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PREFACE

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.

This second volume has been edited and prepared by the Faculty Journal Editorial Board: Jason Gilchrist, Charles Jacobs, Lester Larson, Cecil Willis, and Robert Obojski (Chairman).

As its editors, we acknowledge our sincere appreciation to the individual contributors and those anonymously involved for their effort, patience and cooperation.

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The Authors

JOSEPH P. DEL TUFO, A.B. Berchmans College; M.A. Ph.D., Fordham University.

Professor of English

ALBERT B. MILLER, B.S., M.A., Ph.D., Arizona State University.

Professor of Psychology, Head of the Department of Psychology and Director of College Testing Services

ROBERT OBOJSKI, A.B., A.M., Ph.D., Western Reserve University.

Professor of English

JAMES VALLE, A.B., San Francisco State College; A.M. University of California, Los Angeles.

Instructor of History

ULYSSES S. WASHINGTON, B.S., Virginia State College; Ed.M., Rutgers University.

Assistant Professor of Agriculture, Head of the Department of Agriculture and Natural Resources

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Delaware was in the middle of this development. During the decade of the 1880's two shipyards in Wilmington specialized in the construction of wooden schooners. Milton had three busy yards, Laurel and Bethel were prominently represented, and the dynamic town of Milford led the list with no less than four busy yards turning out an average of seven ships a year.

The successful operation of these yards depended largely on the natural endowment of southern Delaware and the Eastern Shore. Large quantities of excellent white oak were available while the navigable creeks and rivers of Kent and Sussex Counties provided adequate building sites for vessels of up to 1200 or 1300 tons. Also the insular nature of the economy of lower Delaware assured a skilled labor force that was willing to accept lower wages than was the national average. Although there were few persons of great wealth in lower Delaware, there were plenty of small investors willing to purchase shares in vessels, assuring a considerable home market for some new ships while others were sold to shipping interests in New York, Philadelphia, or Baltimore.

The magnitude of schooner construction varied sharply throughout Delaware. Wilmington's shipyards soon abandoned most of their schooner activity and committed themselves to the construction of iron and steel hulled steamships. Some towns such as Smyrna, Dover, and Frederica never distinguished themselves in the schooner building business. Milford, Milton, and Laurel have been exhaustively researched however, and the work of James E. Marvil and Tilney Clarke Conwell provide a valuable perspective from which to gauge the importance of lower Delaware's shipbuilding activity.

According to Mr. Conwell's study, shipyards in Milton and elsewhere along the Broadkill River produced at least 251 sailing vessels between 1737 and 1920. Although two-masted schooners predominated, some 40 three-masted schooners were also constructed starting in 1851, and it is apparent that the average size of the vessels constructed increased as time passed although tonnage was held down to some degree by the limitations of the Broadkill's channel.

The ships built at Bethel and Laurel represented an important departure in design, as well as an economic asset to the towns. Starting in the 'eighties, these towns pioneered the "ram" schooner, a three-masted bald headed type especially suited for trading in Chesapeake Bay. The ram differed from ships built on the Delaware Coast primarily in her hull form, being flat bottomed and wall sided. Rams were relatively shallow draft vessels with centerboards to make them more capable of beating to windward.

The origins of the ram design are obscure and so is the rationale behind their unusual hull configuration. Dr. Marvil, in his exhaustive study of the rams, concludes that it was conditioned by the shallowness of much of

Chesapeake Bay and by the dimensions of the locks which were once part of the Chesapeake and Delaware Canal. These are logical assumptions but perhaps a more compelling justification of such ungraceful hull forms could lie in the fact that they might have been cheaper and much easier to build than the more graceful types constructed elsewhere. Despite their general ungainliness, the rams proved efficient and profitable vessels, easily the longest lived of all the ocean going schooner types built in Delaware.

Except for the rams, most of the large schooners built in Delaware were generally similar to the types evolved in New England except that the Delaware schooners tended to be smaller for a given number of masts than their "Down East" counterparts. A New England four-masted schooner might easily be double the displacement tonnage of a Delaware four-master and the New Englanders launched many vessels of five and six masts, and even one of seven masts, a practice that downstate Delaware yards could not possibly copy because of the narrow river channels. Despite this, Delaware's more modestly proportioned ships often competed successfully with the New Englanders as it became increasingly difficult for the bigger vessels to find full cargoes. As the coastwise trade became more competitive and steam vessels began to elbow the windjammers out of the way, it was the smaller Delaware-built schooners which continued to operate profitably while the larger types sailed half filled or were laid up for long periods of time awaiting full cargoes.

