's are indeed F's and that FM's are indeed M's, assuming a binary classification system.

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47. See A. Michel et al., *Comparisons of Two Groups of Sex-Change Applicants Based on the MMPI*, 91 *PSYCHOL. REPS.* 233 (2002) (citing AM. PSYCHIATRIC ASS'N, *DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS* (3d ed., rev. 1987)).

48. *Id.* (citing AM. PSYCHIATRIC ASS'N, *DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS* (4th ed., text rev. 2000)).

49. Cohen-Kettenis et al., *supra* note 46, at 637.

50. *Id.*

51. *Id.* at 638.

52. See Jiang-Ning Zhou et al., *A Sex Difference in the Human Brain and Its Relation to Transsexuality*, 378 *NATURE* 68 (1995). The limbic structures in general for MF's are of the female brain structural pattern. See Frank P. M. Kruijver et al., *Male-to-Female Transsexuals Have Female Neuron Numbers in a Limbic Nucleus*, 85 *J. CLINICAL ENDOCRINOLOGY & METABOLISM* 2034 (2000).

53. See Cohen-Kettenis et al., *supra* note 46, at 639. But see Frank P. M. Kruijver et al., *Sex Differences in Androgen Receptors of the Human Mamillary Bodies Are Related to Endocrine Status Rather Than to Sexual Orientation or Transsexuality*, 86 *J. CLINICAL ENDOCRINOLOGY & METABOLISM* 818 (2001).

## IV. FINAL OBSERVATIONS

The legal issue as stated in the beginning of this article is whether the state can arbitrarily classify a person into a particular sex category. Even before the brain sciences had made apparent the arbitrariness of the traditional approach to identifying a person's sex, as a principle, American law already prohibited arbitrary classifications.<sup>54</sup> Advances in the brain sciences have stripped from the traditional approach any pretense of nonarbitrariness in situations of ambiguity. In a legal system that protects the rights of individuals, the fact that there are very few intersexuals, implying that, consequently, the problem is too rare to justify the changing of public policy, is irrelevant.<sup>55</sup> There is no de minimis principle permitting arbitrary classifications or allowing the violation of fundamental rights. Our laws would never sanction arbitrary classification to the legal detriment of a minority in the U.S., for example, the Hmong, simply because there are so few of them here.<sup>56</sup>

Because the biological data are fast closing the door on the use of the traditional approach to sex identification, the legal resolution of the issue is ultimately not in doubt. Thus, one wonders why the *Gardiner* Court nevertheless adhered to the traditional approach. Several possible explanations come to mind.

First, even though another court had already broken some ground in treating transsexual persons fairly in matters of family law,<sup>57</sup> the facts in *Gardiner* allowed, even encouraged, the Kansas Supreme Court to avoid the major issues. In short, the case was factually a "bad" case. Marshall and J'Noel Gardiner got married after knowing each other for a very short period of time. At the time of Marshall's marriage to J'Noel, Marshall was very wealthy and very old. The facts and factual allegations surrounding a possible premarital agreement were murky and contradictory. The facts and factual allegations re-

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54. The rational basis test in its modern form dates at least back to *Williamson v. Lee Optical of Oklahoma, Inc.*, 348 U.S. 483 (1955), and arguably as far back as *Lindsley v. Natural Carbonic Gas Co.*, 220 U.S. 61 (1911).

55. The Kansas Supreme Court recognized implicitly that this was a public policy issue. *In re Estate of Gardiner*, 42 P.3d 120, 137 (Kan. 2002). "[T]he validity of J'Noel's marriage to Marshall is a question of public policy to be addressed by the legislature and not by this court." *Id.*

56. Citing the 2000 U.S. Census, the Hmong Population Research Project at the University of Wisconsin reports that there are just over 169,000 Hmong in the United States. HMONG POPULATION RESEARCH PROJECT, 2000 U.S. CENSUS-HMONG POPULATION GROWTH, at [http://www.uwec.edu/econ/HmongResearch/H2000\\_us\\_census.htm](http://www.uwec.edu/econ/HmongResearch/H2000_us_census.htm) (last visited Feb. 13, 2003). Of these, 1,004 live in Kansas. *Id.* In comparison, a conservative estimate is that 1.7% of the children born in the United States are intersexual in some way. Anne Fausto-Sterling, *The Five Sexes, Revisited*, SCIENCES, Jul.-Aug. 2000, at 20. This 1.7% would not be candidates for sex reassignment surgery (that percentage would be substantially smaller), but they cannot readily be categorized as male or female by the traditional approach. *See id.* Just as we would not condone an ethnic minority to be victimized by an arbitrary classification scheme, our law also prohibits arbitrary categorization of any identifiable group.

57. *See, e.g., M.T. v. J.T.*, 355 A.2d 204 (N.J. Super. Ct. App. Div. 1976), *cert denied*, 364 A.2d 1076 (N.J. 1976).

garding J'Noel's "waiver" of her right to inherit from Marshall were provocative. The references to "engagement rights" are bizarre. When the waiver was found, J'Noel allegedly told Joe, Marshall's son, who wanted to be named executor of the estate, "[c]heckmate, you win."<sup>58</sup> This suggests the case was really all about money, even at the expense of personal issues that might interest other transsexual persons, issues such as their equal rights to inherit, the right to a nonarbitrary sex identification, etc. The court, faced with this particular array of facts, rather than crafting a progressive ruling on sex identification, simply adhered to the canons of judicial restraint and took the statutory construction path of least resistance.<sup>59</sup>

A second, and not completely separate explanation, is that the Kansas Supreme Court, even if it wanted to "make law," did not have any doctrinal handle to grab onto. The equal protection issue was apparently not preserved for appeal, and the fundamental rights issue was apparently not even argued. Maybe the Kansas Supreme Court is not a good forum for such issues,<sup>60</sup> and the attorneys, realizing this, simply framed the case in much more limited, conservative terms. With no handle on which to hang a more adventuresome opinion, the court seized on the safest judicial dodge of them all — statutory construction.

Though the ball is ostensibly in its court, unless the Kansas legislature is unique in the western hemisphere, it will not handle this issue, and the issue will eventually end up in the judicial arena again.

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58. Appellee's Petition for Review at 4, *Gardiner* (No. 85,030).

59. I formed the opinion that this was probably just a bad case after reading the briefs that the attorneys for both sides provided me. As is usually the case, the briefs are much more informative and factually richer than the court's opinion.

60. Students of judicial behavior fully realize that judicial ideology, more than doctrine, statutory construction, and the like, is the core determinant of most judges' votes in close cases. Glendon Schubert definitively established that judges usually vote on the basis of their a priori ideologies rather than on the basis of legal doctrines and concepts. See GLENDON SCHUBERT, *THE JUDICIAL MIND REVISITED: PSYCHOMETRIC ANALYSIS OF SUPREME COURT IDEOLOGY* (1974). Law school curricula and instruction for the most part seem blithely oblivious to the genre of judicial behavior research of which Schubert's work is part.