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Criminal Law - Capacity to Commit and Responsibility for Crime - Validity of the XYY Syndrome as Part of the Defense of Insanity

Tom Aljets

RECENT CASES

CRIMINAL LAW—CAPACITY TO COMMIT AND RESPONSIBILITY FOR CRIME—VALIDITY OF THE XYY SYNDROME AS PART OF THE DEFENSE OF INSANITY.

On August 19, 1974, Charles Yukl brutally killed twenty-three-year-old Karen Schlegal. After Yukl was indicted and charged with murder, his attorney submitted a motion requesting a bifurcated trial[1] and appointment of a cytogeneticist, at the state's expense, to conduct chromosomal[2] tests of Yukl's blood. The chromosomal tests would have been used to determine whether Yukl had a genetic imbalance (the XYY syndrome),[3] which may have a relation-

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1. The Supreme Court, New York County, Trial Term, held that the requested bifurcated trial procedure, where the insanity defense would be tried first and a second jury would determine guilt if the defendant were found sane, was not feasible because it would cause further delays in the trial of cases, and it would jeopardize due process to require the state to first determine whether the defendant was sane or insane, and then to possibly institutionalize him before his guilt was determined in the crime. People v. Yukl, 372 N.Y.S.2d 313, 316 (1975).

2. Chromosomes are threadlike structures of complex molecules which transmit genetic information, and which determine the heredity of all plant and animal life. Human beings characteristically have 46 chromosomes in the nucleus of each cell. Egg and sperm cells contain 23 chromosomes each, but upon uniting, the chromosomes are pooled so that the new individual has 46 chromosomes arranged in 23 pairs. Twenty-two of the 23 pairs of chromosomes in each cell are called autosomes, which determine most of the biological characteristics of the individual; while the remaining pair are referred to as gonosomes, which determine the person's primary sexual characteristics.

Women normally have two gonosomes called X chromosomes (XX), while most men have an X chromosome paired with a Y chromosome (XY). Some individuals are born with chromosome abnormalities, and have either too few or too many chromosomes. One of these abnormalities is the so-called XYY syndrome (XYY). *See generally* W. KEETON, BIOLOGICAL SCIENCE 488 (2d ed. 1972).

A number of related studies have produced evidence suggesting a link between the XYY syndrome and criminal behavior. These studies suggest that XYY males have been found to be more than normally aggressive and impulsive, tall in stature, and usually below average in intelligence. Facial acne is common in adolescense in such males. These studies emphasize that XYY males make up only a small proportion of the criminal population and that not all XYY males become criminals. The biological mechanism that may cause the relationship between genetic composition and deviant behavior in XYY males has not been determined. One possibility is that the normal XY male derives his normal amount of aggressiveness from his Y chromosome, and that the addition of an extra Y chromosome gives him a double dose of aggressiveness. Another possibility is that the Y chromosome might have led to the excessive production of androgens during early development. This might influence brain structure and functioning and may result in unusually aggressive behavior patterns in later life. *See generally* J. COLEMAN, ABNORMAL PSYCHOLOGY AND MODERN LIFE 392-94 (4th ed. 1972).

3. The abnormality denominated the XYY syndrome is detected by taking a blood sample from the individual to be tested, culturing the white blood cells for one week, stopping by chemical means the meiosis of the cells, straining and photographing them, and then pairing the 46 normal chromosomes and identifying the extra Y sex chromosomes. This method, the Lejeune test, is a recognized method for ascertaining the number of chromosomes in an individual. The test is normally conducted on a sufficient number of cells to eliminate the possibility of a chance occurrence of the XYY character.

ship to antisocial behavior,[4] and thus possibly admissible as part of the defense of insanity. The Supreme Court, Trial Term, New York County, *held* that the genetic imbalance theory of crime causation had not been sufficiently established and accepted to warrant admission of evidence with regard to the XYY syndrome as part of the defense of insanity. *People v. Yukl*, 372 N.Y.S.2d 313 (1975).