A typical Delaware schooner of the period which illustrates these factors is the *Albert S. Paul*, a 1200-ton four master built in Milford in 1916. Her hull cost \$40,000 and her total cost when completed was \$76,090. Despite the fact that all deck machinery and metal fittings had to be imported from out of state, this price was considerably below the going rate in a New England Yard where a similar vessel could cost around \$175,000. Originally owned by nine local shareholders, the *Paul* was homeported in Baltimore and operated profitably in the usual trades of that period. The *Delaware Magazine* of August, 1919, mentions her as being engaged in the general cargo trade to South America. She apparently made good profits until 1928 but the next year found her \$4,000 in debt whereupon her original owners sold her to a Baltimore firm. She worked successfully out of Baltimore throughout the depression which sealed the fate of most of her larger sisters and was finally sunk by a U-boat while on a voyage to the Caribbean in 1942. The *Paul* was one of the last large schooners built in Milford, a typically long lived and well traveled Delaware vessel.

Another Delaware schooner which lasted even longer and traveled much farther afield was the *Rebecca M. Walls*, a product of Milton launched in 1879. A three-masted vessel of 1000 tons burden, the *Walls* was originally owned by twenty-one individual shareholders and sailed from Philadelphia where some of her owners resided. During the course of a long career as a cargo hauler on the Eastern Seaboard, the *Walls* made numerous passages to

the West Indies, changing owners several times in the process. In 1916 she made a transatlantic voyage and passed under British ownership. That same year she carried a cargo to Gibraltar where she was converted to a coal hulk, lasting in this occupation until 1930, a truly remarkable testimony to the quality of Delaware white oak and copper fastenings.

Although several other Delaware schooners besides the *Rebecca M. Walls* engaged in transatlantic voyages at various stages of their careers, such trips were not a common practice. The normal coastwise trading pattern prevailing during the schooner era was much less rigorous and usually more profitable than deep sea voyaging. Schooners outbound from mid-Atlantic ports usually carried coal, either to Gulf Coast ports where it was used for locomotive fuel by the various railroads or to the West Indies. The favorite return cargo was raw sugar or some other tropical produce from Cuba, Bermuda, or Santo Domingo. Occasionally Jamaican logwood was carried to Baltimore for use there in making dyes for clothing, and very occasionally there was general cargo for South American ports.

Many schooners returning to the north-eastern seaboard ports with sugar or molasses called at Lewes Breakwater for new orders before proceeding to their unloading ports. The reason for this practice was that such cargoes often belonged to speculators and many changed ownership and destination while enroute. Since most schooners carried no radios or electrical equipment of any kind, the Lewes firm of David W. Burbage and Co. carried on a brisk business as an information center and rerouting agency for inbounders.

For many decades this lucrative coastwise trading pattern remained in existence and while it survived the schooners survived. Times changes all things, however, and eventually declining profits, coastal storms, and the advance of marine technology began to take their toll. As any professional mariner knows the most dangerous part of the sea is where it meets the land and the East Coast of the United States is far from being one of the hospitable coastlines of the world. Delaware schooners operated on this coast, subject to tropical hurricanes, blinding fogs, icy winter gales, and all the other traditional hazards of the sea. They did so without benefit of engines, radios, or any of the sophisticated electronic gear now deemed indispensable to safe navigation. In the 1880's most other ships were in the same situation and so the high losses in ships, cargoes, and men which were the result of being caught in coastal storms and sunk or driven ashore seemed acceptable and inevitable. By the 1920's all of this had changed and steamships with dependable engines and radios to warn them of approaching storms were beginning to take over the schooner's trade routes.

Theoretically, this need not have been so. Schooners, with their small crews, often less than ten men for a four-master, their nonexistent fuel bills, their simple, easily maintained deck gear and rigging, could always undercut steamer prices, particularly in bulk carrying trades. Added to this was the fact

that a schooner cost comparatively little to build and if she were properly maintained and reasonably lucky she might lead a long life and repay her cost of construction many times over.

The prospects seemed tempting, and many Delawareans were tempted. Adding further to the attractions of schooner investment were the unique ownership arrangements which allowed many small investors to participate in the shipping business. Delaware schooners were often financed by selling shares in the ship to many investors. The three-master *Henry Waddington*, for example, was built in Milton in 1881 for \$32,000. The cost of construction was divided in 1/64 shares, each share selling for \$500 and entitling the shareholder to claim both direct ownership of 1/64 of the ship and all her gear and 1/64 share in all of her profits. The *Waddington* had a total of twenty-one shareholders nearly all of whom were related to or associated with her first Master, a native of Milton. The vessel derived her name from her principal shareholder, Henry Waddington of Milton, who owned eight shares.

