

FACULTY JOURNAL

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The Faculty Journal of Delaware State College is dedicated to those men and women whose primary responsibility is student instruction, but who feel that their mission would be incomplete without continued research, study, and creative effort.

We wish to extend our sincere appreciation to all those anonymously involved in the production of the Journal.

Dwight Steward
editor

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EDWARD BLYDEN, FATHER OF AFRICAN NATIONALISM

Although, like Samuel Lewis, (a Sierra Leone nationalist), many West Africans wrestled with the difficult question of modernization and Westernization, few grasped the problem in its entirety or were aware of its massive complications, and only one seemed to see the necessity for creating a complete philosophy of African nationalism which permitted the full use of European ideas and institutions without damage to racial dignity or loss of a sense of African integrity. That one exception was Edward W. Blyden whose brilliance dominated the West African scene during the half century leading up to the First World War, and those ideas not only aimed at the psychic security of Africa in the face of European intrusion, but anticipated the need far in the future for cultural and economic independence when African nations came to achieve political freedom in the mid-twentieth century.

Blyden was a West Indian by origin, born in the Danish island of St. Thomas in 1832. Though his antecedents were solidly West African -- probably Ibo -- he might never have come to the West Coast had it not been for the accident of an educational opportunity lost in the United States through racial prejudice, and a consequent trip to Liberia, where he settled in 1851, to gain the training denied. In Liberia, Blyden, who scholastic aptitude had early been noted, quickly mastered Greek and Latin at school along with Hebrew as an extra curricular pursuit, his abilities earning him the editorship of the *Liberia Herald*, which he held for a year in the mid-fifties. Soon, however, he was teaching full time at his own school, becoming its principal in 1858; the same year he was ordained a minister of the Presbytery of West Africa. In 1862 Blyden took a chair as professor of Greek and Latin at the newly formed Liberia College, having journeyed to the Americas during the previous year in search of settlers for Liberia, the beginning of a long-lived career of public service and activity.

The recruitment trip was no accident, for Blyden was already formulating ideas regarding the role of Africa and Africans in the upward thrust of civilization; only in Africa, he argued, could the black race realize its own native genius, and this idea was to become one of the chief, albeit most controversial, aspects of his philosophy of African-ness. "I believe nationality to be an ordinance of nature," he declared at the time, "and no people can

rise to an influential position among the nations without a distinct and efficient nationality. Cosmopolitanism has never affected anything."

Such a concept flowed from a more generalized philosophic stance. It was true that the races of the world differed physically and emotionally, shaped by long exposure to the forces of environment, agreed Blyden, accepting current European anthropological doctrine. They could not be ordered into a hierarchy of ability and achievement, however, as the white man invariably arranged them, placing himself at the head of the list; they were merely different. Indeed, continued Blyden, each race had its own peculiar assets, excelling in certain pursuits and less successful in others. Races were therefore not competitive or comparative so much as complementary, and in their totality they made up God's divinity. "Each race sees from its own standpoint a different side of the Almighty," said Blyden, "The whole of mankind is a vast representation of the Deity."

If the races were coequal but different, it followed that each had its own special contribution to make to the sum of human civilization. The white man had his virtues and faults -- he was didactic and strong-willed, accomplished in the sciences and preoccupied with material betterment. This could lead to salutary ends: for example, in Africa it meant an end to the slave trade and intertribal wars, economic improvement, and the introduction of modern medicine. But, Blyden went on, these advantages came at a price. The European was also domineering and materialistic, selfish and essentially irreligious. Man, not God, became the sole object of human endeavor, the white race enslaved and bent others to its will, while religion was made to subserve material and temporal purposes.

Here was no person for the Negro to imitate, warned Blyden, particularly since the black man possessed uncommon characteristics of his own. First, there was the concept of community in African life. "What is mine goes; what is ours abides," Blyden quoted a Vai proverb to emphasize the harmony-in-unity of African society. Property was communal, and the fruits of the earth belonged equally to all. No competition separated people into antagonistic groups, no individuals gathered wealth at the expense of others, all were cared for -- the aged, sick, and helpless along with the healthy -- in the genial protective atmosphere of the family.

Secondly, there was the African's consonance with nature, his ability, said Blyden quoting the Book of Job, "to speak to the earth and let it teach him." Thus did the black race observe nature's

rhythm of creation and recuperation as the model for a healthy polygamy, thus did the African follow the example of the industrious termite in constructing his own co-operative society, thus did he dwell outdoors, unburdened by clothing, using the whole book of nature for his school.

Finally, said Blyden, to communion with nature was added communion with God. Unlike Europe, African society made little distinction between the temporal and spiritual worlds -- all existence was a continuum comprising the ancestors, the living, and the yet unborn. Religious thought and practice was no sabbath ritual but the essence of everyday life, reflecting a religious sense of the highest refinement. That this had always been so, he insisted, was witnessed by the shelter which Africa had given the Jews and then the infant Jesus, as well as the cordial reception subsequently accorded the great religions of Christianity and Islam.

These special African qualities, Blyden continued, not only established the Negro as coequal and complementary to God's other people, it also gave a clue as to Africa's position in the upward thrust of civilization, a matter of the greatest importance to Blyden who insisted that racial achievement must be measured ultimately by its contribution to the sum total of human accomplishment. Clearly, said Blyden, past performance by the Negro suggested, not mastery but service. "Africa's lot resembles Him also who made Himself of no reputation, but took upon Himself the form of a servant . . . he who would be chief must become the servant of all, then we see the position which Africa and the Africans must ultimately occupy."

Service to humanity, harmony with nature, and communion with God, then, suggested to Blyden the unique and essential offering which Africa would make in a materialist, soulless world -- "The mighty principle of Love." "Africa may yet prove to be the spiritual conservatory of the world," he rejoiced.

When the civilized nations, in consequence of their wonderful Material development, shall have had their spiritual perceptions darkened and their spiritual susceptibilities blunted through the agency of a captivating and absorbing materialism. It may be, that they may have to resort to Africa to recover Some of the simple elements of faith.

Thus from this basic proposition, describing the races as equivalent facets of a unitary godhead, each with its original and necessary contribution toward man's humanity, Blyden had secured African self-esteem in the face of Europe, but there were still some corollaries to be drawn from this scheme. First, there was the proposition that racial individuality called for social and biological

segregation, and Blyden cited the American Negro and the Sierra Leone creole as flagrant examples of effete and confused people resulting from miscegenation. Nothing less than physical isolation and biological purity would therefore suffice, a point of view which evoked much controversy among Blyden's contemporaries even as it was to do in the days of Marcus Garvey and later.

Such radical notions, though they followed the logic of Blyden's argument, also had the practical advantage in his eyes of forcing the African to stand by his own cultural, intellectual, political, and economic institutions. Blyden insisted, for example, that education must necessarily be tailored to African needs - no foreign educational philosophy, no study of European heroes, no examination of alien biology or geography could meet Africa's needs - and it was he who greatly influenced William Grant through his own detailed plans for a West African university. In the same way, Blyden urged the importance of African history to signal past accomplishment and thereby reestablish the dignity of the Negro race. Finally, Blyden, the Christian minister, was one of the strongest critics of European missionary practice in Africa. Citing the universality of Christ's message, he urged his people to organize their own churches - just as Christian, but far less European - another declaration of racial independence.

Many of Blyden's pronouncements were highly theoretical, and he was frequently guilty of idealized history, anthropology, or biology. Nonetheless his ideas were developed in no vacuum, for he lived in daily acquaintance with the great issues of his day, as Europe subjected Africa to military conquest and political control; hence his philosophy had an immediacy for his contemporaries, helping to shape their actions and build their sense of racial identity in response to the European intrusion. His personal following was always small, for the educated Africans of his day were few in number, but his and their importance was disproportionate to their number, and was ever growing. Consequently, he was able to exert a widening influence which ultimately transcended his own times, for Blyden's basic demand was the restoration of human dignity, a plea which has had continuing relevance in Africa, and indeed throughout the world.

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THE EFFECT OF THE PRESENCE OF FUNGI, FUNGI-LIKE BACTERIA AND KIDNEY CELLS ON THE EXAMINATION OF URINE SAMPLES FROM PATHOGENIC MICROBES BY THE LUCIFERASE ASSAY FOR ATP

Urinary tract infections are among the most frequent bacterial infections of man in the United States (Hoeprich, 1960). At the present time, the calibrated loop method is used in most laboratories for detecting bacteria in urine. According to Hoeprich (1960) fewer than 10,000 viable bacteria per ml indicates that urinary tract infection is unlikely. Ten thousand to 100,000 viable bacteria per ml indicates urinary tract infection.

Picciolo *et al.* (1971) estimated bacterial numbers by measuring the adenosine triphosphate (ATP) concentration in a urine sample after removing nonbacterial ATP. Measurement of ATP concentration is based on the bioluminescent reaction of luciferase when mixed with ATP. The mechanisms involved have been discussed by McElroy *et al.* (1969).

The reactions depend on the concentrations of reduced luciferin, luciferase and ATP. If luciferin and luciferase are present in excess, the reaction is directly dependent on the amount of ATP. The intensity of the initial burst of light is directly proportional to the concentration of ATP when luciferin is in excess, provided other conditions for the reaction are optimal (Chappelle and Levin, 1968).

Picciolo *et al.* (1971) obtained higher bacterial titers by the ATP assay than by the pour plate or culture colony methods. This discrepancy might be explained by one or a combination of the following possibilities: (1) the amount of ATP per bacterial cell increases after growth or suspension in urine for long periods of time, (2) the ATP assay detects dead, contaminating, or pathogenic bacteria which are not detected by routine laboratory methods, and (3) one or more types of mammalian cells remain after they are supposedly ruptured and their ATP removed. These cells are ruptured with the bacterial cells and contribute ATP not of bacterial origin.

ATP from epithelial cells, platelets, leukocytes, erythrocytes, sperm cells as well as contaminating fungal and *Streptomyces* species that may be present in urine might influence results of

bacterial assays by the ATP method. This is a report of a study of the effectiveness of the rupturing agents on monkey kidney cells *Candida albicans*, a *Rhodotorula* species and a *Streptomyces* species in determining whether these cells could contribute ATP to the bacterial ATP value of a urine sample.

MATERIALS AND METHODS

Organisms Used. *Candida Albicans* isolated from a urine sample at the Kent General Hospital, Dover, Delaware, was grown in Malt Extract Broth (Difco) for 24 hours at 37 C. After incubation, the cells were centrifuged (Size 1 Type C International Centrifuge with 240 Head, International Equipment Co., Boston, Mass.) for 15 minutes. The sedimented cells were resuspended in Malt Extract Broth. Viable cells were enumerated by the pour plate method using Malt Extract Agar plates and by direct counts in a Spencer AO Bright Line Improved Neubauer Hemocytometer.

The *Rhodotorula* and *Streptomyces* species were provided by Dr. Grace Picciolo of the Goddard Space Flight Center, Greenbelt, Md. *Rhodotorula* was grown in Sabouraud Dextrose Broth (Difco) at 37 C. for 48 hours and then centrifuged for 15 minutes. The sedimented cells were resuspended in saline. Cells were enumerated by direct counts in a hemocytometer. *Streptomyces* was grown in Trypticase Soy Broth (Baltimore Biological Laboratories) at 37 C. for 24 hours, then centrifuged for 15 minutes. The sedimented cells were resuspended in saline.

Kidney cells from Rhesus monkey were obtained from Flow Laboratories, Rockville, Maryland the day after they were suspended in growth medium containing 5% calf serum penicillin and streptomycin. The cells were held at 5 C. for another 24 hours before they were used. Viable cells numbered approximately 106 per ml (67 - 83% of the total cell number) as determined by trypan blue staining. The stock cell suspension was diluted in Hanks' BSS containing phenol red (Flow Laboratories). Sterility tests of cell suspension were negative.

Reagents Used in Luciferase Assay for ATP. Partially purified potato apyrase - Grade I (Sigma Chemical Co., St. Louis, Missouri) at a concentration of 73 mg per ml of 0.55M CaCl₂ was prepared fresh each day. One tenth ml apyrase hydrolyzed one ml ATP (0.1 mg/ml) in 15 minutes by the firefly luciferase reaction.

Triton X 100 (Sigma) the registered trademark of the Rohm and Hass corporation's brand of octyl phenoxy polyethoxyethanol was used. Perchloric acid, 70% Reagent Grade (Allied Chemical Co.,

Morristown, N.J.) was used to make the various perchloric acid concentrations. The concentrations of perchloric acid and Triton X 100 were stored at -18 C until ready for use.

A stock solution of disodium salt of ATP (Sigma) was prepared in deionized distilled water to 1 mg/ml and stored in 1 ml aliquots at -18 C. Immediately before use, ATP was discarded after sitting at room temperature for two hours.

Luciferin luciferase (E. I. DuPont Nemours and Co., Wilmington, Del.) packaged in vials containing approximately 220 mg. was used. Three ml of diluent (0.1M Tris, 0.01M MgSO₄) was added to each vial.

Firefly Luciferase Assay for ATP. The light measuring instrumentation used in these experiments consisted of a Chem Glow Photometer (Aminco, Silver Spring, Md.) attached to an X Y Recorder (Hewlett Packard Model #7035B). One tenth ml of the treated sample to be assayed for ATP content was injected by needle and syringe into 0.1 ml of the luciferin-luciferase mixture. The difference in light intensity of the test sample and the control sample was compared to the light intensity of known ATP standard diluted in the fluid used for the control in determining the amount of ATP in each sample. There was a direct relationship between ATP concentration and maximum light intensity in the range of ATP content in the samples used.

Procedure for Treatment of Urine Samples. One milliliter of sample, 0.1 ml Triton X-100, and 0.1 ml apyrase were mixed and allowed to stand for 15 min. Then 0.2 ml of 0.5N perchloric acid was added, mixed and allowed to stand for 5 minutes. Finally, 8.6 ml deionized, distilled water was added and mixed. The amount of ATP per sample was determined as described above.

Procedure for Treatment with Triton X-100 to Rupture the Cells and Release Their ATP. One milliliter of sample and 0.1 ml of 2% Triton X 100 were mixed and allowed to stand for varying lengths of time. One tenth milliliter of this sample was then injected into the luciferin-luciferase as described above. The amount of soluble ATP as determined by injection of an untreated sample into the luciferin luciferase mixture was subtracted from the amount of ATP after Triton X 100 treatment.

Procedure for Treatment with Perchloric Acid to Rupture the Cells and Release Their ATP. One milliliter of sample and 0.1 ml of apyrase were mixed and allowed to stand 15 minutes. Two tenths milliliter of varying perchloric acid concentrations was then added and allowed to stand for varying times. This mixture was diluted

1:10 in deionized, distilled water. One tenth milliliter of this diluted treated sample was injected into 0.1 ml luciferin-luciferase in the manner described above.

RESULTS

Monkey Kidney Cell Suspensions. ATP remained after all nonbacterial ATP should have been removed when different numbers of monkey kidney cells in suspension received the same treatment as the urine sample (Fig. 1).

A comparison of ATP released after (1) normal treatment of urine samples and (2) perchloric acid treatment (0.5N) for 5 minutes is shown in Table I. The percentage of ATP not released by Triton X-100 and subsequently destroyed by apyrase remained constant in the concentrations of monkey cell suspensions tested.

The amount of ATP per monkey kidney cell released with varying perchloric acid concentrations and different periods of treatment is shown in Table II. The 0.5N concentration of perchloric acid treatment did not release the maximal amount of ATP from monkey kidney cells.

Lysis of cells and a rise in ATP was observed within 1-3 minutes when 2% Triton X-100 was added to the kidney cell suspension. Immediately following this, the ATP concentration dropped due to the release from the cells of intracellular ATPases. At the end of the 15 minute treatment with Triton X-100, 0.00035 ug ATP per ml could be detected. This was in contrast to 0.8694 ug ATP per ml released by Triton X-100 (extrapolated from Table I) and subsequently hydrolyzed by the added apyrase and intracellular ATPases.

Streptomyces. These fungal like bacterial cells are very difficult to mix and quantitate due to their filamentous nature. The amounts of ATP released from various concentrations of *Streptomyces* after various treatments are presented (Table III). The type of treatment releasing the maximum ATP varied with the cell concentration.

In other studies with *Streptomyces* 1.3% of the total amount of ATP released by 0.5N perchloric acid treatment for 20 minutes was released by the 2% Triton X-100 treatment for 8 minutes.

Fungal Cells. Amounts of ATP per cell released after various treatments of *C. albicans* and *Rhodotorula* species are presented in Table IV. Cell titers used in calculations for this table for *C. albicans* were determined by the pour plate method and ranged from 6×10^4 to 2×10^7 colonies per milliliter. Very good correlation was obtained

between the titers as determined by the direct microscopic counts and pour plate counts; however, only the titers obtained by pour plating are shown. *C. albicans* was actively budding with an average of one bud for every two cells. *Rhodotorula* species was also budding with an average of one bud for every 2.8 cells.