The insanity defense, simply stated, is a device by which a defendant in a criminal proceeding can gain acquittal by showing that his mental condition did not satisfy a minimum standard at the time the criminal act was committed.[5] The insanity defense in the United States exists in four major formulations:[6] the *M'Naughten* test,[7] the irresistable impulse test,[8] the *Durham* test,[9] and the American Law Institute (ALI) test.[10]

The *M'Naughten* test is based upon rules set forth in an 1843 English decision, *M'Naughten's Case*.[11] Before an insanity defense is established under this test:

> it must be clearly proved that, at the time of the committing of the act, the party accused was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing; or, if he

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4. *See* Note 2, *supra*.

5. Although the XYY anomaly is a physical malady, it may be admissible in an insanity defense if it is shown that it can cause mental disturbance. *See generally* Note, *The XYY Chromosome Defense*, 57 GEO. L.J. 892 (1969); Comment, *The XYY Syndrome and the Judicial System*, 6 N.C. CENTRAL L.J. 66 (1974). The problem of showing a link between the XYY syndrome and the defendant's mental disturbance is similar to the problem encountered by the epilepsy defense in its early stages. When defense counsel first attempted to offer into evidence at trial testimony showing that defendants may have been suffering from epilepsy at the time the criminal acts in question were committed, courts insisted, as a condition precedent to the admissibility of this evidence, that an expert show a link between the physical malady and the mental disturbance. Later, when it was generally accepted by medical science that epilepsy could have a serious effect on the defendant's behavior, the courts began to take judicial notice of this fact, and merely required testimony showing that the defendant suffered from the malady. State v. Wright, 112 Iowa 416, ——, 84 N.W. 541, 542 (1900); People v. Barber, 115 N.Y. 475, ——, 22 N.E. 182, 188 (1889); People v. Codarre, 245 N.Y.S.2d 81, 85 (1963), *affirced*, 14 N.Y.2d 370, 200 N.E.2d 570, *cert. denied*, 379 U.S. 883 (1964).

In general, the traditional test for determining whether a scientific principle or discovery has become accepted as fact, and thus admissible in evidence at trial, is that "the thing from which the deduction is made must be sufficiently established to have gained general acceptance in the particular field in which it belongs." Frye v. United States, 293 F. 1013, 1014 (D.C. Cir. 1923); State *ex rel.* Trimble v. Hedman, 291 Minn. 442, ——, 192 N.W.2d 432, 438 (1971); People v. King, 266 Cal. App. 2d 437, ——, 72 Cal. Rptr. 478, 493 (1968). A competing formula sets out a less demanding standard: a qualified expert witness may testify concerning any relevant conclusions of a particular test or experiment notwithstanding the fact that some experts may disagree as to its accuracy, such objections going to the weight of the evidence but not to its admissibility. McKay v. State, 155 Tex. Crim. Rpt. 416, 235 S.W.2d 173, 174 (1950). *See* People v. Conterno, 170 Cal. 2d 817, ——, 339 P.2d 968, 973 (1959). *See generally* Note, *Admissibility of Evidence Obtained by Scientific Devices and Analyses*, 5 U. FLA. L. REV. 5 (1952).

6. W. LAFAVE & A. SCOTT, JR., CRIMINAL LAW 269 (1972) (hereinafter cited as LAFAVE).

7. This test is based upon criterion established in M'Naughten's Case, 8 Eng. Rep. 718 (H.L. 1843); *See* Notes 11-12, *infra*, and text accompanying.

8. *See* Note 22, *infra*, and text accompanying.

9. This test is based upon standards set forth in Durham v. United States, 214 F.2d 862 (D.C. Cir. 1954). *See* Notes 31-32, *infra*, and the text accompanying.

10. *See* Notes 40-41, *infra*, and text accompanying.

11. 8 Eng. Rep. 718 (H.L. 1843). *See* LAFAVE at 274.

did know it, that he did not know that he was doing what was wrong.[12]

It appears unlikely that a successful insanity defense could be based upon the XYY syndrome under the *M'Naughten* rules.[13] If medical research does not establish a definite relationship between the XYY abnormality and the defendant's behavior, there will be no evidence from which it could be concluded that an accused was unable to understand the nature of his act, or that he was unable to comprehend that his act was wrong.[14] Presently, there is no suggestion that possession of the extra Y chromosome by itself affects a person's ability to appreciate either the nature and quality of his acts or whether they are wrong.[15]