This investment practice was a very practical one in light of the hazards of the sea and the risks of the coastwise shipping business. An investor under this system did not need to tie up all of his money in one vessel but could spread it over several, thus minimizing his potential losses. Few investors owned more than 4/64th of any one vessel but many owned shares in several ships adding up to a considerable lump sum.

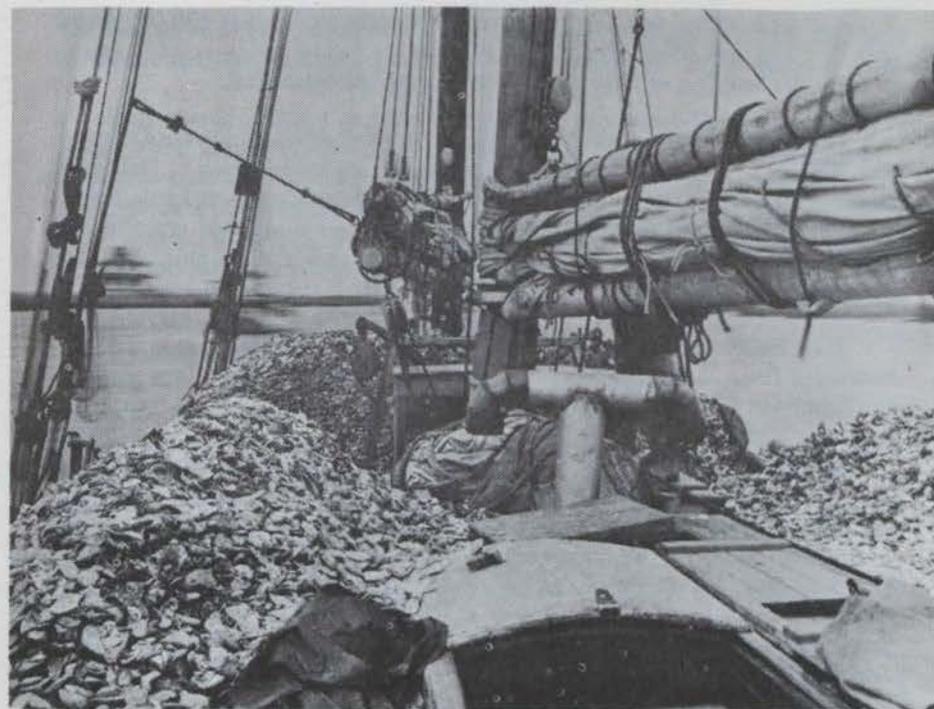
Even with such safeguards, however, investing in schooners was a gamble. All shipowners gamble that they will be able to find enough cargo to make their ships profitable from year to year. The owners of steamships and powerboats are spared the disadvantage of gambling on the winds and tides, and on the skipper's ability to detect and avoid bad weather. Engines allow an owner to plan and schedule voyages with some degree of exactness while the radio warns of impending storms and other hazards. By doing without these aids schooners cut down their operating costs and initial investment but they also subjected themselves to greater risks and vastly decreased dependability. With luck a schooner could find enough cargo to keep her busy and avoid costly layups. With luck she would encounter reasonably fair winds allowing her to make fast and frequent passages. With luck she could avoid storms which were more often fatal for her than for her powered sisters and invariably resulted in costly delays. With luck in all these things, a schooner could show a handsome profit but in the end this much dependence on luck proved to be an increasingly untenable basis upon which to do business. When their luck ran out the schooners disappeared one by one, dragged onto beaches when anchors failed to hold in howling gales, dismantled and left derelict in the open ocean, run down by steamers in fog, or laid up awaiting cargo that never came while the ship slowly deteriorated into uselessness in some stagnant backwater of the depression ridden harbors of the 1930's.

Deterioration in material readiness led to deterioration in value. A



A day in port, the oyster fleet at Little Creek, Delaware.

Delaware State Archives



Full deckload of oysters.

Delaware State Archives



Dredging oysters on Delaware Bay.