TABLE I: Amount of ATP in Monkey Kidney Cell Suspensions released after the normal procedure used for urine samples

Monkey Kidney Cell Concentrations (Viable cells per ml)	Amount of ATP released after normal treatment used for urine samples (ug ATP per ml)
1 x 10 ⁵	.0054
2.5 x 10 ⁵	.0142
5 x 10 ⁵	.0299
1 x 10 ⁶	.0588

TABLE II: Comparison of ATP released from Monkey Kidney Cell Suspension after various treatments

Concentration of Viable Monkey Kidney Cells (cells / ml)	Amount of ATP released after 0.5N perchloric acid treatment for 5 min. (ug ATP per ml)	Amount of ATP released after normal treatment used for urine samples (ug ATP per ml)	% not released by 2% Triton X 100 and subsequently destroyed by apyrase before the perchloric acid treatment
1 x 10 ⁶	.9418	.0716	7.6
5 x 10 ⁵	.3645	.0331	9.1
2.5 x 10 ⁵	.2059	.0137	6.7
1.0 x 10 ⁵	.0841	.0068	8.1

TABLE III: Amount of ATP per cell released from monkey kidney cells following different perchloric acid treatments

Concentration of Perchloric acid	Time of treatment with perchloric acid (min)	ug ATP per cell x 10 ⁷
0.5 N	5	8.34
0.5 N	10	10.8
0.5 N	20	10.2
0.5 N	30	12.5
2.0 N	5	13.7
2.0 N	30	22.7

TABLE IV: The amount of ATP (ug ATP per ml) released by different perchloric acid treatments on varying concentrations of *Streptomyces* suspensions

Perchloric acid concentrations and time of treatment	100%	50%	10%	5%
0.5 N PCA 5 min.	1.36	.884	.191	.0219
0.5 N PCA 10 min.	1.89	1.07	.185	.0892
0.5 N PCA 20 min.	1.91	1.13	.205	.222
2 N PCA 5 min.	1.45	1.03	.277	.112
2 N PCA 10 min.	.594	.554	.151	.107
2 N PCA 20 min.	1.81	1.71	.356	.226
5 N PCA 5 min.	1.58	1.32	.179	.080
5 N PCA 10 min.	1.47	.919	.246	.0829
5 N PCA 20 min.	1.44	.739	.215	.106

TABLE V: Amount of ATP (ug per cell) obtained after various treatments of fungal cells

Fungal Cell Type	5 N Perchloric Acid treatment for 5 min.	0.5N Perchloric Acid treatment for 5 minutes	2% Triton X 100 Treatment for 8 minutes
<i>C. albicans</i>	8.45×10^{-8}	8.70×10^{-9}	1.37×10^{-9}
<i>Rhodotorula</i> sp.	8.93×10^{-8}	2.14×10^{-9}	6.41×10^{-10}

DISCUSSION

In the automated treatment of urine samples proposed by Picciolo *et al.* (1971) chemical treatment to (1) rupture mammalian cells and hydrolyze their ATP and (2) rupture bacterial cells so their ATP content can be measured is preferred over physical treatment. Perchloric acid was a very effective lysing agent for all bacterial cells tested. A critical step in this treatment for urine is the method used to rupture mammalian cells. The agent used must effectively lyse the mammalian cells without affecting the bacterial cells to any appreciable extent.

Triton X-100 failed to completely lyse the monkey kidney cells in the suspension used; the remaining 6.7 - 9.1% of the ATP in the unlysed cells was released by further treatment with perchloric acid. The failure to completely lyse these cells was not due to a saturation effect since the concentration of cells varied while the apyrase, perchloric acid, and Triton X-100 concentrations remained constant. No analysis of the contribution of a specific component of the kidney cell suspension to the remaining ATP was made.

The amount of ATP in the Kidney cell suspension which remained after the procedure used for urine samples will only affect the number of bacteria per milliliter of urine sample if (1) large numbers (103 cells/ml) of cells similar to those found in the monkey kidney cell suspension are present in the urine sample or (2) if small numbers of these cells as well as contaminating bacteria are present in the urine sample. If large numbers of kidney cells are present in urine, there probably is extensive destruction of the kidney which may be caused by bacterial action. The added ATP from unlysed kidney cells will be found in addition to the ATP from bacteria in the urine. If there is extensive kidney destruction not associated with any bacterial infection, the high ATP content determined for this urine specimen would be false positive.

Trypan blue staining was the only check made of the physiological state of the monkey kidney cells. The role of the nonviable cells in the suspensions was not investigated. It would be of interest to compare results of cells suspended in urine and allowed to remain for periods of time up to 48 hours with the results obtained in this study.

Few conclusions can be made from the studies with *Streptomyces* due to the filamentous nature of these cells. Triton X-100 was not very effective in rupturing these cells; 0.5N perchloric acid for 5 minutes was reasonably effective. This urinary contaminant commonly found in the soil would be present in quantities of less than 10,000 colonies per ml. The exact contribution of this contaminant to the present treatment of urine can not be determined adequately.

C. albicans lives and multiplies on the skin and may persist there for some time. It may be found as a urinary contaminant with less than 10,000 colonies per ml. *Candida* infections are usually secondary infections found in patients under therapy with broad spectrum antibiotics because, without competition, *C. albicans* multiplies rapidly. If *C. albicans* is pathogenic, more than 10,000 colonies per milliliter is found.

The 5N perchloric acid treatment is approximately ten times more effective in rupturing *C. albicans* and releasing the ATP from these cells than the 0.5N perchloric acid treatment. The values from the treatments with Triton X-100 and 0.5N perchloric acid could be used to determine the numbers of bacteria in urine that could be reported if *C. albicans* were present in varying concentrations.

If one assumes that there are 8,000 colonies per ml of *C. albicans* in urine (contaminant) the use of 2% Triton X-100 for 8 minutes and 0.5N perchloric acid for 5 minutes would release approximately 5.8×10^5 ug ATP per ml. If one converted this into bacteria per ml, the ATP in these contaminating *C. albicans* would be about 1.2×10^5 which would indicate a urinary infection. If *C. albicans* is present as a pathogen and 5×10^5 colonies per ml are present, this would be reported as 7.3×10^6 bacteria per ml in the urine sample which would be considered a urinary infection.

Cryptococcus and *Torulopsis*, other urinary pathogens, might resemble *C. albicans* in the amount of ATP per cell and susceptibility to the various rupturing agents since they are all in the same subfamily. *Rhodotorula* is a rare urinary contaminant. Since *Rhodotorula* and *Candida* are in the same family (Cryptococcaceae) the similarity of results using the rupturing agents is not surprising.

If *Rhodotorula* were found at a concentration of 8,000 colonies per ml and the 2% Triton X-100 and 0.5N perchloric acid were used to treat the urine sample, 2.4×10^4 bacteria per ml would be reported. This value would indicate a probable urinary tract infection. This organism with a slightly lower sensitivity to 0.5N perchloric acid would probably not cause a false positive unless both bacteria and *Rhodotorula* were present.

Levin et al. (1968) reported an average of 1.3×10^{-7} ug ATP per *Saccharomyces cerevisiae* cell when the cell number was determined by plate counts and 2.8×10^{-8} g ATP per cell when cell number was determined by chamber count. These values are somewhat higher than the values obtained for *C. albicans* and *Rhodotorula* reported here. Levin et al. did not give the method used to rupture their yeast cells.

The results of this study show that both fungal cells and kidney cells can contribute ATP to the bacterial ATP value of a urine sample. Examination of clinical specimens in which discrepancies in cell titer between the ATP assay and pour plate or culture colony methods occur will be necessary before the percentage of discrepancies due to fungal and kidney cells can be made.

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LA FEMME COMME UNE CLASSE OPPRIMEE DU 18e SIECLE

The oppression of women, not merely as individuals, but as a class, is a recurring theme in French literary history. As early as 1509 Henri-Cornelius Agrippa struck this note when he published La Superiorité du Sexe féminin. The same theme now dominates much of contemporary French writing. The following study examines in detail part of this subject: the view of women in 18th Century French literature. Several prominent French authors of the period are examined from this perspective. Clear examples of the oppression of women by many forces in society are shown. Further, the study seeks to explain why women were considered and treated as a subjugated class.

Il ne faut pas chercher dans ce petit exposé sur la femme comme une classe opprimée du 18e siècle, tout un recueil complet de tout ce qui concerne les femmes du 18e et tout ce qui concerne les auteurs du 18e siècle. Ce que j'ai l'intention de faire ici c'est une étude sur la condition de la femme comme citée dans quelques oeuvres du 18e siècle. Je vais vous peindre des cas qui citent des exemples clairs de l'oppression de la femme au 18e siècle.

Nous avons mes propres verifications sur mes propres lectures et analyses des oeuvres suivantes: EMILE et LA NOUVELLE HELOISE de Rousseau; EUGENIE et LE MARIAGE DE FIGARO de Beaumarchais; LA RELIGIEUSE de Diderot; MANON LESCAUT de Prévost.

Enfin nous voyons des hommes qui tentent de relâcher la femme de sa subjugation: Diderot, auteur de la *Religieuse*, Laclos, auteur des *Liaisons dangereuses*, Condorcet et Holbach, tous ces hommes tentent de relâcher la femme de sa subjugation.

Le problème dans cet exposé est: Pourquoi la femme est-elle subjuguée? ce n'était pas uniquement un problème du 18e siècle; des 1509 Henri-Cornelius Agrippa aborda le sujet quand il publia *La Supériorité du sexe féminin*. Maurice Toesca, dans son oeuvre *Sur la question des femmes*, nous peint un portrait de la supériorité des femmes aux hommes qui est basée sur l'histoire des Amazones.

Dans la première partie, on trouvera un aperçu tiré de *The Politics of Feminism in the French Enlightenment* par David Williams dans lequel on trouvera Laclos, Diderot, Holbac et Condorcet comme chefs de l'école des féministes dont j'ai vérifié par mes propres lectures et analyses. J'ai tiré une grande partie des idées ici de l'article qui s'intitule, *The Politics of Feminism in the French Enlightenment* par David Williams.

Selon Laclos, (*Oeuvres complètes*, Paris, Bibliothèque de la Pléiade, 1951, pp. 428-9) les femmes, nées compagnes de l'homme, sont devenues son esclave. Il ne faut pas attendre les secours des hommes, auteurs de leurs maux; on ne sort de l'esclavage que par une grande révolution. Cette révolution dépend de la courage de la femme.

Diderot, un autre féministe écrit dans *Oeuvres complètes*, (ed. J. Assezat et M. Tourneux, Paris, 1875-1877, II.p.251) au sujet de la situation de la femme dans la société. Diderot est convaincu que le moment est arrivé qui délivrera la femme du dépotisme de ses parents. La définition de la femme est: Elle est négligée de son mari, délaissée de ses enfants, traitée comme d'enfant imbecile. On lui choisit un époux, puis elle devient mère. La grossesse est pénible pour presque toutes les femmes. Elles donnent naissance à des enfants au détriment de leur santé et quand l'âge avance et le beauté passe, les années de l'abandon arrivent.

Holbach, encore un féministe, écrit dans son *Système social*, au sujet de la nature politique qui contribue à la subjugation de la femme. Il blâme les gouvernements, qui tolèrent et donnent leur protection à des amusements, qui servent comme des écoles du vice.

Enfin, Condorcet, qui écrit en 1790 *Sur l'Admission des femmes aux droits de cité*, donne des idées sur les droits des femmes sous la constitution. Selon Condorcet, nous voulons une constitution, dont les principes soient fondés sur les droits naturels de l'homme, et non pas sur les institutions sociales. En effet, les femmes doivent avoir absolument les mêmes droits que les hommes; les femmes n'ont jamais exercé le droit des citoyens.

Ces constatations seront vérifiées par mes propres lectures et analyses dans les pages qui suivent.

Dans *Emile* de Rousseau, nous avons le livre qui servira comme bible pour l'éducation des hommes et des femmes. Ce guide de l'éducation de la femme est basé sur la subordination et la domination des femmes par des hommes.

Pour commencer, selon l'auteur, la femme est faite pour plaire à l'homme et toute éducation des femmes doit être relative à l'homme, ses besoins et ses désirs. L'utilisation de la femme pour l'homme est le rôle le plus important de la femme. La femme est l'objet de l'homme.

Même après le mariage, la femme n'exercera aucune nouvelle liberté. Elle sera après le mariage l'esclave de son mari; elle sera prisonnière de la maison; elle sera renfermée dans la maison pour faire le ménage tous les jours.

Selon l'auteur, les femmes sont telles qu'on doit les faire travailler, car si elles n'ont rien à faire, elle deviennent gênées. Un jour elle sera traitée, bien, un autre jour elle sera traitée mal. Cette règle est aussi preuve que la femme est l'objet de l'homme. Cette étude est faite dans la même façon qu'on fait une étude des insectes sous un microscope.

La femme, après le mariage n'aura pas le droit de faire la décision sur la religion qu'elle veut. Si la femme est toujours sous l'autorité de sa famille et son mari, pourquoi est-ce que c'est sa faute quand elle fait une mauvaise chose. Si elle est traitée comme enfant ce n'est pas sa faute si elle fait un crime, mais la faute de ses parents comme dans le cas des enfants. Elle est traitée toujours en mineure mais punie en majeure.

Dans *La Nouvelle Héloïse* de Rousseau, l'idée générale vers la subjugation de la femme règne toujours. Cette domination de la femme commence dans la famille. Julie est l'objet de la subjugation par excellence ici; sa mère est dominée aussi. Le père de Julie est un vrai tyran dans ce roman. Quand il apprend que sa fille a des yeux pour Saint-Preux, il ira tout de suite chez sa femme pour plaindre. Il devient hostile, jusqu'au point où il frappera sa fille et la mère.

Au nom du ciel, lui dis-je, daignez-vous apaiser; jamais un homme digne de tant d'injures ne sera dangereux pour moi. A l'instant, mon père, qui crut sentir un reproche à travers ces mots, et dont la fureur n'attendait qu'un prétexte, s'élança sur ta pauvre amie; pour la première fois de ma vie je reçus un soufflet qui ne fut pas le seul; et se livrant à son transport avec une violence égale à celle qu'il lui avait coutée, il me maltraita sans ménagement, quoique ma mère se fut jetée entre deux, m'eut couverte de son corps et eut reçu quelques-uns des coups qui m'étaient portés. En reculant pour les éviter, je fis un faux pas, je tombai, et mon visage alla donner contre d'une table qui me fit saigner.

La subordination et la domination vont jusqu'à violence. Quand la fille ose parler avec son père de l'affaire, il le croit un reproche, et il la frappera. C'est le père qui a placé la fille dans cette position de subjugation; elle ne peut sortir, car elle a peur de son père. Elle recevra un soufflet quand elle osera sortir de cette situation. La mère ne peut rien faire car elle a peur du père aussi. La mère n'est pas d'accord avec le père au sujet de St.-Preux, elle essaie de lui défendre. Elle ouvre la porte à St.-Preux car il est honnête. Selon le père il est pauvre, alors il ne mérite pas l'entrée dans la maison. L'amour n'est rien ici. Il ne laissera sa fille épouser un homme pauvre. Il la tuera avant de la laisser épouser un routourier. Il va jusqu'à lui défendre de le voir.

Vous savez, m'a-t-il dit à qui je vous destine; je vous l'ai déclaré des mon arrivée, et ne changerai jamais d'intention sur ce point. Quant à l'homme dont m'a parlé Milord Edouard, quoique je ne lui dispute point le mérite que tout le monde lui trouve, je ne sais s'il a conçu de lui-même le ridicule espoir de s'allier à moi, ou si quelqu'un a pu le lui inspirer; mais quant je n'aurais personne en vue, et qu'il aurait toutes les guinées de l'Angleterre, soyez sûre que je n'accepterais jamais un tel gendre. Je vous défends de le voir et de lui parler de votre vie, et cela autant pour la sûreté de la sienne que pour votre honneur. Quoique je me sois toujours senti peu d'inclination pour lui, je le hais, surtout à présent, pour les excès m'a fait commettre, et ne lui pardonnerai jamais ma brutalité.

Julie était destinée pour un autre homme, dont elle ne connaît pas. Du fait qu'elle était dominée et subjuguée, elle n'avait pas de droit de rien demander. Elle n'avait pas les droits de choisir son propre fiancé ni son mari. Maintenant elle est défendue de parler à St.-Preux et de le voir. Qu'est-ce qu'elle va faire? Elle va obéir à son père. Si elle avait eu le courage de refuser, elle aurait été considéré comme une femme libérée peut-être, mais du fait qu'elle consente et qu'elle obéit, elle sera toujours considérée comme dominée, opprimée et subjuguée. Julie est un stéréotype.

Dans *Eugénie* (1776), Beaumarchais peint une fille enceinte avant le mariage. Beaumarchais attaque le mariage religieux en faveur du mariage civil. Eugénie se trouve au milieu de deux vues opposantes. Son père veut qu'elle épouse un capitaine. Eugénie devient enceinte en se croyant d'être la femme du comte de Clarendon. Elle ne sera pas contente d'avoir l'enfant sans le mariage. Sa tante ne sera pas du même avis qu'Eugénie. (Elle, Mme Murer agit comme féministe.)

Acte V, Scene II

Madame Murer—Consolez-vous, ma chère fille, l'horrible histoire sera ensevelie dans un profond secret. Espérez, mon enfant.

Eugénie—Non, je n'espérerai plus: je suis lasse de courir au-devant du malheur. Eh! plut à Dieu que je fusse entrée dans la tombe le jour qu'au mépris du respect de mon père, je me rendis à vos instances! Notre cruelle tendresse a creusé l'abîme où l'on m'a entraînée.

Madame Murer a projeté pour Eugénie un grand mariage avec le comte de Clarendon, un noble. Elle sait que ce mariage est contre le gré du père d'Eugénie, mais Madame Murer est une femme fière, despotique et imprudente; on dira qu'elle est féministe car elle est riche et indépendante. Cela se voit dans la scène où elle parlera avec son frère du mariage d'Eugénie.

Madame Murer—Je n'en crois rien, La belle idée de marier votre fille à ce vieux Cowerly, qui n'a pas cinq cents livres sterling de revenue, et qui est encore plus ridicule que son frère le Capitaine!

Le Baron.—Ma soeur, je ne souffrirai jamais qu'on avilisse en ma présence un brave Officier, mon ancien ami.

Madame Murer.—Fort bien; mais je n'attaque ni sa bravoure, ni son ancienneté; Je dis seulement qu'il faut à votre fille un mari qu'elle puisse aimer.

Madame Murer proposera pour sa nièce non seulement un homme du noble rang mais l'amour. Eugénie est amoureuse du comte. Quand Madame Murer apprend que le comte l'a trahi, elle se détermine de se venger en forçant le comte avec des armes d'épouser Eugénie. Cette scène montre que cette femme est brutale et dure.

(Scene X)

Madame Murer—Vengeance, soutiens mon courage! Je vais écrire moi-même au Comte: s'il vient. . . Traître, tu payeras cher les peines que tu nous causes!

Cette femme a le courage d'un homme, dirait-on. C'est elle qui agit dans cette situation dans l'absence du frère d'Eugénie. Elle ira jusqu'à menacer la vie du Comte s'il n'obéit pas à ses ordres.