In the case of *People v. Tanner*,[16] the XYY defense was found not to satisfy the requirements of California's version of the *M'Naughten* rule.[17] In that case, Raymond Tanner pleaded guilty to a charge of assault with intent to commit murder. He was then sent to Atascadero State Hospital for study as a possible mentally disordered sex offender. There, it was discovered that he had the XYY chromosome abnormality, and on this basis Tanner attempted to change his plea to not guilty by reason of insanity. However, after hearing evidence introduced on the XYY chromosome findings, the trial judge refused to permit Tanner to change his plea, and this decision was affirmed on appeal.[18] The California Court of Appeal held the defense's expert testimony and studies deficient,[19] and concluded

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12. M'Naughten's Case, 8 Eng. Rep. 718, 722 (H.L. 1843).

13. *See generally* Note, *The XYY Chromosome Defense*, 57 GEO. L.J. 892, 907 (1969); Note, *Criminal Law: The XYY Chromosome Complement and Criminal Conduct*, 22 OKLA. L. REV. 287, 298 (1969).

14. People v. Yukl, 372 N.Y.S.2d 313, 319 (1975).

15. Many commentators feel that the XYY syndrome sampling involved in tests undertaken thus far has been inadequate and inconclusive. *See* Burke, *The "XYY Syndrome": Genetics, Behavior and the Law*, 46 DENVER L.J. 261 (1969); Note, *XYY Chromosomal Abnormality: Use and Misuse in the Legal Process*, 9 HARV. J. LEGIS. 469 (1972).

16. 13 Cal. App. 3d 596, 91 Cal. Rptr. 656 (1970).

17. The trial court in People v. Tanner, 13 Cal. App. 3d 596, 91 Cal. Rptr. 656 (1970), instructed the jury as follows on the issue of insanity:

> Insanity, as the word is used in these instructions, means a diseased or deranged condition of the mind which renders a person incapable of knowing or understanding the nature and quality of his act, or unable to distinguish right from wrong in relation to that act.

California Jury Instruction, CALJIC 801 (1967 Revision).

18. People v. Tanner, 13 Cal. App. 3d 596, 91 Cal. Rptr. 656 (1970).

19. *Id.* at 601, 91 Cal. Rptr. at 659. The court noted:

> The studies of the "47 XYY individuals" undertaken to this time are few, they are rudimentary in scope, and their results are at best inconclusive. . . . [T]he testimony of appellant's expert witnesses suggests only that aggressive behavior may be one manifestation of the XYY Syndrome. The evidence collected by these experts does not suggest that all XYY individuals are by nature involuntarily aggressive. Some identified XYY individuals have not exhibited such behavior. . . . [T]he experts could not determine whether appellant's aggressive behavior, namely, the commission of an assault with intent to commit murder, resulted from his chromosomal abnormality. Second, none of the expert witnesses on genetics testified that possession of this extra Y chromosome results in mental disease which constitutes legal insanity under the California version of the *M'Naughten* Rule. . . .

that the evidence of the XYY condition should be excluded because such evidence was not clear and convincing.[20]

The test of responsibility in several states is the irresistible impulse test.[21] Under this test, an individual is not considered responsible for a criminal act if, though he knew his act was wrongful, he was unable to control his actions because of a mental impairment.[22] Under this test, if it is found that the XYY syndrome satisfies the requirement of mental disease or impairment, it would appear that evidence of the chromosome abnormality would be admissible on the issue of whether such abnormality rendered the individual unable to control his behavior.[23] It must be shown, however, that the abnormality causes the individual difficulty in preventing himself from behaving in an anti-social manner.[24] Considerable difficulty, as opposed to total incapacity, may not be enough to satisfy the requirements of the irresistible impulse test, because the test is sometimes stated in absolute terms, requiring an individual's total inability to control his actions.[25]

Research to date has not indicated that the XYY syndrome could produce complete inability to control behavior.[26] Because of this, the success or failure of an insanity plea based upon the XYY syndrome will probably depend upon whom the burden of persuasion rests.[27] Where the burden of persuasion is upon the defendant to affirmatively prove lack of criminal responsibility, evidence of the XYY defect will probably not meet this burden.[28] However, in those jurisdictions in which the burden of persuasion is upon the prosecution, and the defendant only has a burden to introduce evidence to rebut a presumption of sanity,[29] the XYY abnormality might serve as the basis of a sufficient defense because a lesser amount of evidence, proving that his criminal action was the result of a disease-

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20. *Id.* at 602, 91 Cal. Rptr. at 659. The court analogized to other scientific data such as voice print analysis, Kell-Cellano blood grouping tests, testimony given under hypnosis, testimony given after sodium pentothal has been administered, and lie detector testing, all of which have likewise been denied admission into evidence because they fail to reach the necessary standards of acceptance and reliability.