Delaware State Archives

schooner costing \$100,000 to build might sell for as little as \$4000 ten years after launching. Very soon a point was reached where necessary repairs cost more than the vessel was worth. For speculators this was an advantageous time to buy a schooner because the depreciation process was almost over. A ship bought this cheaply would not further decline in value unless she were actually sunk. A few old ships were saved by this fact, particularly ram schooners from Bethel and Laurel. Purchased cheaply, operated with a bare minimum of repairs and the smallest possible crews, often members of a single family, they survived well into the 1940's as cargo carriers and one, the *Victory Chimes* (ex *Edwin & Maud*) still operates regularly as a dude cruiser in New England waters.

Another important factor in the death of the deepwater schooners of Delaware was that after 1920 no more were built, so the older ships could not be replaced by new vessels as was formerly the case. The decline in construction was due to the fact that the shipyards of Milford, Milton, Bethel, and other towns were finding cheap labor increasingly difficult to find and low wages difficult to justify. Also, the abundant supply of native live oak was becoming scarce and the supply of yellow pine used for hull planking and decks soon failed entirely. A few of the larger yards tried to carry on by importing the larger oak timbers needed for keels and frames from Ohio but the additional cost of this practice boosted prices enormously. According to

Tyler, a six hundred ton schooner could consume as much as 190,000 board feet of white oak. When the bulk of this lumber had to be imported from out of state the building of large ships soon became uneconomical.

The decline in the construction of ocean going wooden ships in Delaware did not spell the end of the development of schooner types in Delaware, however. Throughout the 1920's and '30's very small yards at Little Creek, Leipsic, and Bowers Beach continued to turn out a class of graceful and highly individualistic small schooners for the oyster fleet that operated extensively on Delaware Bay.

The basic hull form of these rugged little working schooners was borrowed from the Chesapeake Bay pungys and bugeyes which once made up the backbone of Maryland's oyster fleets.

The essential problem of the oyster fleet's builders was to provide vessels that could carry a respectable press of sail on a hull with very little draft. The sail power was needed to drag the heavy tongs or "drudges" over the oysterbeds while the shallow draft was dictated by the numerous shoals in Delaware Bay. The result was an unusually beamy type of schooner with very flat underwater hull lines. The *Anna R. Frome*, a typical vessel of this class, measured seventy seven feet overall length with an extreme beam of twenty two feet and five inches, and a draft of only five feet and seven inches. Large retractable centerboards were used to give this extremely flat underwater hull form a good grip on the water for sailing to weather. The centerboard and its trunk took up much of what little hold space there was and the harvested oysters had to be piled on deck while the schooner was working the beds.

At the peak of the Delaware Bay Oyster Industry, during the 1920's, there were over one hundred of these graceful little schooners working out of various ports in Delaware and New Jersey. The principal Delaware oyster ports were in Kent County and photographs from this era attest to the fact that Leipsic, Little Creek, and Bowers Beach were homeports for at least twenty vessels each. Some of the New Jersey ports, such as Gloucester and Port Norris had even larger contingents.

The use of sailing schooners to harvest oysters on the banks which extended from Mahon's Light to the mouth of the Mispillion River lasted up to 1949. Prior to that year, Delaware State laws had prohibited power driven vessels from taking oysters in Delaware waters on the grounds that the more efficient powerboats would damage and deplete the oyster beds, eventually destroying the livelihoods of the oystermen. This law also prevented the larger companies with bigger boats from crowding the numerous family owned vessels off the banks and assured the small fisherman of a continuing livelihood. Despite the protection of this law, mismanagement and neglect had begun to take their toll and the fishing fleets were in a state of decline by

the late 1940's. The power boat prohibition was reversed in 1949, this time to ensure the survival of the small number of oystermen who remained.

This change did not end the career of the oyster schooners themselves as many were simply converted into power boats. Ungainly wheelhouses were added to their aftercabins, masts were removed except for a stump foremast to serve as a boom hoist, and engines were installed in the holds. Several of these vessels, including the *Frome* survive in this form to the present and still operate occasionally out of homeports that have witnessed their comings and goings for half a century at least. Although not as dramatic as their ocean going counterparts they are likewise a tribute to the durability of Delaware white oak and craftsmanship.

With the invasion of the oyster beds by power boats the schooner era came to a close in Delaware and its extinction made complete the end of large scale maritime activity in Lower Delaware. Today only a few party fishing boats and some small crab boats are all that can be said to remain of this once bustling and prosperous industry and even some of these are not true lineal descendants for they exploit the waters of Delaware's coast as a playground and not as a serious economic asset.