(Scene III)

Madame Murer.—(Après un peu de silence, d'un ton plus bas) Enfin, mon frère, il est temps de vous dire mon secret: avant deux heures le Comte sera votre gendre, ou il est mort.

Eugénie est dominée par sa tante et son père. Elle se croit déshonorée quant elle apprend que le Comte n'est pas son mari, Au lieu d'avoir l'enfant, elle préférera la mort.

(Scene V)

Eugénie, assise, d'un ton mourant.—Le ciel a eu pitié de mes larmes, il n'a pas permis qu'un autre fut entraîné dans ma ruine. . . O mon père! . . . Serez vous plus inflexibles que lui? La douleur qui me tue va laver la tache que j'ai imprimée sur toute ma famille. (Ici sa voix baisse par degrés.) Mais ce sacrifice lui suffit; j'étais seule coupable, et le juste Ciel veut que j'expie ma faute par le déshonneur, le désespoir et la mort.

Eugénie éprouve la même expérience que maintes jeunes filles qui se trouvent dans la même situation. Elle se sent coupable d'un crime énorme dont elle n'a aucun recours, sauf la mort. Elle a déshonoré son père et sa famille. Par les lois de la société, elle est coupable; par la loi du ciel elle sera punie. Si elle se suicidera elle sera la victime innocente de la société. Elle ne mérite pas un tel sort. Elle n'a rien fait d'honteux. Elle se croyait marier. Même si ce n'était pas le cas qu'est-ce qu'il y a de si criminel si une femme a un enfant si elle est capable de le soutenir. Beaumarchais, en donnant sur la scène la cruauté d'une infortunée comme Eugénie, tourmentée par la société, exposé l'inutilité des préjugés et des lois dans les situations où une fille se trouve enceinte sans un mari.

Dans le *Mariage de Figaro*, les femmes sont subjuguées par la loi. Dans cette pièce le comte a le pouvoir d'exercer une vieille loi qui s'appelle l'ancien droit du Seigneur, qui donne le Seigneur le droit de coucher avec n'importe quelle fille dans le royaume avant le mariage. Mais il faut noter que ce droit n'existe pas pour les femmes.

Non seulement est la Comtesse subjuguée par le loi et son mari, elle a une sensibilité réprimée et une colère très modérée de ce qui concerne son mari. Quand elle apprend les nouveaux projets de son mari, elle dit en effet qu'elle ne peut rien faire.

Figaro.—Il n'y a que vous, Madame qui puissiez nous obtenir cette faveur.

La Comtesse.—Vous les voyez, Monsieur le Comte, ils me supposent un crédit que je n'ai point: mais comme leur demande n'est pas déraisonnable. . .

C'est Marceline qui fait monter le féminisme dans cette pièce. Au contraire des idées de la promotion de la subjugation, dans cette pièce nous voyons les idées de Beaumarchais qui sont contre la société; il prêche le féminisme en nous donnant Marceline, mère de Figaro qui a eu un enfant hors du mariage. (Jules, Wogue: *Le théâtre comique au XVIIIe et XVIIIe siècles*, Paris: 1905). Dit Wogue: "En dépit de quelques passages qui confinent au "drame sérieux",—la grande scène ou Marceline, reconnue mère de Figaro exhale ses plaintes contre l'injustice de la destinée—, cette pièce vaut essentiellement par la verve, une verve torrentielle, et, pour ainsi dire, sans merci; car l'un des traits du talent de Beaumarchais est l'outrance; dans ces drames, quand il apitoie, il veut émouvoir plus que la Chaussée, . . ."

Marceline.—Hommes plus qu'ingrats, que flétrissez par le mépris les jouets de vos passions, vos victimes! C'est vous qu'il faut punir des erreurs de notre jeunesse; vous et vos magistrats, si vains du droit de nous juger et qui nous laissent enlever par leur coupable négligence, tout honnête moyen de subsister. Est-il un seul état pour les malheureuses filles? Elles avaient un droit naturel à toute la parure des femmes: on y laisse former mille ouvriers de l'autre sexe.

Figaro.—Ils font broder jusqu'aux soldats!

Marceline.—Dans les rangs même plus élevés, les femmes n'obtiennent de vous qu'une considération dérisoire; leurées de respects apparents, dans une servitude réelle; traitée en mineures pour nos biens, punies en majeures pour nos fautes! ah, sous tous les aspects, votre conduite avec nous fait horreur, ou pitié!

C'est Marceline qui parle pour toutes les femmes subjuguées par les hommes et par la société. Elle explique que le rôle opprimé de la femme n'est pas seulement pour les filles pauvres, mais que c'est la même situation dans les rangs plus élevés. Par l'habitude, l'homme traite la femme en mineure, et surtout si la situation concerne les finances, les affaires, le travail, les choses dont on doit utiliser la tête ou raisonner. Mais quand le temps arrive pour être puni, elle sera traitée comme majeure et égale.

C'est évident dans la situation de la Comtesse Almaviva, que le Comte n'a pas beaucoup de respect pour elle. Cet homme a des maîtresses et la Comtesse ne peut rien faire. De plus, il a l'intention d'avoir une maîtresse dans la maison même. (la situation de Suzanne) Au sujet de ses maintes maîtresses, on fait référence à l'acte I, scène I.

Suzanne.—Il y a, mon ami, que las de courtiser les beautés des environs, Monsieur le Comte Almaviva veut rentrer au château, mais non chez sa femme; c'est sur la tienne, entends-tu qu'il a jeté ses vues, auxquelles il espère que ce logement ne nuira pas . . .

On peut expliquer la situation aussi dans les termes d'un double standard, qu'on trouve souvent chez les hommes. Le Comte courtise toutes les beautés dans les environs, mais quand sa femme et Suzanne montrent une pitié pour un enfant (Cherubin), il l'exile.

Dans *la Religieuse* de Diderot, Suzanne a été forcée par ses parents d'être religieuse. Quand c'était le temps pour faire sa profession, elle recevait une lettre de sa mère de rester au couvent. Elle parlait avec la Supérieure.

—Je n'ai point oublié que c'est à ma persuasion que vous avez fait les premières démarches; je ne souffrirai point qu'on en abuse pour vous engager au delà de votre volonté. Voyons donc ensemble, concertons-nous. Voulez-vous faire profession?

—Non, madame.

—Vous n'obéirez point à vos parents?

—Non, madame.

—Que voulez-vous donc devenir?

—Tout excepté religieuse. Je ne le veux pas être, Je ne le serai pas.

Suzanne est résolue de ne pas être religieuse et elle dit qu'elle ne va pas obéir à ses parents. Elle révoltera. Elle dit explicitement qu'elle n'a aucune intention devenir religieuse; elle deviendra tout excepté religieuse. Elle refusera d'être forcée dans une situation de subjugation par ses parents. Elle croit qu'on va changer d'avis. Mais, elle sera obligée de lutter toute sa vie pour ne pas être religieuse et pour être indépendante. Suzanne veut déterminer sa propre destinée; elle est à l'âge de se marier; ses deux soeurs sont déjà mariées et elle était l'aînée.

Suzanne n'est pas la fille de M. Simonin; c'était à cause de cela qu'elle était obligée de rester au couvent; c'était à cause de cela qu'elle est traitée si sévèrement par ses parents. Le prêtre lui annonce le verdict.

—Elle a cru pouvoir sans cette ressource vous amener à ses desseins; elle s'est trompée; elle en est fâchée: elle revient aujourd'hui à mon conseil; et c'est elle qui m'a chargé de vous annoncer que vous n'étiez pas la fille de M. Simonin.

A cause du fait que Suzanne est batarde, elle sera maltraitée par ses parents. Ce n'était pas sa faute. C'est la société qui lui forcera d'être déshéritée si elle plaint au publique, non seulement cela, mais sa mère sera ridiculisée. La mère est la victime d'une faute dont la société n'approuve pas; la fille est la victime d'une mère, le père et la société. En tout cas c'est la femme qui suffira. La mère de Suzanne a peur de son mari; si elle n'avait pas peur elle aurait pu faire quelque chose pour plaire à Suzanne.

Suzanne était résolue de ne pas rester au couvent. Elle décidera de s'évader, mais avant de faire cela elle écrivait des lettres à un certain marquis et à un avocat. Elle était intelligente et aggressive; elle donnait

des lettres pour publication concernant sa vie au couvent et son destin perpétuel de passer sa vie dans un couvent. Les gens dans la ville avait une telle apathie que rien n'était arrivé. Alors sans aucune assistance par la loi civile, elle décidait de s'évader de la prison.

Dans *Manon Lescaut* de Prévost, l'auteur est antiféministe. Dans cette partie, on verra la situation dans les prisons qui dégradera la femme. Le premier exemple dans cette oeuvre de la subjugation est:

1) Manon au début de l'oeuvre est obligée par ses parents d'aller au couvent contre songré. Les filles dans les oeuvres de Marivaux n'auraient rien fait contre leurs grés. Ce sont elles qui décideront leur destinées.

2) Manon et Des Grieux louent une chambre à Paris, où Manon est obligée de donner des faveurs à un vieux monsieur à cause du fait que son fiancé n'a pas d'argent, ni de travail, alors pour avoir les biens de la vie, elle s'obligera d'accepter l'argent d'un autre. Si vous vous demandez pourquoi Des Grieux ne trouverait pas de poste, c'était parce qu'il était noble et ce n'était pas à la mode pour un noble de travailler, pas même si l'honneur de sa maîtresse était en jeu. Manon sera même obligée de vendre ses bijoux.

3) Manon ira à l'Hôpital, l'endroit le plus bas dans la ville. Je sais bien qu'il y a une différence entre les classes qui expliquera pourquoi Des Grieux est mis dans une meilleure prison que Manon. Si elle aurait été une femme de condition, elle aurait été mise dans la Madelonnette ou au Refuge. Un fait important est que les maris pouvaient enfermer leur femmes à leurs propres grés sous la guise de la prostitution ou libertinage. Manon sera enfermer par une lettre de cachet. Ce qui montre la dégradation ici est que l'homme aura le droit d'enfermer la femme par une lettre de cachet, par une simple plainte ou par un influent. La femme n'a pas le même droit; on ne verra dans aucun livre d'histoire où la femme aura le droit d'enfermer son mari pour la prostitution, le libertinage ou l'adultère. Cela est un bon cas d'un double standard et de la subjugation de la femme.

4) Des Grieux tuera un homme en s'évadant de la prison, mais rien arrivera de cette situation. Manon acceptera l'argent et elle sera exilée. D'être exilé n'est pas dégradant, mais d'être exilé en chaines, et pour avoir accepté de l'argent est bien dégradant.

5) Une fois arrivée à la Nouvelle Orléans, Manon sera obligée d'abandonner Des Grieux pour épouser le neveu de gouverneur contre son désir. Dans ce cas c'est de la tyrannie et de l'oppression par excellence.

J'ai quelques notes sur les prisons de ce temps pour prouver que la situation dégradante déjà discutée existait et qu'historiquement il y en a des bâtiments qui existent encore. La punition, la nourriture et des manières dont on est mis dans les prisons seront discutées en détail.

Comme j'ai déjà dit, il ne s'agit pas simplement d'antiféminisme dans

cette situation. Manon est routurière pendant que Des Grieux est noble; cela peut expliquer le traitement des deux dans la société. Le fait que Manon recevra toujours une grave punition, plus grave que Des Grieux, même si elle fait quelque chose moins sérieuse que lui. (comme dans le cas du meurtre) Il s'agit aussi d'une différence de classe, qui expliquerait en partie la différence de traitement des deux prisonniers.

Mais la sinistre réputation de la maison lui venait surtout de sa maison de force, dont les bâtiments existent encore partiellement, et qui comprenait trois principales divisions, la Grande Force (condamnées à perpétuité), la Prison (condamnée à temps), le Commun, où l'on enfermait les prostituées ou les femmes condamnées pour libertinage sur plainte de leurs maris. Mais on verra plus loin que ce n'est pas dans une de ces maisons que Manon est regue. On n'y entre que par sentence de police. Or, dans le cas présent, Manon, comme des Grieux est enfermée par lettre de cachet, ce qui vaut d'aller à la "correction," dont le régime est moins sévère que le "Commun."

Cette note vous donne la preuve qu'il y avaient des prisons différentes selon la classe de la femme. La Madelonnette et le Refuge étaient pour des filles de condition; L'Hôpital et la Salpêtrière étaient pour des pauvres. Maintenant on se demande pourquoi son traitement était si scandaleux et si publique. C'est vrai que la situation de la femme était dégradante dans la prison, mais pourquoi est-ce que ce traitement n'était-il pas limité aux murs de la prison. On sait que les femmes étaient trainées dans les rues en chaines, comme des animaux. Je crois que cette situation sera expliquée en disant que c'était un règle. Le femme qui est traitée comme objet de sexe de l'homme, est déjà opprimée et dégradée, et si elle fait quelque faute qui est contre les lois de la société, elle payera avec une exhibition en publique pour donner un exemple aux autres femmes.

Comme chaque institution, la littérature a ses propres règles inconscientes que tout le monde observe mais personne n'y pense. Ces règles suivent les préceptes de l'ordre social et les uns qui concernent les femmes sont faciles à déchiffrer. En fait, vous pouvez trouver le premier indice sans même lire la littérature, mais en regardant les auteurs—Marivaux, Diderot, Prévost, Rousseau, Voltaire, etc.

Règle inconscient numéro un semble que les femmes n'ont pas d'autorité, pas assez pour mériter d'être écrivain en ce temps (les auteurs comme Mme de Staël exceptés) Elles ne méritent même pas d'être membres des salons. C'est vrai que les femmes dirigeaient les salons, mais c'était dans la capacité d'envoyer les invitations, d'arranger les meubles, de préparer des nourritures. Elle était dans la capacité d'une servante ou domestique. Elle ne participait dans les discussions, les participants étaient les hommes. Mme de Staël était écrivain pendant ce temps, mais à cause de cela elle a été exilée par Napoléon; ça veut dire qu'elle n'était pas reconnue sous

le même aspect que les hommes. Une autre raison pour sa notoriété était peut-être car son père était dans le gouvernement. (M. Necker) Si cela est le cas, cela expliquerait aussi pourquoi la sœur de Chateaubriand, Mme de Marigny était si populaire après avoir écrit un journal inédit de 1814.

Les femmes entrent dans les romans comme personnages mais elles sont des stéréotypes, totalement identifiées avec un rôle particulier dans la vie. C'est comme une formule. Les femmes sont des mères, (e.g. Julie, dans la *Nouvelle Héloïse*, Sophie dans *Emile*, Rosine, dans le *Mariage de Figaro* et *La Mère coupable*, comme Marguerite et Madame de la Tour dans *Paul et Virginie*) des confidentes (comme Suzanne dans le *Mariage de Figaro* et *La Mère Coupable*, Lisette dans *La Double Inconstance*, Silvia dans *le Jeu de l'amour et du Hasard*, Marceline dans le *Mariage de Figaro*) et des femmes de chambre; ce sont les hommes qui sont les professionnels, les médecins, les intendants et les joueurs, (comme Des Grieux et le frère de Manon; Dorante est un intendant dans *Les Fausses Confidences*; il y a un médecin dans *L'entretien de Diderot*. Les femmes n'ont pas de carrières. (Alzire, Eugénie et Araminte comme exemples). Les femmes doivent être submissives et passives. (Suzanne dans *la Religieuse*, cloîtrée contre son gré, aussi La St.-Yves dans *L'Ingénue*, cloîtrée contre son gré). Si elle a un enfant hors du mariage c'est un scandale. (comme Marguerite dans *Paul et Virginie*, Eugénie, dans *Eugenie*, Marceline dans *le Mariage de Figaro*, et etc.) Les femmes sont des ornements, les objets du sexe, perdues à la beauté et faible. (e.g. Manon Lescaut, une femme intelligente et compétente est une animale rare, Suzanne dans *la Religieuse*, La marquise de Merteuil, dans *Les Liaisons dangereuses*, Mérope dans *Mérope*, etc.) Circonscrite par domesticité dans les oeuvres, "femme" est synonyme avec le mot "mère."

Toutes ces indications font une image négative et dégradante, une servante d'enfant, sans pouvoir, sans cerveau, inférieure, incompétente, étourdie, et qui ne peut pas exister sans les guides des parents. Elle ne peut pas être indépendante. Ses seules fonctions sont comme mère, femme servante et pour les accomplir elle se change en objet de sexe.

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EXCURSION: Toward the Origin of Modern Drama

Traditionally, modern European drama traces its origin to the tenth century when the Roman Catholic Church moved the "quem quaeritis" Easter trope from the mass to Matins. In English drama, for example, a direct line is drawn from tenth-century liturgical dramas to cycle plays (e.g. those performed at York and Wakefield), to morality plays (e.g. *Everyman* and the *Castle of Perverse*) to Gammer Gurton's Needle and the English Renaissance drama of Marlowe and Shakespeare.

Yet a common supplementary text in both graduate and undergraduate courses dealing with European drama, Benjamin Hunningher's *The Origin of the Theater: An Essay* (New York, 1961) – now in its fourth American printing – severely criticizes this traditional view. Once again, scholars are asking why and how drama suddenly appeared in the Church of the tenth century, especially since the Church regularly protested the secular entertainments of mimes, histriones, and other professional performers. Because of the wide use of his book, Hunningher's answer to this question deserves close attention.

Hunningher maintains that the Church moved the Easter trope from the mass to Matins – from whence it gave rise to drama – in order to neutralize the demonic power over the people of pagan rites performed on "the eve and night of the spring festival" by providing the people with "holy dialogue." He asks: "Why should the Church not fight its competitor (paganism) on his own ground?" He argues that the Church overcame paganism by adoption and supports his thesis by analogy. If the first birth of Western drama (the plays of classical Greek theater) resulted from primitive cults and ancient Greek religion, shouldn't its second birth have resulted from the same causes?

Furthermore, Hunningher contends, the Church in order to aid itself in fighting fire with fire – a kind of drama with another kind – called upon the still-flourishing mimes who, under clerical supervision, gave to her drama whatever reality and substance can be found in it. In calling upon the mimes, the Church tamed two theretofore predatory birds with one slap: paganism and the mimes themselves.