21. *See* LAFAVE at 283.

22. Castro v. People, 140 Colo. 493, 346 P.2d 1020 (1959).

> Even if the defendant were able to appreciate the nature of the act he was committing, and that it was wrong, he still might not be responsible if he had suffered such an impairment of mind as to render him incapable of choosing the right and refraining from doing the wrong.

Id. at ——, 346 P.2d at 1027.

23. *See generally* Note, *The XYY Chromosome Defense*, 57 GEO. L.J. 892, 907-09 (1969).

24. *Id.*

25. "[T]he irresistible impulse criterion presupposes a complete impairment of capacity for self-control." MODEL PENAL CODE § 4.01, Comment, at 158 (Tent. Draft No. 4, 1955).

26. *See* Note 15, *supra.*

27. *See generally* LAFAVE at 312-317.

28. *Id.*

29. *Id.* at 312; *citing* H. WEIHOFEN, MENTAL DISORDER AS A CRIMINAL DEFENSE 241-272 (1954).

precipitated inability to control his behavior, may be needed in order to pass the burden of production to the prosecution.[30]

The XYY syndrome is a potentially significant factor in an insanity defense in a *Durham* test[31] jurisdiction. Under this test, the accused is not criminally responsible if he is suffering from a mental disease or defect, and his act was the product of the disease or defect.[32] The XYY syndrome, it appears, will be useful in a *Durham* test jurisdiction only if it can satisfy the definition of "mental disease" in relation to the "product" portion of the test.

The term "mental disease or defect" has been defined in *McDonald v. United States*[33] as "any abnormal condition of the mind which substantially affects mental or emotional processes and substantially impairs behavior controls."[34] It appears that the XYY syndrome might fit within the scope of this definition. If the presence of an extra Y chromosome causes serious personality disorders in an individual, an abnormality of the mind would seem to exist which would substantially affect the defendant's mental processes.

The "product of" wording in *Durham* necessitates a but-for relationship between the mental disease and the criminal act.[35] Under the *Durham* test, there is a presumption of sanity, which can be rebutted by the introduction of evidence or mental disease.[36] After introduction of such evidence, the burden is on the prosecution to disprove either the existence of the disease, or the causal relationship between it and the act.[37] However, on the practical level, there is little emphasis on the "product" concept.[38] The definition of mental disease, by stressing the lack of behavioral controls, makes it very likely that a jury will conclude that an abnormality such as the XYY syndrome caused the act if they believe that the accused suffered from a disease.[39]

The American Law Institute developed the ALI test of insanity in its Model Penal Code:

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30. If the XYY defect is deemed sufficient to place the burden of proving sanity on the prosecution, some showing that the accused was actually unable to control himself at the time of the criminal act may be enough to gain acquittal. *See* Note, *The XYY Chromosome Defense*, 57 GEO. L.J. 892, 909 (1969).

31. The *Durham* test was developed in Durham v. United States, 214 F.2d 862 (D.C. Cir. 1954).

32. *Id.* at 874.

33. 312 F.2d 847 (D.C. Cir. 1962).

34. *Id.* at 851. Judge Bazelon of the *Durham* court intentionally failed to define mental disease or defect in that case in order to allow the greatest leeway for psychiatric testimony. However, a standardized definition was made imperative by the practical difficulties of allowing doctors to define mental disease in varying terms.

35. Campbell v. United States, 307 F.2d 597, 601 (D.C. Cir. 1962). The act is a product of the disease if the accused would not have committed the act if he did not suffer from the disease. *Id.*

36. Durham v. United States, 214 F.2d 862, 866 (D.C. Cir. 1954).

37. Frigillana v. United States, 307 F.2d 665, 667 (D.C. Cir. 1962).

38. *See* Note, *The XYY Choromosome Defense*, 57 GEO. L.J. 892, 909-911 (1969).