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Poetry and Its Evaluation

By Joseph P. del Tufo

There have been many attempts to define and describe poetry and, in each case, the word, "poetry", like the word, "love", flaunts its ambiguity at the would-be definer. Poetry is obviously literature, which seems like a good partial definition until one begins to define literature and distinguish poetry from prose. And what is the use of defining poetry anyway; those who really love poetry couldn't care a kopeck, and those who don't are not likely to be converted by a definition. Yet supposing that a good definition cannot be reached and that definitions don't help much anyway, the search for a definition can reveal interesting aspects of poetry.

Poetry is literature. Not literature in its broadest sense, "anything written", which would apply to everything from an ad for itch powder to a *Paradise Lost* or a *Hamlet*. Not even literature in a more limited sense, "anything well-written", which would include histories, philosophies, even commercials. Poetry is literature in the most exclusive sense of "creative fiction".

"Creative fiction" means a work fashioned out of words through the imaginative powers of its author. Creative fiction may use facts, but even when it does, it gets its value from what the author does with these facts, not from the facts themselves. It is basically, then, non-fact, what-is made, fiction; it is primarily imagined, invented, created.

Creative fiction gives pleasure; if it didn't, it wouldn't exist. A look at the kind of pleasure it gives reveals something about the nature of literature.

Not a few writers explain the pleasure derived from literature by saying that the reader identifies himself with the various characters and experiences vicarious emotions. And it must be admitted that readers so identify with characters and do enjoy vicarious emotions at times. Yet this cannot be the main value of literature. If it were, literature would be but a poor substitute for life, for the experiencing of real emotions. It would be but an immature flight from reality.

Close analysis will reveal that the main pleasure derived from literature, and the one which gives creative fiction its enduring value, is knowledge; a special kind of knowledge, but knowledge none the less. When the emotions

are quiet as a frozen stream, we still look back on great literature with pleasure because it has given us knowledge.

Usually "knowledge" suggests knowing facts, especially facts which generalize about some sphere of life. But the knowledge derived from literature and the knowledge which is the real source of pleasure in literary pursuits is of a different order. (For the sake of having a term, let us call the knowledge which is peculiar to literature, poetic knowledge.) This type of knowledge is particular, not general; that is, it gives us one human reaction to a situation, one particular, unique, individual reaction to a particular situation. Furthermore, this type of knowledge is concrete; that is, it does not give us a principle which may be applied elsewhere, rather it gives us something like the knowledge derived from experience. Clearly one who swims has a different type of knowledge from one who has never been in water but knows all about swimming from books. The first type of knowledge is concrete; the second, abstract. Literature gives us knowledge of one man's hatred, one man's love, etc., and if we do draw abstract or general conclusions from this one case, it is only after we realize the case in all its concrete individuality and uniqueness. This more general knowledge which can be drawn from literature is clearly secondary.

Poetic knowledge is always human knowledge. It is knowledge about a human being, an "I", in a particular situation. It tells what the human being thought and felt about that situation. In the following poem, that "I" of the poem tells the reader what he feels about his blindness:

*When I consider how my light is spent
Ere half my days in this dark world and wide
And that one talent which is death to hide
Lodged with me useless, though my soul more bent
To serve therewith my Maker, and present
My true account, lest he returning chide.
"Doth God exact day-labor, light denied?"
I fondly ask. But Patience, to prevent
That murmur, soon replies, "God doth not need
Either man's work or his own gifts. Who best
Bear his mild yoke, they serve him best. His state
Is kingly: thousands at his bidding speed,
And post o'er land and ocean without rest;
They also serve who only stand and wait."*

The reader of this poem knows something of what blindness felt like to John Milton. Moreover, he understands how Milton's Faith shaped his personal reaction to blindness.

In a short poem like the one above there is usually one "I" and one situation. Longer works of literature may have many "I's", i.e. many

characters, each in different situations. When this is true, there is, in addition to the poetic knowledge about each character, another source of poetic knowledge; the creator himself. Take *Macbeth* for an example. When we have gleaned all the poetic knowledge from Macbeth, Lady Macbeth, Banquo, etc., we can stand back and ponder the attitude toward reality which the author manifests by creating his play in one particular, unique way. There are many interpretations of *Macbeth*; for one example, the play shows an author who is pondering the effects of evil on a good man who yet thought that he could do a serious evil, and then return to being the same good man. From the play we learn how the unique Mr. Shakespeare thought about this aspect of human living.