But why would the Church choose the tenth century to launch a campaign against pagan rites? By that time not only had the Church successfully proselytized and converted, but she had established herself as a temporal authority. In fact, in the ninth century, Gregory IV had made the final move to free the Church from any other temporal authority. By the middle of the seventh century Canterbury -- in England, which was late in being fully Christianized -- was sending monks and sisters to other points in the Western world. By the year 900, according to Marshall Baldwin in his *Medieval Church* (Ithaca, 1953), monasticism was firmly entrenched. Hunningher does not explain why the Church -- land owner, advisor to kings, tithe collector, library and school for the West -- suddenly grew so fearful of folk rituals as to institute a kind of drama for the sole purpose of combating them.

It would be more logical to look for the causes of this rebirth of drama in the Church itself rather than in external institutions.

In the tenth century, the Benedictine monastery of Cluny initiated a new program -- forcefully led especially by its Abbots Odo (926-942) and Odil (944-1049) -- which had as its objectives the restoration of monastic discipline and the liberation of monasticism from lay control. It was these monks who first multiplied and lengthened the offices and who, turned in upon themselves, brought to the liturgy and the physical church a great deal of artistic elaboration. Nothing, in their minds, could be too splendid for God. The effects of the Cluny Movement were widespread.

In speaking of the artifacts of the medieval English church, Martin Holmes in *Medieval England* (London, 1934) reports that "fresh impetus was in turn given to the monkish craftsman by the widespread adoption of the Rule of St. Benedict as observed in the great central house of Cluny." Marshall Baldwin recounts how many monasteries put themselves under the protection of Cluny. Grace Frank in *The Medieval French Drama* (Oxford, 1954) states: "Among the monastic orders the Benedictines were almost the only ones to produce plays; it was their monasteries that inspired the notable texts of St. Martial of Limoges and Fleury, as well as those of Compeigne, Mont-St.-Michel . . . Three Benedictine convents for women also produced excellent plays that not unexpectedly reveal some sort of relationship with one another." In the tenth century, then, we have the simultaneous appearance within the Church of drama and the influential Cluny Movement with its emphasis on artistic elaboration and, eventually, its status as foremost producer of liturgical drama.

Still another influence was at work within the Church which impelled her toward the birth of modern drama. In "The Mass as Sacred Drama" [*Christian Rite and Christian Drama in the Middle Ages*: Baltimore, 1965]. O. B. Hardison states that Gregory I (590-604) ". . . is credited with initiating the movement to establish a uniform ritual throughout Western Christendom. His Sacramentary was the basis for the liturgical reform movement of the eighth and ninth centuries and today remains the foundation of the Roman rites." Hardison also points out that Gregory in his *Dialogues*, employed a system of three kinds of symbolic meaning -- allegorical, tropological, and anagogical -- "to interpret or explain the invisible realities of the Mass." Not only had the contents of the mass become uniform by the tenth century, as Hardison and Young point out, but one of the greatest thinkers and writers within the Church had early set the trend toward symbolic interpretations of Church ritual.

This trend was furthered by Amalarius, Bishop of Metz (789-850) whose influential *de Ecclesiasticis Officiis* and *Eclogae de Officio Missae* interpreted the mass as a *dramatic representation* of events in Christ's life. (Indeed, about 1100, an imitator of Amalarius, Honorius of Autun, wrote his *Gemma Animae* in which he saw the celebrant of the mass as an impersonator of Christ.)

In summary, we see the tenth-century Church possessing 1) an established uniform ritual for the mass, 2) a propensity for symbolic interpretations, 3) a conception of the mass itself as drama, and experiencing 4) both an enlargement of the offices and a movement toward artistic elaboration under the influence of Benedictine Cluny (the Benedictines themselves being closely allied to the development of liturgical drama). Question: wouldn't these factors represent a stronger impetus toward drama than a fear of the demonic influences of pagan rites? One need only add that in the liturgical dramas themselves there is no sign of the May Game, Sword Dance, the Mummers' Play and other paganistic folk rituals.

Now let's consider the second half of Hunningher's thesis, that related to the mimes and histriones. He maintains that 1) the mimetic tradition of the Greeks and Romans continued to and through the Middle Ages, 2) medieval monasteries often housed professional entertainers and apparently participated in their productions, and 3) the mimes were directly employed by the monasteries in creating and performing liturgical drama.

There is ample evidence of the continued existence of mimes. J.D.A. Ogilvy in his article "Mimi, Scurrae, Histriones: Entertainers of the Early Middle Ages" [*Speculum*, 38, 1963] has warned us against the dangers of equating *mimus* and *histrion* with *jongleur* and *ministrallus* (as E. K. Chambers, Edmond Farral, Hunningher and others tend to do). His warning is valid but for the sake of getting on with the subject at hand, let's grant the equatability of those terms and look at the two major kinds of evidence supporting the contention of a continued, living mimetic tradition.

Chambers, in *The Mediaeval Stage* (Oxford, 1903), gives us records of payments to minstrels from the exchequer books of the English court as well as evidence that minstrels were kept by many noble houses and eventually (fifteenth century) were employed by various English municipalities. The body of this evidence comes from the thirteenth and fourteenth centuries, although Chambers says that the "balmy days of minstrelsy" were the eleventh, twelfth, and thirteenth centuries -- all, in any event, a bit late for our purposes. But surely one may agree that such a collection of performers, including mimes, did not suddenly leap out of a vacuum.

It is when we turn to the other kind of evidence -- that of the Church itself -- that we can be sure of the continuance of professional performers. Through the centuries we have a series of pronouncements made by leading churchmen, individually and collectively in council, against them: Tertullian (d. 220), Cyprian (d. 259), Lactantius (d. 330), Chrysostom (d. 407); the Council of Carthage (401), the African Council (408), the Council of Agde (506), the Council of Trullane (692). Even in centuries postdating the appearance of liturgical drama we have continued attacks by churchmen against entertainers -- the Council of Oxford (1222), for example.

This same body of evidence obviously supports Hunningher's contention that the monasteries can be directly linked with the mimes *et al.*, for many of the individual and conciliar pronouncements warn the monks as well as other clergy against having anything to do with those performers. The Council of Carthage, for example, issued a canon stating that any clergy delighting in obscene jests, singing, or dancing at feasts should be punished. The Council of Agde prohibited priests, deacons, and sub-deacons from attending *spectacula* and castigated, particularly, buffoons. Ogilvy, too, gives us evidence of a relationship between those performers and the monks predating the appearance of liturgical drama. English ecclesiastics of the early Middle Ages were known to

maintain a performer or two of their own. The Sixteenth Canon of Clovesho (747) said: "Let bishops beware that monasteries do not become repositories of the frivolous arts -- that is, of minstrels, cytharistae, musicians and buffoons." The Council of Rome, which dealt particularly with English matters, ordered bishops and other clerics not "to allow jests or shows of any sort to be presented before them." Although, as Ogilvy suggests, we might ask to what degree monks participated in the revelries of performing troops, (as opposed to simply enjoying them as "paying" spectators), scant evidence makes a conclusive answer impossible. Let's say, therefore, that certainly many monasteries witnessed professional entertainments and possibly participated in them.

Can we now take the final step with Hunningher, accepting his contention that the monasteries employed professionals in their liturgical plays? First there are three observations that should be made: 1) that if the monks were so familiar with secular theater and inclined from time to time to participate in it, their need to employ minstrels, mimes, histriones would be considerably diminished, 2) that the roles in liturgical dramas are explicitly assigned to clerics, and 3) that the language of Church pronouncements against secular entertainments suggests a distinction in the minds of churchmen between drama and the performances given by mimes and others -- *spectacula* being their favorite term. In fact, Ogilvy says that "dramatic performances were only a small part of the repertory of the *mimus* and they consisted only of ephemeral material of not much more substance than vaudeville skits." With such a distinction, we need not posit some sort of schizoid tendency among churchmen like Amalarius and Honorius who interpreted the mass as drama and yet condemned theater.

The primary evidence Hunningher presents to support his contention that monasteries employed professional entertainers in their liturgical plays is: 1) the dancing figures surrounding King David on the *Psalterium Aureum* of St. Gall and on the manuscript of a trope from St. Martial of Limoges, as well as 2) the comic interpolations in liturgical drama.

Hunningher is certain that the dancing figures "portray the various mimes in their performances -- acting, dancing, accompanying themselves on musical instruments." He continues:

What business have these enemies of the Church in a collection of monastic songs? They are certainly not simply decorative, like the elephant and other decorations around the text. Moreover, the actors are so vividly and

realistically depicted that we must assume the miniatures to be portraits: The only conclusion we can draw is that the artist considered the pictures of mimes to belong to the *cantilena*. He must have seen them acting, dancing, singing in the very tropes he illustrated.

True: the *Psalterium* and the St. Martial *troparium* portray dancing figures. True: the artist probably saw dancing men in the church. Why?

And David and all the house of Israel played before the Lord on all manner of instruments made of fir wood, even on harps, and on psalteries, and on timbrels, and on cornets, and on cymbals.

And David danced before the Lord with all his might; and David was girded with a linen ephod.

So David and all the house of Israel brought up the ark of the Lord and with shouting, and with the sound of the trumpet. [II Samuel 6: 5, 14-15]

David and the house of Israel celebrated retrieving the Ark and they brought it to "the city of David with gladness." The Bible records these events. Medieval churchmen faithfully dramatized them.

Of the "comic" interpolations in liturgical plays, Hunningher says that "mimes did not let (the) opportunity to display their comic talents pass unused – for every tragedian seizes to chance to show off his *vis comica* – indeed they may even have added these scenes themselves." (Note the equating of *mimus* with tragedian.) Once again, there is a scriptural source for the first comic interpolation Hunningher refers to: the race of the apostles to the empty sepulchre which Mary and Mary Magdalene first discovered:

Peter therefore went forth, and that other disciple, and came to the sepulchre.

So they ran both together; and the other disciple did outrun Peter, and came first to the sepulchre. [John, 20: 3-4]

There is no scriptural source, however, for the second comic interpolation Hunningher names: the scene in which Mary Magdalene and other women haggle with an apothecary over the price of the unguent they will use on Christ's body. Nor is there a scriptural source for the blustering, bombastic Herod of the Christmas plays and other similar comic scenes. Can we, then, agree with Hunningher that the clergy approved the addition of these scenes to increase "the attractiveness of Church-plays, making them a more effective weapon against the worldly mime"?

According to the *Regularis Concordia* of St. Ethelwold, written in the second half of the tenth century, two ceremonies commemorating the burial and resurrection of Christ – the *depositio* and *elevatio* – effected "the strengthening of the faith of the vulgar and the unlearned." That liturgical plays have this didactic function is clear. In the thirteenth-century Easter play from Orleans, the women are directed to unfold the muslin cloth (previously wrapped around Christ's entombed body), saying to the people: "Look you friends, these are the cloths of the blessed body/Which lay abandoned in the empty tomb." *Quod erat demonstratum*: Christ is risen. In the Herod play from a twelfth-century manuscript of the Abbey Saint-Benoit-sur-Loire, the midwives hold up to the Magi the boy Christ, and the Magi, after awakening from the dream in which an angel tells them to return to their countries, come to the choir and say: "Rejoice brethren! Christ is born to us! God is made man." (Italics mine) The twelfth-century Daniel play presented in the cathedral of Beauvais demonstrates how, on the one hand, the blindly proud king will be defeated by God's word and, on the other hand, the wise king who acknowledges God's supremacy will conquer on earth.

The faith of the people should be strengthened because the past is made present, because the actions of the characters are ones they could well imagine themselves performing under the same circumstances. (In fact, this didactic use of realism and past-made-present is evident in the later cycle plays. In the Wakefield Cycle, for example, a fifteenth-century English shepherd bemoans of an evening the evils wrought by enclosure and purveyor and, on the same night, visits Bethlehem to worship the Christ child. Cain tells God to bury him in nearby "Goodybower at the Quarry Head.") What Auerbach in his *Mimesis* has said about the *Mystere d'Adam* is applicable to our liturgical plays: "It situates the sublime event within their (the people's) everyday lives so that it is spontaneously present to them." He goes on to say that "the everyday and real is thus an essential element of medieval Christian art and especially of Christian drama." Logically, the clergy included comic interpolations to improve the effectiveness – not attractiveness – of liturgical drama.

But where, except from the mime, would the cleric get his comic Herod, asks Hunningher. From his own milieu, we respond. In such plays as *Dulcitius*, tenth-century Hrotsvitha of Gandersheim consistently uses comedy to demonstrate the spiritual degradation of the unbelievers. Furthermore, Curtius in "Jest in Hagiography" has

shown that in her use of comedy Hrosvitha belongs to a literary tradition long present within the Church.

The Spanish poet Prudentius (ca. 400) uses grotesque humor "within a sacred poetic genre." Sulpicius Severus' prose life of St. Martin, from the same period, possesses comic touches: St. Martin, seeing a group of pagans approaching him, orders them to halt, whereupon they become paralyzed. Soon, in their efforts to move, they are forced to turn in a circle. Curtius states: "The pagans, the devils, the men of evil may behave as savagely as they will – they are the fools, and the saint reduces them *ad absurdum*, unmasks them, dupes them." Speaking of the medieval *vita sancti*, Curtius concludes that "humoristic elements, then, are part of the style . . . They were present in the material itself, but we may be sure that the public expected them as well." Finally, the medieval monastic schools included in the grammar part of their *trivium* the Roman comedies of Terence and Plautus.

It should be obvious that while liturgical drama developed at a time when secular entertainment flourished, medieval churchmen were not without their own resources. Behind them was a literary tradition, within the Church, of comic interpolations which suited the didactic purpose of liturgical drama: to strengthen the people's faith. At hand, in their classrooms, were the comedies of Terence and Plautus.

In concluding his *Origin of the Theater*, Hunningher refers – as he did at the outset – to the seminal work of Leon Gautier, *Histoire de la Poesie liturgique: les Tropes*. Hunningher says: "We follow him in his hopes and doubts when we replace his trope with our pagan rites. I can't quite say that it (sic.) is the origin, and yet I am tempted to believe that it is." Like another set of literary analysts who interpret Hamlet's malingering as a manifestation of his Oedipal complex, ignoring the conventions and plot of Elizabethan/Jacobean revenge plays, and thereby replacing fact with Freud, Hunningher stands ready to bow before a different, though equally famous god: Fraser of *The Golden Bough*.

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SOME PATTERNS OF MIGRATION FROM SIX SELECTED COUNTIES IN NORTHERN APPALACHIA

The purpose of this paper is to discern some migrational patterns from the coal mining areas of northern Appalachia.

There are two types of coal mined in this region. Anthracite or hard coal is 75-95% carbon and only one use and that is as a fuel. Bituminous or soft coal is 50-74% carbon and its main purpose is to be made into coke for the steel mills. It is often called 'coking coal' but it too can be used as a fuel. Lignite, a third type of coal which is less than 50% carbon is produced in some of the western states but not in Appalachia.

This writer selected three counties to represent the Anthracite region and three counties to represent the Bituminous area.

Anthracite or hard coal is mined in only five counties in the United States. Traces of it are found in two other counties and all seven counties are located in east central Pennsylvania. The counties of Carbon, Northumberland, and Schuylkill were selected to represent this region because they were in the geographic middle of the hard coal area.

Bituminous coal is mined in all the counties in western Pennsylvania and every county in West Virginia. It is also mined to a lesser extent in neighboring states. The counties of Monongalia, Preston, and Marion in West Virginia were selected to represent this region because they are in the geographic center of the soft coal belt.

The 191 communities found in these six counties would not fit the definition of urban, rural, or suburban by any standard in use today. There is not a single municipality in all six counties with a population of 50,000 or more nor is a single town in the area located within 20 miles of such a city.

The specific purposes of this work are to:

1. Determine if there has in fact been a population loss in these areas.
2. Determine if the exodus began earlier in the anthracite area than in the bituminous area.
3. Ascertain if there is a relationship between population decrease and coal production.

4. Find out where the migrants are moving to.

The data in Tables I through VI were taken from the 1930-1970 U.S. Census Reports and the 1937-1972 Statistical Abstracts. (Exact pagination citations are available upon request.)

TABLE I
POPULATION DECREASES 1930-1970
FOR THE SUBJECT COUNTIES

	1930	1940	1950	1960	1970
Carbon County, Pennsylvania	63,380	61,735	57,558	52,889	50,573
Northumberland Co., Pennsylvania	128,504	126,887	117,115	104,138	97,696
Schuylkill County, Pennsylvania	235,505	228,331	200,577	173,027	160,089
Marion County, West Virginia	66,665	68,683	71,521	63,717	61,356
Monongalia County, West Virginia	67,659	69,353	93,090	85,106	63,714
Preston County, West Virginia	29,043	30,416	31,399	27,233	25,455

TABLE II
[Hard Coal] ANTHRACITE PRODUCTION IN TONS

1930	1931	1932	1933	1934	1935	1936	1937
68,777	59,115	49,855	49,541	57,168	52,159	54,380	51,856
1938	1939	1940	1941	1942	1943	1944	1945
46,099	51,487	51,485	56,368	60,328	60,644	63,701	54,934
1946	1947	1948	1949	1950	1951	1952	1953
60,567	57,190	57,140	42,702	44,077	42,670	40,583	30,947
1954	1955	1956	1957	1958	1959	1960	1961
29,083	26,205	28,900	25,338	21,171	20,649	18,817	17,446
1962	1963	1964	1965	1966	1967	1968	1969
16,894	18,267	17,184	14,866	13,549	12,256	11,461	10,473

TABLE III
BITUMINOUS [Soft Coal] PRODUCTION IN TONS

1932	1933	1934	1935	1936	1937	1938	1939	1940
309,710	333,631	359,368	372,373	439,085	445,531	385,450	394,855	460,772
1941	1942	1943	1944	1945	1946	1947	1948	1949
514,149	582,693	590,197	619,576	577,617	533,422	627,389	596,024	434,342
1950	1951	1952	1953	1954	1955	1956	1957	1958
512,529	529,880	463,137	453,578	391,706	464,633	500,874	492,704	410,446
1959	1960	1961	1962	1963	1964	1965	1967	1968
412,028	415,512	402,977	422,149	458,928	486,998	512,088	552,626	560,505

In 1960, a great deal of migrational data was tabulated by the Census Bureau, however they divided each state up according to economic areas rather than counties for reporting purposes. The anthracite region was listed as Pennsylvania Economic Area 6 which included Carbon, Northumberland, and Schuylkill counties along with the counties of Columbia, Monroe, Montour, and Pike. The selected counties of Monogalia, Preston, and Marion were in West Virginia Economic Area 3 which also took in the counties of Taylor, Harrison, and Barbour.