39. *Id.*

> A person is not responsible for criminal conduct if at the time of such conduct as a result of mental disease or defect he lacks substantial capacity either to appreciate the criminality [wrongfulness] of his conduct or to conform his conduct to the requirements of law.[40]

The significant issues regarding the XYY syndrome in ALI jurisdictions are whether the XYY syndrome is a mental disease or defect, and whether as a result of such disease or defect, the defendant lacked substantial capacity to conform his conduct to the requirements of the law. Since total lack of control is not required,[41] if the individual finds it extremely difficult to control his behavior, this might be sufficient to sustain a defense based on the XYY abnormality.

In the Maryland case of *Millard v. State*,[42] the XYY defense was not considered sufficient to rebut the presumption of sanity, and thus the issue was not allowed to go to the jury. The court in that case utilized a sanity test based upon the ALI test.[43] In an attempt to rebut the presumption of sanity, defense counsel in *Millard* called only one expert witness, a geneticist, who admitted having no training in psychiatry, and who was completely unfamiliar with legal standards for sanity in general, and the Maryland test in particular.[44] At the conclusion of the geneticist's testimony, the trial judge concluded that the defense had rebutted the presumption of sanity, and stated that he was prepared to allow evidence relating to the XYY syndrome to go to the jury. However, the state's psychaitrist was then allowed to testify on the XYY abnormality, and after hearing his testimony the trial judge became convinced that the XYY syndrome was not a mental defect, but was instead a physical defect not affecting the mental functioning of the brain. The appellate court, in affirming the order, did not find the XYY de-

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40. MODEL PENAL CODE § 4.01 (Proposed Off. Draft, 1962). This test appears to be a combination of *Durham* (result of mental disease or defect), the irresistible impulse test (capacity to conform conduct), and *M'Naughten* (capacity to appreciate criminality).

41. MODEL PENAL CODE § 4.01, Comment, at 158 (Tent. Draft No. 4, 1955).
> Nothing makes the inquiry into responsibility more unreal . . . than limitations of the issue to some ultimate extreme of total incapacity. . . . The law must recognize that when there is no black and white it must content itself with different shades of gray. The draft, accordingly, does not demand *complete* impairment of capacity. It asks instead for *substantial* impairment [emphasis in the original].

Id.

42. 8 Md. App. 419, 261 A.2d 227 (1970).

43. *Id.* at ——, 261 A.2d at 228.
> A defendant is not responsible for criminal conduct and shall be found insane at the time of the commission of the alleged crime if, at the time of such conduct as a result of mental disease or defect, he lacks substantial capacity either to appreciate the criminality of his conduct or to conform his conduct to the requirements of law. As used in this section, the terms 'mental disease or defect' do not include an abnormality manifested only by repeated criminal or otherwise antisocial conduct.

MD. ANN. CODE art. 59, § 9(a) (1957) (reserved 1972).

44. Millard v. State, 8 Md. App. 419, ——, 261 A.2d 227, 228 (1970).

fense beyond the pale of proof, but only that the trial court had not been in error in refusing to allow evidence of the XYY syndrome to go to the jury.[45]

In another New York case. *People v. Farley*,[46] Judge Farrell permitted evidence of an XYY syndrome to go to the jury on the issue of insanity. New York also utilizes a sanity test based upon the ALI rule.[47] Defense counsel in that case called two expert witnesses: a psychiatrist to deal with the defendant's mental state at the time of the commission of the crime, and a medical doctor, engaged in genetic research, to introduce evidence regarding the XYY syndrome. The question of sanity was submitted to a jury, which found Farley guilty of murder.[48]

North Dakota also follows the ALI rule.[49] As noted above, this test does not demand complete impairment of capacity, but only "substantial" impairment.[50] In North Dakota, the XYY syndrome might well be significant in establishing that a defendant having the XYY abnormality lacked substantial capacity to conform his conduct to the requirements of the law.[51] It would appear that the best course of action for an attorney defending an XYY individual in a state such as North Dakota would be to call upon both a geneticist and a psychiatrist to give expert testimony on behalf of the defendant at trial. The geneticist's role would be to testify as to the individual's genetic structure, and the psychiatrist would then use the genetic findings in demonstrating substantial impairment in the defendant's mental capacity.