Poetic knowledge, the knowledge derived from literature, attracts the reader for many reasons. Each human being can have complete, direct experience only of his own personal reactions; he is limited and severely limited. He lives in a definite era and for the most part in one small nook of the universe. Literature takes him into other places and other eras. Through literature he gets a quasi-experience of being someone else, sometimes also in circumstances which he will not duplicate in his own direct experience. The first reason why a reader enjoys poetic knowledge is, then, the removal of limitation, or put positively, the magnification of his world and of his life. A second reason is that this knowledge is relatively easy to come by. It is as easy as opening and reading. A third reason is that while direct experience gives not only pleasure but also pain, poetic knowledge gives only pleasure.

It should be noted that poetic knowledge is not the only source of pleasure in creative fiction. The reader also delights in observing the skill of the creator; he admires the genius of the maker. There is, in addition, a pleasure which comes from the beauty of the thing made; the object, the book or poem, pleases the eye of the mind as beautiful scenery pleases our physical eye. Finally, many readers must find pleasure in themselves for being able to appreciate something which requires reading skill. But all of these pleasures are secondary. The primary pleasure derived from literature comes from poetic knowledge.

Poetry is literature in the sense of creative fiction; but so is prose, and what distinguishes one from the other cannot be simply stated. The easiest way to distinguish poetry from prose is to say that poetry is in verse, i.e. it has meter, while prose is not in verse. But such a classification, while convenient and customary, scarcely touches the deep differences between the two types of literature frequently called prose and poetry.

Since both prose and poetry contribute poetic knowledge to the reader, the first area of difference must be in the type of poetic knowledge communicated. Many human experiences and reactions, because they are common, can be easily communicated; they can be expressed in a simple statement. But other experiences can only be expressed in a simple statement.

But other experiences can only be expressed by comparison. For example, suppose that one wanted to explain to a man born blind the difference between green, and red. He could not use a statement. The very best he could do would be to compare the experience of these colors with some experience which the blind man had known. He might say that green is cool and red, hot. It would not be very good, but it might be the best he could do. Whenever the method of communication is mainly by comparison (because the knowledge to be expressed cannot be expressed by statement) then in a very deep sense the work must be called poetic. Actually the predominance of comparison is more indicative of poetry than meter and is the reason why many people speak of works like Joyce's *Ulysses* as poetry. Poetic knowledge in poetry differs from poetic knowledge in prose because the former is more often communicated by comparison, the latter, by statement.

Unfortunately for accurate categories, not all poetry (in the sense of metered language) communicates by comparison and not all prose uses statement. As with the other qualities of a poem which will be mentioned, this one may be lacking in a work but because so many others are present it may seem better to call the work a poem anyway.

Poetry will usually display most of the following characteristics: imagination, compactness, music, meter, suggestiveness, and emotion. In addition, poetry will usually communicate thought through images.

Imagination and Images. All literature since it is creative fiction displays imagination. But poetry tends to be more imaginative than prose. In the space of a few lines many images will be presented to the reader's imagination; in addition, what the author expresses will be more completely the product of his imagination; and finally, the author will have come to his creation after a process involving repeated comparison of imagined concrete realities.

Compactness. Poetry tends to express itself as compactly as possible. There are several reasons for this:

1. Compactness lends impact to any group of words, and this enables the author to express more accurately the impact on the "I" arising from the situation in question.

2. Compactness reveals structure. Part of the poem which should be seen and appreciated by the reader is its structure, the way its parts are put together. Compactness draws attention to structure. In any good poem it is clear that the words do not appear by chance. They have been carefully chosen. This brings us to the final effect of compactness.

3. It makes the reader pay attention to all possible meanings of each word as if the word were saying to the reader, "Look at me closely; look at me in relation to every other word in this poem; if you don't look carefully,

you'll miss some of my meaning, my special meaning in this particular poem."

Music and Meter. An adequate discussion of music and meter in poetry as opposed to the music of prose would involve too lengthy a discussion for this present paper. For the topic at hand, it will suffice to say that poetry draws attention to its sound, its total sound, its music; while prose does not.

Suggestiveness. Everyone knows that what is suggested is somehow more powerful than what is stated. (The reason may be that the pleasure of understanding and the greater effort needed to understand that which is only suggested rivet attention.) Poetry relies more on suggestion than does prose. The poet invites the reader to reread, paying attention not only to what is said but to every suggestion, to everything which is not said; the ambiguity of language helps make suggestion possible and so is frequently a tool of the poet.