TABLE IV
MOBILITY STATUS OF THE POPULATION 5 YEARS OLD OR OVER FOR
PENNA. ECONOMIC AREA 6 & W. VIR. ECONOMIC AREA 3 (1955-60)

	TOTAL POPULA- TION OVER 5.	Same House Non- Movers	Different House in the United States (Movers)							Over- seas in 1955	Moved Since 1955 to parts unknown
			TOTAL	Same County	Different County (Migrants)						
					TOTAL	Same Economic Area	Different Economic Area				
							TOTAL	Same State	Diff. State		
Pg. 6 W. Va. 3	406,124 23,843	285,237 136,355	118,668 91,761	89,588 64,542	29,060 27,219	5,455 6,732	23,625 20,487	14,740 8,643	8,885 11,853	1,048 694	3,171 1,833

In spite of heavy out-migration, some people still moved into the areas during the period.

TABLE V
IN-MIGRANTS, OUT-MIGRANTS, AND NET MIGRATION FOR
PENNA. AREA 6 AND W. VIR. AREA 3 DURING 1955-60.

	IN-MIGRANTS	OUT-MIGRANTS	NET MIGRATION
Pn. 6	23,625	31,754	-8,129
W. Va. 3	20,487	36,648	-16,161

There were also differentials concerning age and sex as regards the movement.

TABLE VI
AGE AND SEX OF OUT-MIGRANTS FOR
PA. AREA 6 AND W. VIR. AREA 3.

	ALL AGES	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85 & Over
Pn. 6	196,364	20,126	20,040	15,289	10,324	10,945	13,891	15,035	15,062	30,118	23,177	22,559						
FEMALE	211,760	19,516	19,230	16,128	11,611	11,820	15,096	16,477	16,763	31,400	25,775	27,939						
W. Vir. 3	112,562	12,247	13,148	11,191	7,556	8,146	7,153	8,062	7,555	14,797	11,650	13,007						
FEMALE	116,001	11,785	12,370	10,866	7,822	8,789	8,404	9,075	8,307	15,610	12,648	14,167						

It can readily be seen from Table I that all six counties did in fact experience a population loss between 1950 and 1960.

From this same table it is also quite apparent that all three of the Anthracite counties began losing their people earlier than any of the Bituminous counties. Carbon, Northumberland, and Schuylkill Counties in Pennsylvania have experienced a net loss of population in every census since 1930. Monogalia, Preston, and Marion Counties in West Virginia enjoyed growth between 1930 and 1950 then started their population decline between 1950 and 1960. It

was after 1960 that the Anthracite region had been a depressed area for more than 30 years, (in fact never recovered from the Great Depression.) But only a handful of counties were involved, a few hundred thousand people. When unemployment struck the soft coal fields, 33 counties in Pennsylvania, the whole State of West Virginia, and dozens of counties in other states were affected. This involved many millions of people.

In spite of the fact that both the hard and soft coal regions suffered a new loss of people during the last census interval, over 20,000 people moved into each area between 1955 and 1960. (See Table V.) They can't be all anti-poverty workers assigned to the areas; so obviously they are not new people. These are some of the people who moved out in the 30's and 40's when middle-aged to find work elsewhere. They are now returning home to retire. The cost of living in a depressed area is ideal for someone on a fixed income. A three bedroom brick home can be purchased for \$3,000 and a glass of beer still only costs a dime.

Table III, shows that there has been an overall increase in soft coal production. This means that the demand for soft coal has not slackened, indeed it seems to have increased. Its main function is use in the steel making process. As long as the demand for steel stays high, the demand for bituminous coal will remain high. How can the production of soft coal continue at such a high level while demanding less and less miners in that production? The answer, of course, is automation. Machines in the mines were blessed at first because they took the back breaking labor out of the job; but soon they were replacing the miners as well.

Table II, apparently displays a general decrease in hard coal production. This indicates a lessening in the demand for anthracite. Machines would not effect demand, so automation can not be blamed here. What happened is that the miners went on numerous strikes for higher wages and better working conditions. Their victories in these areas brought the price of coal up so high that gas and oil became competitive with it as a fuel. Hard coal or fuel coal had three major markets: 1. Used in the furnaces and stoves of private dwellings for heating and cooking. 2. Used as the fuel in steam engines and train locomotives. 3. Used to heat the boilers that turn the turbines in electric power plants. The largest market was the first to go. Millions of people converted to gas or oil systems in their private homes when coal became their economic equal. Gas and oil burn more evenly and efficiently than coal. They can be

more effectively thermostatically controlled. They are easier to use (just turn off and on - no fires to build). They are much cleaner (no ashes to take out and remove - no soot to clean).

Soon the hundreds of thousand coal burning railway locomotives across the nation were being replaced. Diesel engines were first used to pull passenger trains then they were used to pull freight trains too. The only market remaining is the smallest one and even now the power plants are rapidly changing to nuclear energy as their source of heat. So the outlook for the future in anthracite production appears to be one of continued decline.

As regards the third purpose of this paper it can be said that there is a direct correlation between the population decrease in the hard coal region and the production of anthracite coal; but no relationship exists between population decrease in the soft coal belt and the production of bituminous coal.

The census data also points out that 57% of the movers from the Pennsylvania area migrated to other areas within that State. Whereas, only 21% of the West Virginians moved to other areas in their home state. This is because West Virginia has very little non-mining employment opportunities while Pennsylvania offers work in its steel mills, chemical plants, and other diverse factories in its larger cities.

Ohio, also with a diversified industrial base, received 20% of the West Virginia migrants, Pennsylvania took in 9%, Maryland and Florida got 7% each, Virginia 5% and California received 4%.

New Jersey took in 9% of the Pennsylvania movers, New York 6%, Florida 4%, Maryland 3%, California 2 1/2%, and Virginia 2%.

Technically this paper is finished as all the stated goals have been reached but it is not enough to do a mere descriptive study of a problem. Besides, the collected data asks several new questions and some inconsistencies cry for clarification. This calls for a systematic analysis and explanation. (All further data tables in this paper will be constructed by the author.)

To begin with Table VI shows that the women begin outnumbering the male migrants at the 15-19 age bracket in Pennsylvania Economic Area than leave the West Virginia area? If we remember Ravenstein's classic laws (Ravenstein, E.G., "The Laws of Migration," *Journal of the Royal Statistical Society*, 1885, V48, pp. 167-235), then we know that if the movement is to a new country or a new frontier in a developing nation then the migrants are predominantly male. If the movement is from one area to another over moderate distances in a developed nation than the sex ratio of

the migrants is no different than that of the general population. If the movement covers a short distance and is to already established cities in a developed nation then the migrants tend to be largely female because of the abundance of office jobs in metropolitan areas. They also feel secure if they are not too far from their hometown. Men, on the other hand, (generally speaking) are not afraid of travelling great distances alone and unescorted.

This apprehension may even be felt to a greater extent by 16, 17, 18, and 19 year old girls. If not by them so much, then certainly by their parents who would rather have them go to nearby cities for work. If that is the case then we must be able to prove that the Pennsylvania migrants moved a shorter distance than the West Virginians and that there are more cities available to them within that distance.

TABLE VII
STATES MIGRANTS FROM PENNSYLVANIA AREA 6
AND WEST VIRGINIA AREA 3 HAVE SETTLED IN (1955-60)
BY NUMBER OF STATES AWAY FROM HOME AREA.

WEST VIRGINIA ECONOMIC AREA THREE				
(0) Same State: 7,879 West Virginia	(1) Adjacent State: 7,444 Ohio 3,443 Penna. 2,736 Maryland 1,797 Virginia 471 Kentucky	(2) Two States Away 689 Michigan 510 Wash., D.C. 457 No. Carol. 338 Indiana 252 Tennessee	(3) More than two States away Other 40 Sta. (Includ. 2,628 to Fla. & 1,364 to Cal.) T-8,785	
TOTALS	7,879	17,891 X-3,578	2,246 X-449	8,785 X-220

PENNSYLVANIA ECONOMIC AREA SIX				
(0) Same State: 28,921 Pennsylvania	(1) Adjacent State: 4,822 New Jer. 2,936 New York 1,636 New York 1,636 Maryland 983 Delaware 819 Ohio 133 West Vir.	(2) Two States Away 1,204 Virginia 651 Conn. 563 Mass. 338 Indiana 310 Wash., D.C. 236 Kentucky 48 Vermont	(3) More than two States Away Other 37 States (Includ. 1,913 to Florida and 1,282 to Cal.) T-7,181	
TOTALS	28,921	11,329 X - 1,888	3,350 X-407	7,181 X-194

TABLE VIII
STANDARD METROPOLITAN STATISTICAL AREAS WITHIN A HUNDRED
MILE RADIUS OF THE THREE SELECTED ANTHRACITE COUNTIES (WITH POTTSVILLE)
TAKEN AS CENTER] & THE THREE SELECTED BITUMINOUS COUNTIES (WITH MORGANTOWN-FAIRMONT)
AS CENTER AND THEIR DISTANCES FROM THESE CENTERS

PENNSYLVANIA			WEST VIRGINIA		
SMSA's	POPULATION	DISTANCE	SMSA's	POPULATION	DISTANCE
Philadelphia	3,635,228	66	Pittsburgh, Pa.	1,804,400	65
Wilmington, Del.	283,667	78	Wheeling, W. Va.	98,951	53
Allentown-Bethlehem	256,016	33	Stubenville, Ohio	80,717	85
Trenton, New Jersey	242,401	80			
Wilkes-Barre	233,932	35			
Scranton	210,676	57			
Harrisburg	209,501	52			
Reading	180,297	26			
York	100,872	55			
Lancaster	93,855	42			
TOTALS 10	5,426,445		3	1,984,066	

It is clear from the tables that the majority of the Pennsylvania migrants remained in the same state (ergo - moved a shorter distance), while 79% of the West Virginia migrants went to another state (ergo - moved a greater distance.) Also the Pennsylvania area 6 migrants had many more nearby metropolitan areas of much greater size available to them than did the West Virginia area 3 migrants. This explains why the girls begin to leave the Pennsylvania area at an earlier age than do the girls from the West Virginia area.

Every good research paper should introduce at least one new concept. It is possible to qualify the attraction or pull that a metropolitan area exerts on any of its hinterland communities. If 'social physics' is allowed to borrow again from natural physics, (and because analogy is a useful aid in hypothesis formulation) we can make use of a modified version of Newton's Law of gravity (i.e. attraction is directly proportional to mass and conversely proportional to the square of the distance). It is true in using this gravity model, that we will only be measuring ideal pull or potential pull but this is all the physicist can do with their law. The formula for attraction only works in a vacuum when there are no obstacles or other masses in the magnetic environment. Given this same latitude this writer can devise a formula for measuring the Potential Pull (PP) of a metropolitan area upon any given community in its Hinterland. PP would be directly proportional to the population of the SMSA and inversely proportional to the square of its distance from the hinterland town. Stated more simply PP equals the SMSA population divided by the square of the distance to the hinterland community.

TABLE IX
POTENTIAL PULL [PP] COMPUTED FOR THE SMSA'S
ON THE TWO ECONOMIC AREAS UNDER STUDY

PENNSYLVANIA AREA 6		WEST VIRGINIA AREA 3	
PP (Philadelphia) -	3,653,228/4356-832	PP (Pittsburgh, Pa.) -	1,804,400/4225-427
PP (Reading) -	180,297/676-237	PP (Wheeling, W. Va.) -	98,951/2809-35
PP (Allentown-Bethlehem) -	256,016/1089-235	PP (Steubenville, Ohio) -	80,717/4225-19
PP (Wilkes-Barre) -	233,932/1225-191		
PP (Harrisburg) -	209,501/2704-77		
PP (Scranton) -	210,676/3249-65		
PP (Lancaster) -	93,855/1764-53		
PP (Wilmington, Del.) -	283,667/6084-47		
PP (Trenton, New Jersey) -	242,401/64400-38		
PP (York) -	100,872/3025-33		

If my formula is valid then Pittsburgh, Penna. should receive 12 times the number of West Virginia migrants as does Steubenville, Ohio.

But Table VII says that more than twice as many West Virginians moved to Ohio than moved to Pennsylvania. In order for the formula to hold with this seemingly incompatible data is for Pittsburgh to have received nearly all 3,443 who migrated to Pennsylvania while Steubenville only got 2.3% of the 7,444 who went to Ohio. This is not too unrealistic if we remember what we have been taught about intervening opportunities (Stouffer, Samuel A. "Intervening Opportunities: A Theory Relating Mobility and Distance," *American Sociological Review*, 5 December, 1940, pp. 845-867) and what we already know about intervening barriers.

Eastern Ohio is a lot like Eastern Pennsylvania; it contains many SMSA's and has a widely diversified industrial base. Eastern Ohio cities like Cleveland, Youngstown, Akron, Canton, and Warren are not too far outside the 100 mile radius from West Virginia Area 3. They are all much larger than closer-in Steubenville and offer employment in their rubber, chemical, ball bearing, munitions, heavy machinery, and appliance factories. Also, it is a level approach to the central-western Ohio cities like Columbus, Springfield, Dayton, Cincinnati, Lima, and Toledo. So it is not inconceivable that other areas of Ohio have a much greater pull than Steubenville.

For West Virginians to reach Eastern Pennsylvania they would have to travel many hundreds of miles and cross the entire Appalachian Mountain System at its widest swath. So it is very possible that the vast majority travel the very few miles and settle in Western Pennsylvania. (Two of the three West Virginia counties under study actually abut the southwestern Pennsylvania border.) Western Pennsylvania is exactly like West Virginia with its bituminous coal mines also largely automated and employing no new personnel. The only exception is Pittsburgh with its bustling steel mills. Hence Pittsburgh more than likely does get most of the West Virginians who go to Pennsylvania.

My formula for pull will work no better than Newton's attraction law. If intervening opportunities exist like other SMSA's nearby (other masses in the magnetic field or if intervening barriers are present like mountains, rivers, or borders (obstacles in the path of the force) then more complex calculations need to be made-taking all these things into account - to arrive at Pull. Potential Pull won't always equal Pull.

Basically however, to test the reliability of the measurement, we need data on migrants to metropolitan areas by their community of origin. The collection of which would be costly and beyond the scope of this work. As is usually the case in research, the process

often raises as many new questions as it answers old ones. The new ones then have to await the future studies they generate.

Another inconsistency exists in terms of anthracite coal production (See Table II). Although the general trend has been downward one gets the feeling of some exceptionalism. A combined and compressed population-anthracite production table may highlight this for us.

TABLE X
POPULATION AND COAL PRODUCTION AT TEN YEAR INTERVALS FOR
THE ANTHRACITE COUNTIES

POPULATION				
1930	1940	1950	1960	1970
68,777	51,485	44,077	18,817	10,473
ANTHRACITE COAL PRODUCTION				
1930	1940	1950	1960	1970
427,389	416,953	375,250	330,054	309,852

This seems consistent enough, perhaps if we offset coal production a couple of years in the comparison the difficulty might be more clearly pointed out. It would be well to use an index letting the earliest years be the base or 100.00.

TABLE XI
POPULATION AND COAL PRODUCTION AT TEN YEAR INTERVALS FOR THE ANTHRACITE COUNTIES

YEAR	1930	1940	1950	1960	1970
POPULATION	427,389	416,953	375,250	330,054	309,852
RATIO	100.00	97.6	87.8	77.2	72.5
COAL PROD.	49,855	60,328	40,583	16,894	10,473
RATIO	100.0	121.0	81.4	33.9	21.6
YEAR	1932	1942	1952	1962	1969

It shows up very well now. If we go back and examine Table II, we find there are two groups of exceptional years. In 1932 and 1933 coal production was lower than the years following. This was the nadir of the Great Depression and many coal burning machines were idle. In 1941, 1942, 1943, 1944, and 1945 coal production was higher than the years preceding. These were the World War II

years, the United States and her Allies burned much coal in their wartime ships and trains. So fewer and fewer miners by working overtime and doubletime were able to produce more and more coal and thus cause a warp in the statistics.

Once upon a time coal was king in the anthracite region; but no more, and, more than probably, never will be again. Even the current so-called "energy crisis" will not spur the reopening of the fuel-coal mines. It will only bring about a greater search for oil sources and/or more ways to harness atomic, solar, and geothermal energies.

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THE DELAWARE NAVY

The American Revolutionary War was a long grim struggle fought on many levels. Its battles ranged from tiny guerilla actions to full scale formal engagements between professional armies. The war at sea followed this pattern and included everything from the broadside to broadside action between French and British ships-of-the-line off the Virginia Capes to tiny raids on sleepy tidewater hamlets made by small bands of men operating from the tiny confines of whaleboats and armed sloops. The participants in this many faceted sea war included the two largest fleets in the world, the struggling Continental Navy, American and British privateers, Tory raiders, and the "navies" of several states.

The Delaware "Navy" was one such participant, a wartime emergency force designed to operate in an obscure but vital backwater of the war charged with a difficult, dangerous, but vitally necessary mission, to protect the commerce, property, and lives of the citizens of the Delaware State. The story of the Delaware Navy properly begins with the advent of full scale French participation in the Revolutionary War. The sudden shifting of the strategic balance caused by the French intervention forced the British to evacuate Philadelphia in June of 1778 and to give up their formal blockade of the approaches to Delaware Bay.¹ The withdrawal of the Royal Navy did not mean, however, that free access and safe navigation were assured because the place of the regular men of war was quickly taken by a horde of Tory privateers and raiders. These "Refugee" boats, as they were then known, were too small to warrant attention from the French Navy, too numerous and agile to be controlled by the few frigates and ship-sloops of the Continental Navy, and too dangerous to be neglected completely. As such they formed the chief *raison d'être* of the small collection of vessels manned by the state militia that formed the Delaware Navy.