There are courts in other countries which have accepted the XYY Syndrome as part of a valid insanity defense. In Australia, Laurence E. Hannell, a 21-year-old male affiliated with the XYY genetic abnormality, was accused of fatally stabbing a 77-year-old widow.[52]

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45. Millard v. State, 8 Md. App. 419, 261 A.2d 227 (1970). The failure of the defense to call a psychiatrist to deal with the sanity issue, in addition to the geneticist who testified regarding the XYY syndrome, was quite possibly a determining factor in the case.

46. No. 1827 (Sup. Ct. Queens County, April 30, 1969). N.Y. Times, April 30, 1969, at 93, col. 4 (city ed.).

47. N.Y. PENAL LAW § 30.05 (McKinney 1967). It reads in part:

> 1. A person is not criminally responsible for conduct if at the time of such conduct, as a result of mental disease or defect, he lacks substantial capacity to know or appreciate either:
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> a. The nature and consequence of such conduct;
>
> or
>
> b. That such conduct was wrong.
>
> . . . .

Id.

48. N.Y. Times, April 30, 1969, at 93, col. 4 (city ed.).

49. N.D. CENT. CODE § 12.1-04-03 (Supp. 1975). It states in part:

> A person is not responsible for criminal conduct if at the time of such conduct as a result of mental disease or defect he lacks substantial capacity to appreciate the criminality of his conduct or to conform his conduct to the requirements of law.

Id.

50. *See* Note 41, *supra*, and text accompanying.

51. *See* Notes 40-41, *supra*, and text accompanying.

52. Stock, The XYY and the Criminal, The New York Times Magazine, Oct. 20, 1968, at 97, col. 1. The case was tried in the Melbourne Criminal Court on October 9, 1968.

During his 1968 trial, a psychiatrist testified that the defendant had the XYY chromosomal make-up, "which means that every cell in his body and the brain is abnormal."[53] Hannell was acquitted by the jury on the ground that he was insane when he committed the murder.[54]

The XYY syndrome was also raised as a defense in a French court during the 1968 murder trial of Daniel Hugon,[55] who was alleged to have killed a prostitute in a Paris hotel. The defense introduced scientific evidence of a link between the XYY syndrome and the accused's criminal behavior. Although the court found Hugon legally sane, it considered the XYY abnormality as a mitigating factor in sentencing.[56]

The decision by the New York court in *Yukl* not to allow evidence of Yukl's XYY syndrome as part of the defense of insanity in his murder trial is perhaps questionable. New York follows the ALI rule[57] as to the defense of insanity, and it could have been left to the jury to decide whether the XYY abnormality caused a substantial impairment of Yukl's capacity to conform his conduct to the requirements of the law. The limited case law in ALI jurisdictions and elsewhere on the XYY syndrome indicated that the syndrome might validly be considered in cases involving a defense of insanity.[58] Although more research is probably necessary to clearly establish the genetic imbalance theory of crime causation,[59] Yukl perhaps should have been allowed to bring in experts in the fields of psychiatry and genetics to attempt to establish the link between his genetic structure and a substantial impairment in his mental capacity.

TOM ALJETS

PHYSICIANS AND SURGEONS—INFANTS—PHYSICIAN'S LIABILITY FOR NONCOMPLIANCE WITH CHILD ABUSE REPORTING STATUTE

Plaintiff, an 11-month-old child, was taken by her mother to defendant hospital for treatment and diagnosis of a fracture in her

53. *Id.*
54. It is impossible to know what signifance the jury attached to the XYY condition, since other evidence was introduced to show insanity in more conventional psychiatric terms. *Id.* at 97, col. 2.
55. N.Y. Times, Oct. 15, 1968, at 5, col. 4 (city ed.). A chromosome analysis made after an attempted suicide by Hugon revealed that he had the XYY genetic abnormality.
56. *Id.*
57. *See* Note 47, *supra.*
58. *See* Notes 42-48, *supra,* and text accompanying.
59. *See* Note 2, *supra.*