Emotion. There are three places where emotion occurs in the sphere of a poem: 1) in the author before and during creation, 2) in the reader, and 3) in the poem itself. In the study of poetry, no one is greatly interested in #1, because it cannot be known; and even when it can, it belongs more to the author's biography than to a study of his poetry. Nor is there great interest in #2, because although all great poems should have some impact on the normal reader at normal times, the emotional state of the reader does not affect the value of the poem. What does interest is the emotion of the "I" of the poem as it is expressed in the poem (the "I" whom we would know even if the poem were anonymous). With regard to emotion in this third sense, poetry tends to be more emotional than prose. Poetry and prose reveal a person confronting a situation but poetry concerns itself more with expressing the unique emotional situation of the "I".

If the reader will grant me my main conclusions so far, (namely, that poetry is creative fiction, that it derives its greatest value by offering "poetic knowledge", and that it differs from prose by communicating more through comparison than statement, with greater use of the imagination, compactness, music, suggestiveness and emotion,) then I should like to offer my opinions on the evaluation of individual poems.

The more beautiful a poem is, the better it is. Who could disagree with that statement, until he reflected that "beauty" joins "love" and "poetry" as queen and runner-ups in the Miss World Undefinable contest. St. Thomas Aquinas defines beauty as "id quod visum placet," that which when seen pleases, and if "seen" is understood as "contemplated," the definition is as good as we are likely to find. Beauty then turns out to be that quality of an object which entices contemplation or which makes pleasurable mere contemplation (with no other activity involved.)

St. Thomas goes further and attempts to explain this quality. He says that it involves *claritas*, *integritas*, and *unitas* which can be translated as Radiance, Integrity, and Harmony. Radiance means that the Integrity and Harmony of the object are perceptible, that they are capable of intuition or contemplation. Integrity means that the object called beautiful must reveal itself as a whole, in no sense mutilated and in no way lacking parts. Harmony means that the object must reveal itself as having order, its various parts related to one another in a way that reveals design. (Can an ugly thing be beautiful? Yes and no. In the sphere in which it is ugly, e.g. to the eye alone, obviously it cannot be simultaneously beautiful. But a thing can be ugly to the eye and at the same time beautiful to the mind.)

From the above description, it becomes clear that all Art must be beautiful since Arts by its nature entices Contemplation. Poetry as a species of Art must entice contemplation and so must be beautiful. (This does not mean that the poet sets out to make "something beautiful." Mr. Maritain seems correct when he says that the poet who consciously strives to create something beautiful will fail. The poet strives to express his intuition of reality, some meeting between a person and an event, and the beauty naturally follows (in the same way, according to Mr. Maritain, as a mother wishes to have children, and a desire that they be beautiful naturally follows.) In trying to express his intuition, the poet naturally wishes his poem to have order and be complete, and he wants this completeness and order to be perceptible. In other words, striving for beauty is inherent in the act of creation.)

Having said all this, we can conclude that all good poetry is beautiful. But this does not help much in evaluating a poem. Two people can argue forever and get nowhere if one of them sees order in a work and the other denies it, or if one sees a work as complete in a way and the other says the work is unfinished.

The problem of evaluation can be looked at in two ways. The first is extrinsic: common agreement of competent critics over a long period of time (usually put between twenty-five and one hundred years.) This is a good norm in that it enables us to say with certitude that a poem, *The Divine Comedy*, for example, is a great work. (It is this norm the French guide used when he spoke to the loud tourist who had been disparaging The Louvre, "Monsieur, it is not the artists who are on trial, it is you.") But it is not a good norm in that it does not tell us why a work is good or great, neither does it help evaluate a recent creation.

The second way of looking at evaluation is intrinsic. Here there is no real agreement among critics; there is no easy formula by which you can decide whether a poem is good or bad, great or merely good. As working norms, I offer my own answers.

Considering the "I-Situation" as the soul of the poem, and all the rest, the music, the imagination, the expression of emotion and ideas, the tone, and the structure, as the body of the poem, then I would call a poem good when both body and soul achieve ordinary perfection, and one aspect of the poem, either its soul or some part of its body, achieves extraordinary perfection.

Ordinary Perfection. The soul of the poem, the "I-Situation" is plausible and interesting. The body of the poem: the music does not distract (at least); the images are not trite; there is some use of comparison; the expression of emotion is neither excessive nor unreal; the ideas are exposed in a plausible manner; and the structure does not detract from the total impact of the poem.

Extraordinary Perfection. In the soul of the poem the "I-Situation" is extraordinarily interesting because of the insight which it contains. In the body of the poem: one of the above-named facets of the poems is unusually apt.