Perhaps more than any other state, Delaware was vulnerable to the depredations of the Refugees. Her commerce, owing to the scarcity of roads was almost entirely carried by small shallops, sloops, and schooners, which could penetrate to within a few miles of any part of the state owing to an abundance of navigable creeks and rivers. The same waterways that gave access to commercial vessels also provided convenient avenues of attack for the Tory sea raiders and few persons in the state were secure from Refugee raids, especially after 1778. From a commercial point of view, the Refugee boats came at the worst possible moment. A widespread

and far flung commerce built up with the West Indies and Western Europe by Wilmington merchants had been completely destroyed by the outbreak of the war² but a pressing demand for coastwise trade had taken its place. After the British withdrawal from the Bay, the demand for Delaware's produce on the Philadelphia market and the need to supply the regiments of state militia serving with General Washington's army greatly stimulated shipping activity throughout Delaware.

Large profits awaited those merchants who could take advantage of the situation. In the early Spring of 1780, Samuel Canby, a Brandywine flour miller dispatched a shallop loaded with 33 barrels of corn meal, 12 barrels of superfine flour, and several barrels of "ship stuff" to Philadelphia. When delivered, the superfine flour fetched £90 a hundred weight, a typically inflated wartime price.³

Tory interference with this vital and profitable trade was difficult to tolerate and to add still further injury, there were even a few outright pirates taking advantage of the defenseless nature of the state's shipping.⁴ The political leaders of the State were forced to take measures to halt some of the more obnoxious practices of the sea raiders. In 1778 John Dickinson drafted "An Act for more Effectively Punishing & Discouraging offences Committed in Taking Vessels out of the Harbours of the State". This Act took jurisdiction in piracy cases out of the hands of the Admiralty courts and provided that they should be tried in local courts where juries could be relied upon to meet out swifter and harsher punishments.⁵

Interfering with local commerce was not the only activity of the Refugees in Delaware. There were frequent insurrections in lower Delaware caused by indigenous Tories temporarily reinforced from armed ships cruising in the Bay. Persons loyal to the American cause were kidnapped, intimidated, and silenced. Uncommitted citizens were misinformed by Tory propaganda while their produce, grain, cattle, and vegetables, paid for in hard currency, was purchased into the King's service. These practices made the Delaware State extremely difficult to govern.⁶

Perhaps to most feared Refugee boats were the smallest ones, whaleboats and sailing barges, which lurked in the creeks and marshes surrounding Delaware Bay.⁷ Although they were principally based at New York of the lower Delaware communities and close connections with the inhabitants. Their brazen activities were demoralizing in the extreme. In 1778, Caesar Rodney wrote from Dover that . . .

*We are Constantly Alarmed in this Place by the Enemy and Refugees. And Seldom a day passes but Some man in this place in the Neighboring Counties is taken off by these Villians. So that many, near the Bay, who I know to be hearty in the Cause dare not Act of Speak least they Should be taken away and their houses plundered - These fears will certainly increase until Some protection is afforded them.*⁸

The Refugee boats also made it very difficult for the State Government to collect supplies and taxes. In a message to the General Assembly at New Castle, President Rodney reported that of the several "receivers" he had dispatched to Kent and Sussex Counties to collect provisions and equipment for the Militia, he had had no returns, except for one agent in Sussex.

*I believe they have collected Considerable Quantities [of supplies] but have been much interrupted in the Transportation Thereof from the Counties of Kent and Sussex by the Refugee Armed Boats.*⁹

The ability of the Tories to operate unmolested in the coastal waters of Delaware led to still another problem, that of trading with the enemy. During the period of British control of the Bay and River open trade between the King's representatives and Loyalist merchants was widespread. After the departure of the British local ordinances enforced by the Militia and occasional mob action caused the Tories to resort to the tactic of "arranging" for their vessels to be "captured" by Refugee privateers. Although most of this activity took place in lower Delaware, at least one Wilmington merchant, Jonathan Rumford, was set upon an angry mob in retaliation for suspected dealings with the enemy after a vessel belonging to him was captured in suspicious circumstances.¹⁰ The only way to prevent arranged captures with any real certainty, however, was by careful licensing of traders and by driving off the Refugee boats and both of these jobs soon developed on the Militia.

The activities of the Tory privateers and raiders that plagued Revolutionary Delaware constitute a lively demonstration of the uses of sea power in the classic manner and, as the state's Militia grappled with the problem it slowly became obvious that some kind of naval force would have to be established to challenge what amounted to Tory control of the Delaware Coast. The Continental Congress had proved to be of little assistance. In 1778, President Rodney had requested Thomas McKean, Delaware's delegate to the Congress, to try to secure funds or ships to protect against sea

raiders¹¹ but nothing was done. Rodney next tried to create a naval force by granting letters of marque and reprisal on the authority of the state government but, although some bonds were posted by interested parties, it seems that no state privateers were actually outfitted.¹² In 1780, Rodney again wrote to McKean asking him to secure "a few blank Commissions & Bonds for fitting out armed Vessels & etc".¹³ This request was referred to the Board of War and once again no action was taken.¹⁴

With no Congressional help forthcoming, the state government decided to act on its own even though it was desperately short of funds. President Rodney, himself the owner of several vessels in the coastal trade, encouraged the State Legislature to pass a "Navy Act" and on November 4, 1780, the desired legislation, entitled "An Act for the Protection of the Trade of this State on the Bay and River of Delaware", emerged. The Act authorized President Rodney to arm and fit out a vessel of "not less than sixty tons to cruise against the British and Tories".¹⁵ It also directed Rodney to seek cooperation from the states of Pennsylvania and New Jersey with a view to joint operations on the Bay and River.¹⁶

To carry out the provisions of the Navy Act, Rodney called upon the services of Charles A. Pope, a seasoned veteran of the Delaware Regiment who had served with distinction in General Washington's Army from late 1776 until 1779 when he was invalided home to Duck Creek because of illness. In those three years, Colonel Pope had participated in the Battle of Long Island (1776), the raid on Rodger's Tory Rangers at Marmaduke, New York (1776), the battles of Brandywine (1777), Germantown (1777), Barren Hill (1778) and Monmouth (1778). He had risen to the rank of Lieutenant Colonel and Acting Commander of the Regiment during his service in the field. As Commander of the Delaware Navy he held the rank of Colonel of the Delaware Militia.¹⁷

Colonel Pope set about his task as energetically as one would expect of a man of his experience. He eventually commissioned a total of five sizable vessels:

Sloop Revenge	date commissioned, August 1, 1780
Schooner Intrepid	date commissioned, August 27, 1781
Schooner Vigilant	date commissioned, November 15, 1781
Schooner Delaware	date commissioned, June 10, 1782
Schooner-Shallop Defence	(commissioning date not known. ¹⁸)

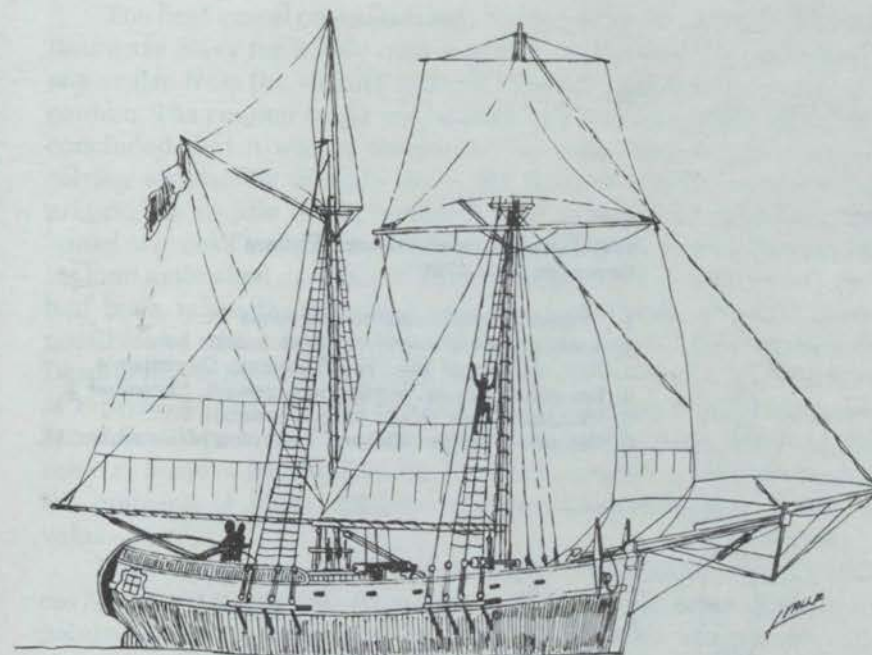
In addition to these major vessels, a number of smaller crafts, variously described as "barges", "whaleboats", and "longboats" were also used from time to time.

NOTES CONCERNING THE ILLUSTRATIONS

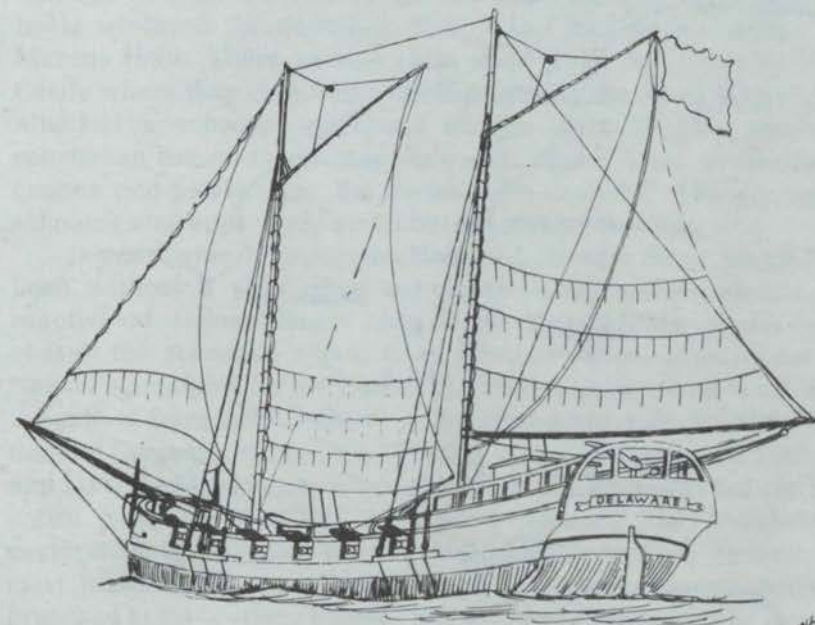
The Sloop *Revenge* is based on a drawing of a typical Colonial cargo sloop found in Jack Coggin's *Ships and Seamen of the American Revolution*.

I have depicted the Schooner *VIGILANT* as a typical Colonial coasting schooner of the type sometimes referred to as the "Marblehead Schooner". I assume she was hurriedly and cheaply converted to war service so I have depicted her two cannon as mounted to fire over the gunwale instead of through gunports although this represents a conjecture as no illustration of the actual ship exists. I have based the *Vigilant* on an illustration in Howard I Chapelle's *The History of American Sailing Ships*.

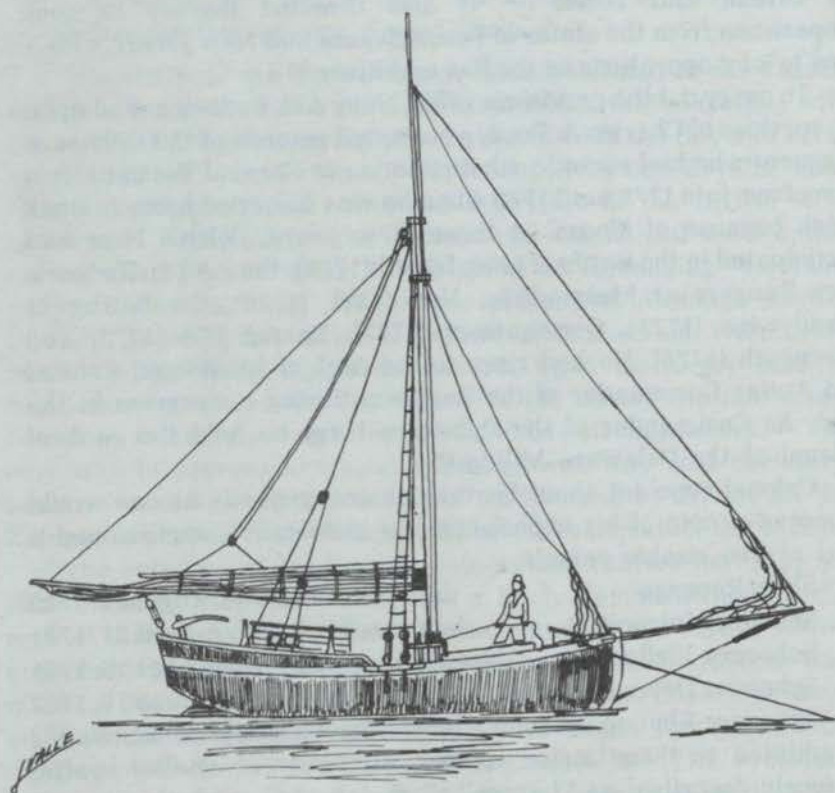
The sketch of the Schooner *Delaware* is based on a drawing of the Schooner *Franklin* of George Washington's Naval Squadron which I found in M.V. and Dorothy Brewington's *Marine Paintings and Drawings in the Peabody Museum*. Since she was built specially for war service I have shown her pierced for six cannon to each broadside but as she was built at a time of financial stringency, I have imagined that she was rigged as cheaply as possible, with just a fore and main sail and jib.



DELAWARE STATE SCHOONER *VIGILANT*



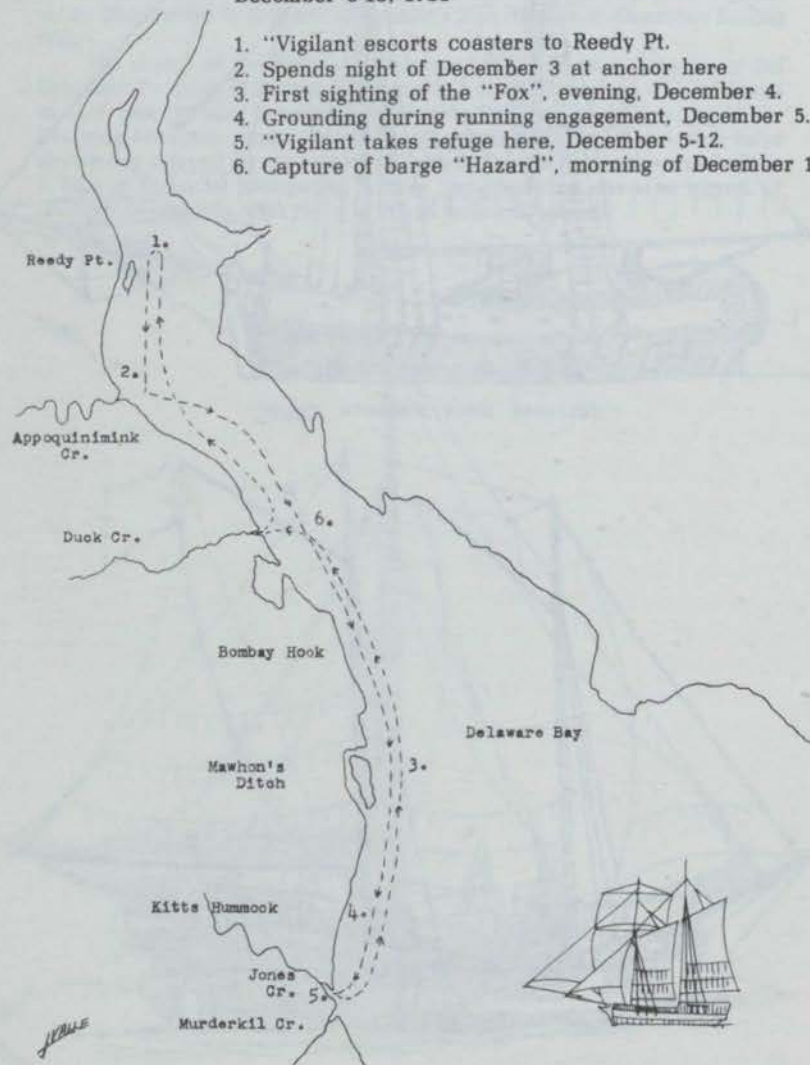
STATE SCHOONER *DELAWARE*



DELAWARE STATE SLOOP *REVENGE*

War Patrol of the Schooner "Vigilant"
December 3-13, 1781

1. "Vigilant" escorts coasters to Reedy Pt.
2. Spends night of December 3 at anchor here
3. First sighting of the "Fox", evening, December 4.
4. Grounding during running engagement, December 5.
5. "Vigilant" takes refuge here, December 5-12.
6. Capture of barge "Hazard", morning of December 13.



The first vessel commissioned, the Sloop *Revenge*, served in the Delaware Navy for a little over a month. She appears to have made one cruise from the vicinity of Duck Creek to Lewes to pick up some cannon. The cannon could not be obtained, unfortunately, and Pope concluded that it was too dangerous to cruise the Bay in a vessel relying exclusively on side arms. He therefore gave up the sloop around the middle of September¹⁹ and resorted to patrolling the banks of creeks and rivers on foot and horseback. During this period his men ambushed and recaptured a shallop loaded with wheat that had been taken by some Refugees in Duck Creek, a tactic made possible by the narrow, meandering course of that stream.²⁰ Despite this setback, the Tories continued to operate with little fear of reprisal during the Fall of 1780 and one daring band penetrated Jones Creek (now the St. Jones River) to within three miles of the country home of John Dickinson. Marching overland, they plundered the mansion of plate, clothes, and provisions totalling £2000 in value.

Wintertime provided a brief respite from Refugee raids but early in April marauders from New York arrived in force, striking at points as far up the river as Chester and the underwater obstructions (chevaux de frises) below Philadelphia, taking several shallops on April Fool's Day. On the following day, three Refugee boats captured the Schooner "John" and two more shallops off Marcus Hook. These vessels then stood down the River to New Castle where they captured a shallop lying at the Town Wharf and attacked a schooner anchored off the Battery. The resulting commotion roused the townspeople and, after a lively exchange of cannon and musket fire, the Tories were routed.²¹ The anchored schooner was apparently saved but the shallop was lost.

It was obviously imperative that the Delaware Navy, which had been without a ship since the previous September, should be reactivated. Colonel Henry Neal of the State Militia quickly purchased the schooner *Virgin* from Thomas Saltar, a merchant of North Philadelphia for the sum of "Eighty two Ounces and ten Penny weights of pure Gold Bullion" or an equivalent sum in "Old Continental Currency of America".²² This vessel was renamed *Vigilant* and taken to Wilmington where she lay at her dock inactive for the entire summer of 1781, apparently because the Legislature neglected to appropriate funds to outfit her for service. This was a most frustrating state of affairs and in August, Caesar Rodney proposed to his brother, Thomas Rodney, that the *Vigilant* be turned over to a group of private individuals who intended to hunt Refugee

boats under a Continental commission rather than to let her remain inactive under the control "of the person who now hath her".²³ Nothing came of this scheme and, on October 25, 1781, £300 specie was appropriated for weapons and stores and the ship commissioned the following month.²⁴

During the time the *Vigilant* was awaiting completion at Wilmington, another schooner, the *Intrepid*, was commissioned. No record of her subsequent service seems to have survived but it is probable that she was never properly outfitted and was disposed of as soon as the *Vigilant* was ready to cruise.

The *Vigilant* had originally been intended to mount six cannons but there was the usual difficulty in procuring armament and, although Caesar Rodney continually referred to her in his correspondence as a "schooner of six guns", she never carried more than two six pounder carriage guns and small arms. The weakness of her main armament eventually obliged the *Vigilant* to run from the only major enemy vessel she encountered, a powerful Tory privateer from New York.

This skirmish took place in part because the inauguration of John Dickinson as President of the Delaware State in November of 1781 led to a revitalized navy policy that freed the *Vigilant* and her commander from certain paralyzing restrictions placed upon them by a group of Sussex County Merchants of obvious Tory leanings who had considerable influence in the legislature.²⁵ Dickinson challenged this faction directly by giving Colonel Pope, who commanded the *Vigilant*, authority to grant clearance papers only to trusted merchants and to investigate all doubtful cases. He also instructed him to use any means necessary to disrupt illicit trade, particularly arranged "captures", to cruise the coastal waters of the state and to search every creek, island, or cove where Refugees might be hiding, to inform shippers when it was safe to trade, and to provide convoy between the various ports of the state.²⁶

On November 30, 1781, the *Vigilant* sailed up Duck Creek to pick up some men who had enlisted in the Militia but had not been able to get to Wilmington to join her on commissioning day. While in the Creek, Pope, according to his action report,²⁷ was informed by a "Mister Brown of Appoquinimink" that six vessels were blockaded at Odessa by Refugee barges. Another visitor, "Mr. McClemmins of Dover", told him that four more coasters lay in St. Jones and Murderkill Creeks awaiting convoy up the River. One of these vessels had already been attacked by a Refugee barge. Pope also had three Duck Creek boats to convoy so he set out immediately

for Reedy Point with threse, and having delivered them safely out of Appoquinimink Creek, and then departed for St. Jones to get the vessels mentioned by McClemmins.

The evening of December 4th saw the *Vigilant* off "Mawhon's Ditch" (now Port Mahon) where her lookout sighted a large topsail schooner. After hailing her, Pope took her to be a merchant vessell bound upriver and continued on his journey eventually anchoring for the night about four miles above St. Jones Creek. At dawn the same schooner was sighted anchored just downwind of the *Vigilant* and Pope concluded she was an enemy. The stranger, which eventually proved to be the Tory privateer *Fox*, ten guns, quickly got under way and headed for the mouth of St. Jones Creek with Pope following close behind.

Eventually, an action of sorts developed. The *Fox* hoisted Continental colors and attempted to lure the *Vigilant* within range. When Pope declined to be drawn, the Tories showed their true colors and fired a broadside which alerted Pope to their enormous superiority in firepower. Since she carried much less artillery, the *Vigilant* was evidently the faster vessel so Pope elected to run for St. Jones Creek, keeping his runs covered and most of his forty men out of sight in case the Tories could be lured into attempting to board from small boats. Both vessels now stood down the Bay on parallel course close inshore until they grounded simultaneously on Kitts Hummock Bar. The *Fox* ceased fire but kept up a steady stream of "scurrilous language with which they were better masters than the art of gunnery".²⁸

By shifting ballast, the *Vigilant's* crew managed to refloat her and sailed into St. Jones Creek with "little damage, except to our sails & rigging". The *Fox* also floated free and anchored off the creek entrance. The *Vigilant's* crew quickly discovered that the vessels they had come to convoy had already been captured but they had the satisfaction of retaking one, a small sloop, whose prize master told them the identity of the privateer that they had so fortunately outsailed. On December 6th, another vessel brought in the prisoners taken in the *Fox's* raid on the shipping in St. Jones Creek. Pope remained at anchor in the St. Jones until December 12th when he learned that the *Fox* and several barges were raiding shipping off Bombay Hook and Duck Creek. He resolved to try to get above the *Fox* and into the creek where he could attack the barges. On the 13th, Pope captured the barge *Hazard* with four men and learned that the *Fox*, having captured a brig, had departed for New York to dispose of her prize.²⁹ Thus ended what may be the only war patrol ever undertaken by a Delaware State vessel.

The obvious weakness of the *Vigilant* in dealing with large enemies like the *Fox* prompted the state authorities to dispose of her and to use the proceeds to build and equip a more suitable ship. Although the *Vigilant* has served the state for less than a year³⁰ her value had declined sharply and very little was realized from her sale,³¹ a fact which had an adverse effect on her replacement, the schooner *Delaware*.

The *Delaware* was built especially for the State Service in Philadelphia during the Winter of 1781-1782. Colonel Pope was again given command under a legislative act authorizing him to . . .

"... Fit out before April 10, a vessel . . . not exceeding Forty Six Feet Keel, rigged in the sloop or schooner form to be Armed with eight iron cannon capable of firing a four pound shot, Six Swivels or Howitzers, fifty muskets, Pikes, Cutlasses, and twenty pairs of pistols . . . "32

The proceeds from the sale of the *Vigilant* were probably used to pay for the keel laying. The bill for fitting out came to more than £1000, an amount which the State could not raise, and the resulting vessel was a schooner mounting twelve six pounders.³³ Fifty one muskets and blunderbusses, seven pistols, and forty two cutlasses³⁴ completed her small arms inventory. Obviously, Pope did not feel constrained to carry out his instructions to the letter.

The *Delaware* was completed and officially commissioned into the State Service on June 10, 1782 but with a £1000 lien against her and no seamen willing to serve at the rate of pay set by the Legislature she could not cruise as intended.³⁵ Since the State of Delaware had no funds left for naval purposes, it was decided to offer the schooner to the Pennsylvania State Navy in the hopes of thus securing money for the creditors. The Pennsylvanians were then in the process of fitting out the ship *Hyder Ally*, 16 guns, and had no funds to spare for the purchase of another vessel.³⁶

When the sale of the *Delaware* was not realized, the Philadelphia creditors began to press Pope for immediate payment, threatening to sue him personally as principal contractor. Pope was put in a desperate and embarrassing position and had resolved to "cut and run for it", abducting the schooner to get her out of the clutches of his tormentors.³⁷ This was forestalled when Sheriff's officers boarded the vessel and forced Pope to agree, under threat of arrest, to pay £150 to the most impatient creditor within three or four weeks. Pope then appealed directly to the Legislative Council in Dover for funds to relieve him of his "very disagreeable circumstances in Respect to the Money due for the Schooner".³⁸

Chained to her dock by debt and lack of seamen, the *Delaware* probably saw little if any service. The war was slowly dying out (the Battle of Yorktown had been concluded even before the commissioning of *Vigilant*,) and although Refugees were active around Duck Creek as late as January, 1783³⁹ the sense of urgency that had led to the creation of a Delaware naval force was rapidly draining away. The British abandoned their New York operating base and sometime around June 1783 the Delaware State Legislature passed "An Act for the Sale of the State Schooner, her Guns Stores Tackle Apparel and Furniture".⁴⁰ No record of the *Delaware's* sale survives but presumably she was auctioned off in the same manner as the Pennsylvania Ship *Hyder Ally*.⁴¹ Some of her creditors began to receive payment in 1785 and the last to be paid was one Edward Pole of Philadelphia who had furnished the cannon and military stores. He received his money in October of 1788.⁴²

With the satisfaction of Edward Pole's claim, the brief history of the Delaware Navy comes to an end. In many ways it was typical of the state navies of the Revolutionary period. It suffered badly from lack of financial resources and it could never attract enough trained seamen. Cooperation with the other state navies of the Delaware Bay area was often sought but never realized. Colonel Pope was an able and aggressive commander whose greatest achievement was that he managed to overcome enough of the large and small obstacles placed in his path to insure that the Tories did not carry out their raids on Delaware's commerce and communities with complete impunity.

The one cruise of the *Vigilant* (in December of 1781) that is documented seems to indicate that a properly equipped naval vessel or group of vessels would have been of enormous value to the citizens of Delaware living, as they did, so close to tidewater. In just a few short days, the *Vigilant* escorted several vessels, recaptured a Tory prize, and took one of those ubiquitous armed barges which were such a peril to American shipping on Delaware Bay. If she could have cruised longer and carried more armament she would doubtless have made the coastal waters of Delaware very dangerous indeed for Refugee raiders. Her commander's knowledge of local waters, her small size and handiness, and the determination of her crew to protect their own homes and families gave the *Vigilant* and her consorts great potential as a protector of life and commerce. Such characteristics were almost unique to a state naval vessel and, had the *Vigilant* and the *Delaware* been adequately financed, they most probably would have vindicated the state navy

concept to the fullest extent. Unfortunately, finances were the weakest link in the chain of all the state navies and because of the poverty of the state governments of the Revolutionary Period, no state navy lived up to its full potential. Certainly the Delaware Navy fell far short of full effectiveness.

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29. *Ibid.*
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34. *Ibid.*, p. 950.
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RACIAL THEMES IN THE POETRY OF GWENDOLYN BROOKS

In *Selected Poems* by Gwendolyn Brooks (Harper & Row, 1963) we have an excellent commentary on the nature of racism and the suffering of Black people who lived and survived in a racist society. Miss Brooks' poems accurately reflect what and how Blacks felt and feel about racial issues in this country. Moreover, because she has been recording in her poetry -- perhaps unconsciously -- the changing attitudes of Black Americans during the last thirty or more years, her works can also serve as excellent resource material for an historical or sociological study of the predicament of Blacks in America.

An important point to be made is this: Gwendolyn Brooks is Black and, therefore, she too is a victim of society's racism, as well as its chronicler. Hence, it is all but impossible for her to avoid racism in America as a theme, since a true poet writes out of his or her own experiences. In *Selected Poems*, however, there are ten selections which consciously embody racial themes. The specific treatment of these racial themes can be divided into two categories: The first encompasses a treatment of the nature of racism and mere existence of Blacks in a racist society. Among this group are such poems as "of De Witt Williams on his way to Lincoln Cemetery," "We Real Cool," "The Last Quatrain of the Ballad of Emmett Till," "The Chicago Defender Sends a Man to Little Rock," and "The Ballad of Rudolph Reed".

The second category, which involves a treatment of the moods and reactions of Blacks, can be further sub-divided into two distinct groups. The first relating the frustrations of the old, includes "My dreams, my works, must wait till after hell." The second which presents comments on the fermentation of the restless youths includes such poems as "Negro Hero," "the progress," "The Certainty we two shall meet by God" and "First fight, Then fiddle. Ply the slipping string."

In "of De Witt Williams on his way to Lincoln Cemetery" an account of the life of poor Blacks in a society plagued by racism is given. The life of De Witt Williams epitomizes that of poor Blacks in general. We see him carried by his favorite places, the Pool Hall, the Show, Forty-seventh Street and dance halls, for the very last time before he is taken to his final resting place, Lincoln Cemetery. There is no mention of his being educated which is, in fact, as it was, for

education was not a part of his life or the lives of poor Blacks in general. Moreover, nothing is said of any contributions he might have made for the betterment of his fellow man, since for the Black man, such things were remote in his life. Although these things were considered meaningful in the lives of others, showing that they lived a worthy life, they were void in the lives of the most Blacks, hence giving rise to the implication that Blacks did not lead meaningful lives. The reiteration in the poem

*He was born in Alabama.
He was bred in Illinois.
He was nothing but a
Plain black boy.*

carries overtones of the limitations of the lives of Blacks.

The theme of "We Real Cool" is quite similar to that of "of DeWitt Williams on his way to Lincoln Cemetery." Here again emphasis is on the limitation of Black existence. One need only to quote the poem itself to illustrate this point, with emphasis on the last line.

*We real cool. We
Left school. We*

*Lurk late, We
Strike straight. We*

*Sing sin. we
Thin gin. We*

*Jazz June. We
Die soon.*

To illustrate the suffering from violence the Blacks meekly endured in the past, "The Last Quatrain of the Ballad of Emmett Till" is an excellent example. Here the grief-stricken, powerless mother is portrayed. The extent of her reaction is that: "She kisses her killed boy. And she is sorry."

She helplessly accepts the death of her son with foreknowledge that there is no recourse available to her to compensate for this tragic loss.

In "The Chicago Defender Sends a Man to Little Rock" two things are brought out. First the source of racism, which is primarily the insidious attitude of whites, is universal. Second, it is discovered that the lives of Blacks and whites in Little Rock epitomize the lives of people everywhere. Hence, "They are like people everywhere."

The situation of Blacks is one of violence and stagnation. "The Ballad of Rudolph Reed" deals with the interrelationship between the two because it relates Rudolph Reed's attempt to extend beyond the stagnated limitations of his existence.

*I am not hungry for berries.
I am not hungry for bread.
But hungry hungry for a house
Where at night a man in bed*

*May never hear the plaster
Stir as if in pain.
May never hear the roaches
Falling like fat rain . . .*

*All I know is I shall know it,
And fight for it when I find it.*

We are also given an account of the violent reaction of the whites to his aspiration.

*The first night, a rock, big as two fists.
The second, a rock big as three . . .
The third night, a silvery ring of glass.*

Trying to protect his home and family, Rudolph Reed was slain, and His neighbors gathered and kicked his corpse.
"Nigger--" his neighbors said.

The tragedy, of course, is that he was unsuccessful and this was/is in fact, the case with most Blacks.

Not only did Gwendolyn Brooks' poems deal with the mere existence of racism, but they also dealt with the moods and attitudes of the Blacks which were created as a result of racism. Among this group we have commentaries on the frustrated old Blacks and the fermentative youths. Dealing with the former, one need only to look at "My dreams, my works, must wait till after hell" which deals with the frustrations of the Blacks, their dreams, their hopes.

*I hold my honey and I store my bread
In little jars and cabinets of my will . . .*

*I am very hungry. I am incomplete.
And none can tell when I may dine again.
No man can give me any word but Wait,
The puny light. I keep eyes pointed in . . .*

In this poem one finds no indications of anger, unrest or any of the seeds of discontent so prominent in the young Blacks. Here we have a sense of helplessness, an attitude which suggests no control of one's life, or destiny. The ability to negotiate with life and all its responsibilities and problems is beyond reach.

Among the second group, involving the restless, young Blacks, the poetess records the passions and heat of the youths. The open line of "Negro Hero" suggests this agitation: "I had to kick their law into their teeth in order to save them." The young Blacks are excited, liberated, alive. They are defiant, and in defiance, the spirit is rejuvenated. Hence, the youth says:

*" . . . my blood was
Boiling about in my head and straining
and howling and singing me on."*

This attitude is a marked contrast to that of the earlier generation of Blacks. Where there was emptiness, there is fulfillment; lack of confidence is replaced by arrogance and fear is replaced by courage. Thus the youth: ". . . I am feeling well and settled in myself because I believe it was a good job."

In the poem "the progress" the fermentation of the youth is clearly illustrated. His awareness of the problems of racism, social hypocrisy, is presented. Note the lines:

*Still we applaud the President's voice and face.
Still we remark on patriotism, sing,
Salute the flag, thrill heavily, rejoice
For death of men who too saluted, sang.*

*As a consequence, ". . . inward grows a soberness, an awe,
A fear, a deepening hollow through the cold."*

Unlike the older Blacks, in "The Certainty we two shall meet by God" the youths do not accept dreams deferred, but rather they demand all of life's pains and pleasures, freedom and excitement, NOW!

*The Certainty we two shall meet by God
In a wide Parlor, underneath a Light
Of lights, come Sometime, is no ointment now.
Because we two are worshipers of life,
We want nights
Of vague adventure, lips lax wet and warm,
Bees in the stomach, sweat across the brow. NOW.*

They find no consolation in awaiting rewards in an afterlife but rather demand their rights to live their lives now.

The final poem to be discussed, "First fight. Then fiddle. Ply the slipping string" summarizes the moods of Black youth of today. The title, itself, is a cry for rebellion against repression, and the sonnet's closing lines capture this mood:

*. . . Rise bloody; maybe not too late
For having first to civilize a space
Wherein to play your violin with grace.*

Here we have a cry for reversing the order of sensibility -- Passion over Reason. Hence, one must first fight for freedom and think about it after the battle is won.

There are other selections in Gwendolyn Brooks' volume which comment on racism; however, in view of the ten discussed, it becomes obvious that her life and works were influenced by the existence of racism. They can serve as a chronicle of the moods, anxieties and pain of Blacks who were compelled to negotiate their lives with this almost unconquerable obstacle -- racism -- which engulfed them, warped them, and in some instances, destroyed them.

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THE DEVELOPMENT OF MULTIDIMENSIONAL STIMULUS DETECTION STRATEGIES

The purpose of the present study is to examine the development of perceptual decision strategies in a yes-no signal detection situation using multidimensional stimuli. In the standard Yes-No detection experiment the observer responds to a stimulus that is varied on only one dimension, thereby simplifying the analysis of the observer's responses in terms of the Receiver Operating Characteristic. This results from the fact that the observer may determine his response criterion by discriminating only one aspect of the stimulus. The standard Yes-No signal detection experiment has been described in detail previously (Miller, 1968) and therefore is not presented here.

The present stimulus situation, while more difficult to analyze is nevertheless more like perceptual conditions in the "real world" in that perceptual judgments outside of laboratory situations usually involve a stimulus varying on many dimensions simultaneously.

The stimulus array used in this experiment is multidimensional in that the observer cannot order his discriminations in terms of variations in only one element of the array. The objective of the experiment is to determine the developmental sequence leading to the control of the relevant dimensions over the observer's responding. Of major interest in this regard will be the particular response patterns which emerge during the course of the observation sessions; the extent to which these patterns are being learned as a function of increased exposure to the stimulus array; and, the information the observer receives as to the correctness of his response. In later studies, differential reinforcement procedures will be used during each session to determine the extent to which decision strategies can be shaped during the observation period. This approach differs from most signal detection research which analyzes responses in terms of set decision criteria such as likelihood ratio. (See Green, 1966)

SUBJECTS:

The observers were five students at Delaware State College who volunteered to participate in the experiment.

APPARATUS:

The stimulus display consisted of a 20 x 20 matrix of colored lights (Blue, Yellow, Orange, Pink, White, Red, Green, Purple, White with Dot, and White with X). The frequencies of each color in the matrix were set up to correspond to a normal distribution. A matrix with a normal distribution of the above colors (with the exception of the White X) made up the noise distribution. The amount of overlap between the two distributions is measured by the index d' which had a value of 1.40. (See reference 1 for a description of the measure d' and the basic signal detection model.) Each color in the region of overlap of the two distributions occurs with a specified frequency in both the noise (N) and the signal plus noise distribution. For example, Pink occurs fifty-one times in the noise distribution and thirteen times in the signal distribution. When the 20 x 20 matrix was defined as Pink it contained $51 + 13 = 64$ pink lights. When the array was presented with 51 pink lights it was defined as noise, and when it contained 64 pink lights it was defined as signal on a certain number of trials, and as noise on a certain number of the trials. The task of the observer was to discriminate between noise and noise plus signal. Each of the colors of the two distributions constituted a separate stimulus presentation which was constructed by using the procedures just described.

The observer was seated in a darkened room where the stimuli were projected onto a rear projection glass. The observer sat at a desk at the center of the display, approximately 5 feet away. The stimuli were presented randomly according to a predetermined sequence punched on paper tape, which controlled a Random Access carousel projector.

PROCEDURE:

The observer was given the following instructions. "You will be shown a series of stimuli consisting of a matrix of different colored lights. You are to put each stimulus into one of two groups, either A or B, depending on the number of each color in the matrix. If you think the stimulus falls into group A (signal) respond Yes. If you think it belongs in group B (noise) respond No." No further instructions were given in response to observer questions. The subject was told after each trial whether he was correct or incorrect. No other consequences were used. Each observer made 380 observations and the sessions varied slightly in length around an average of one hour.

The observer had the task of deciding which criteria to use in defining the stimulus as either noise or signal plus noise. The feedback to the observer relative to correct or incorrect was the only basis the observer had for establishing his decision criteria. This procedure reveals the strategies which develop prior to using differential reinforcement procedures.

RESULTS

Figures 1 through 5 show individual receiver operating characteristics (ROC) curves for each of the five observers. The optimal performance which can be attained is shown by the curved line in each graph. This represents the performance of an ideal observer using a likelihood ratio criterion. The index of sensitivity d' for the ideal observer is 1.40. The closer the data points to the curved line, the greater the sensitivity of the observer. Points on the negative diagonal represent chance performance and points below the negative diagonal represent systematic inversion of the correct stimulus dimensions; i.e. the observer is saying yes when he should say no and no when he should say yes. Each observer made 380 observations and data points are plotted for each series of 27 observations and for the total number. The individual data points which are numbered sequentially on the graph show how the observers criterion and sensitivity change as the number of observations increase.

The most striking feature of each ROC curve is the large fluctuation in the observers criterion and sensitivity which suggests that the observers were actively trying out different strategies. This result is consistent with expectations in that the multidimensional stimuli present a considerably more difficult task for the observer than the typical unidimensional task. While most of the data points fall above the negative diagonal (the chance level) all observers had points below the negative diagonal. Although there are a few exceptions, most of the points below the diagonal occurred in the first half of the observation session, indicating that the informational feedback concerning correctness was modifying responses in the direction of the ideal observer. The depressing effect of the inverted responses (points below the diagonal) on the composite point can be seen by examining the distribution of point on the ROC curves for all observers. The fact that all observers had points on or near the ideal observer (curved line) clearly suggest that differential reinforcement of these responses when they occurred could have produced performances closer to the ideal curve. Thus, it can be

expected that any ongoing response pattern which receives differential reinforcement would be possible to establish. Experiments currently underway are designed to explore the extent to which deviations from the ideal observer in signal detection experiments can be attributed to differentially reinforced sequential response patterns.

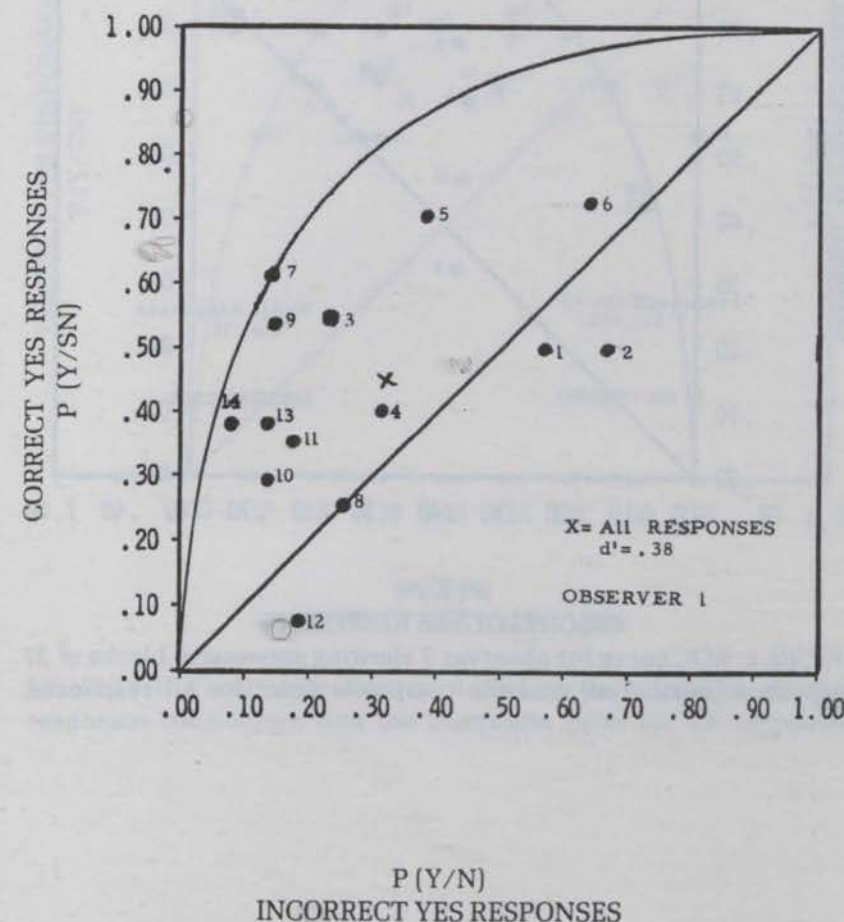


FIGURE 1. Roc. curve for observer 1 showing successive blocks of 27 responses (numbered) and the composite point for all responses.

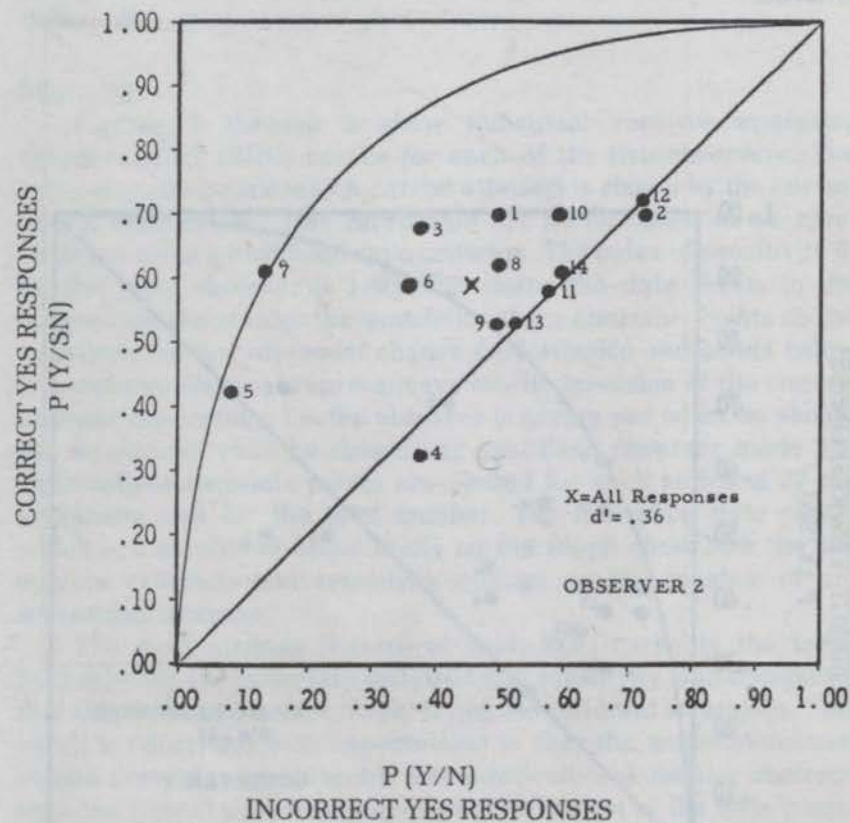


FIGURE 2. ROC curve for observer 2 showing successive blocks of 27 responses (numbered) and the composite point for all responses.

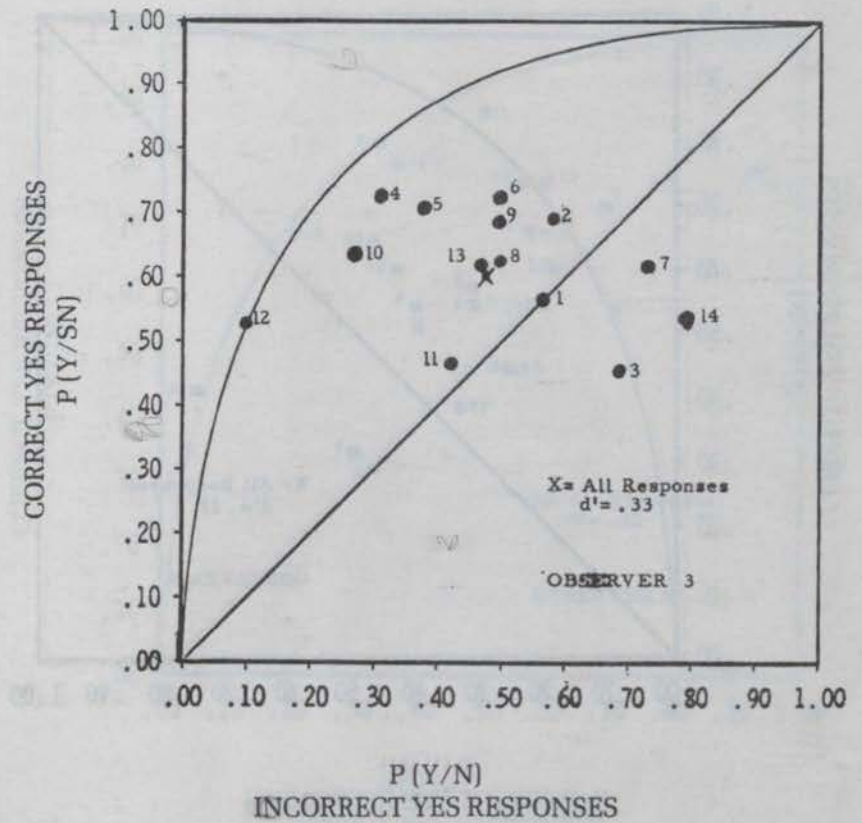


FIGURE 3. ROC curve for observer 3 showing successive blocks of 27 responses (numbered) and the composite point for all responses.

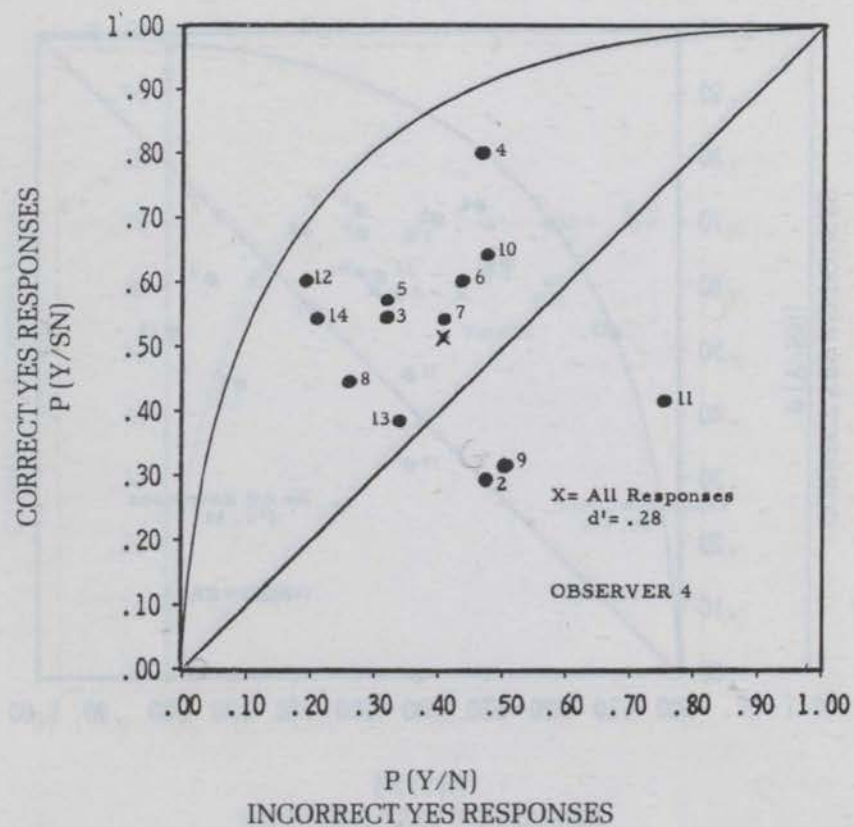


FIGURE 4. ROC curve for observer 4 showing successive blocks of 27 responses (numbered) and the composite point for all responses.

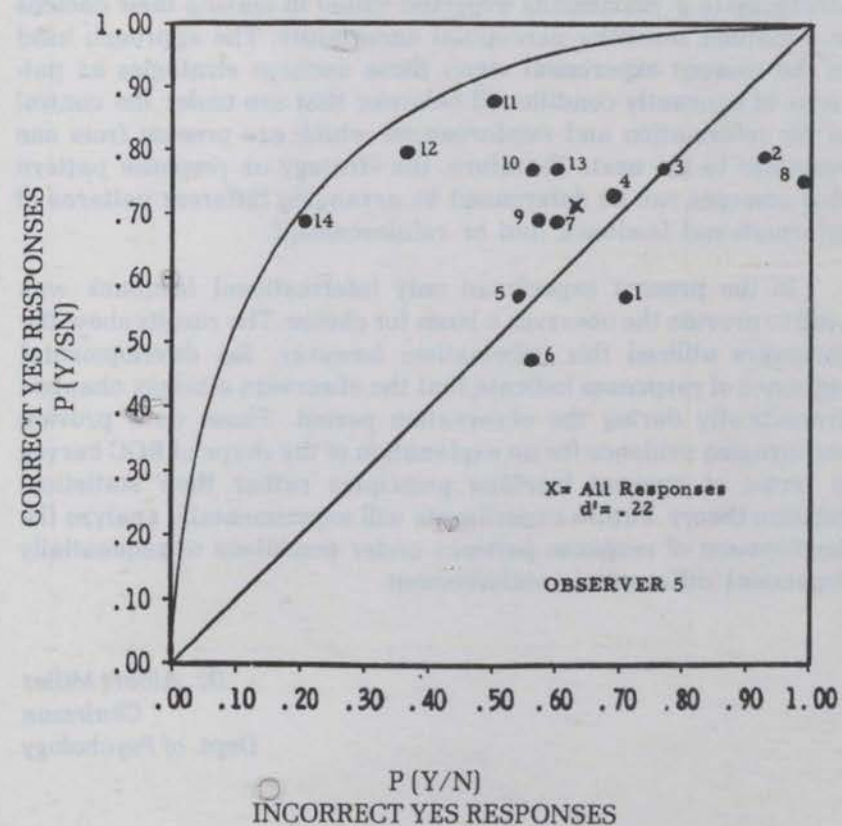


FIGURE 5. ROC curve for observer 5 showing successive blocks of 27 responses (numbered) and the composite point for all responses.

SUMMARY AND DISCUSSION:

A common method for interpreting the shape of empirically obtained ROD curves is to infer the operation of intervening processes such as "internal noise". This approach is based on the assumption that human observers will use certain decision strategies (e.g. maximizing expected value) in making their choices in situations involving perceptual uncertainty. The approach used in the present experiment views these decision strategies as patterns of operantly conditioned behavior that are under the control of the information and reinforcement which are present from one response to the next. Therefore, the strategy or response pattern that emerges can be determined by arranging different patterns of informational feedback and or reinforcement.

In the present experiment only informational feedback was used to provide the observer a basis for choice. The results show the observers utilized this information; however, the developmental sequence of responses indicate that the observers strategy changed dramatically during the observation period. These data provide encouraging evidence for an explanation of the shape of ROC curves in terms of operant learning principles rather than statistical decision theory. Future experiments will experimentally analyze the development of response patterns under conditions of sequentially dependent differential reinforcement.

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