(Sometimes we speak of a good poem which is marred by this or that. We mean that a poem lacks ordinary perfection in one or other aspects but has a compensating perfection.)

A Great Poem. I personally would be unwilling to call a poem great which did not have a great soul. A poem is like a person. No matter how beautiful the body, if the soul, the mind and character of the person, is not rich, we refuse to call the person great. In like manner, I look for some revelation of the human condition, some insight into what a particular person experienced before I will call a poem great.

Dr. Martin Luther King A Philatelic Portrait

By Robert Obojski

Dr. Martin Luther King, Jr. ranks as a major figure in the fight for human freedom and justice not only in the United States, but in the entire world as well. Since his assassination in April 1968, Dr. King has appeared on the postage stamps of many nations, and here we've attempted to give only a representative sampling.

Some of these stamps were issued to honor Dr. King's memory alone, but in other cases he appears in special series along with such other world figures as Mahatma Gandhi, Abraham Lincoln, John F. Kennedy, Robert F. Kennedy, Pope John XXIII, Pope Paul VI, and Winston Churchill.

Here we see Reverend King's portrait on stamps from Guinea, Liberia, the Republic of Mali, St. Kitts-Nevis-Anguilla, the Kingdom of Yemen, and on issues of three of the seven Arab Trucial States, Ajman, Sharjah and Ras al Khaima.

In fact, there have been so many Martin Luther King stamp issued within the past three years that philatelic publishing houses are seriously considering producing special albums for them. We may also note that John F. Kennedy stamps have appeared in such great profusion during the past eight years that special albums and catalogues listing them are already on the market.

Perhaps, in the not too distant future, the United States will also issue a Martin Luther King portrait stamp.



The Kingdom of Yemen's 1968 "Human Rights Year" multicolored set includes portraits of Winston Churchill, John F. Kennedy, Pope John XXIII, Pope Paul VI, and Martin Luther King.



The Kingdom of Yemen (which lies near the southern tip of the Arabian peninsula) produced these stamps in behalf of "World Racial Peace."



John F. Kennedy, Martin Luther King, Abraham Lincoln, and Mahatma Gandhi are portrayed on this souvenir sheet issued in 1968 by Sharjah and Dependencies. Sharjah is another of the seven Arab Trucial States.



Ras al Khaima, one of the seven Arab Trucial States on the Persian Gulf, issued this striking 1968 set in behalf of the "International Human Rights Year."



Robert F. Kennedy, Dr. King and John F. Kennedy are portrayed on this multicolored set (consisting of both regular mail and airmail stamps) issued by the Republic of Guinea.



Ajman's "Human Rights" issue of 1968 features portraits of Abraham Lincoln, John F. Kennedy and Martin Luther King. Ajman is one of the seven Arab Trucial States.



Liberia, founded by American Negro freedman in 1822, issued this three-stamp set as a memorial to Dr. King in 1968. (Note that the stamps were printed by the E. A. Wright Bank Note. Co. of Philadelphia).



The Republic of Mali (formerly the Sudanese Republic) issued this 1968 100 franc airmail stamp citing Dr. King for winning the 1964 Nobel Peace Prize.

The Caribbean island St. Kitts-Nevis-Anguilla (one of the world's smallest countries, 35 square miles, 5,000 population) produced this multicolored portrait stamp in 1968 as a tribute to Dr. King.



Poland: The Anatomy of a Country

By Robert Obojski

(Note:) Robert Obojski, long a student of Poland and its people, has visited the country several times and has written extensively on the subject for a wide variety of newspapers and magazines published in the United States. His book "Poland in Pictures" was published by Sterling in 1969.

Photos, Courtesy Polish Embassy, Washington, D.C.

The Beginnings

While Poland celebrated its millennium as a Christian state in 1966, its history actually stretches back into the deep mists of antiquity. In Roman times, the name of the region where Poland is now situated was called Sarmatia. Specifically, Sarmatia was the land mass lying between the Vistula and Volga rivers.

Ancient tribes roamed Polish soil as long ago as 500-1000 B.C., but Poland as a nation did not emerge until the tenth century. It was Prince Mieszko I (Miecislav) the dominant figure in the 960-992 period, who unified the many small principalities into a nation. Mieszko, the founder of the Piast Dynasty, by 963 was successful in imposing his rule over an area extending from the Odra to the Vistula Rivers. This date is often used to mark the official beginning of Poland's history.

Prince Mieszko made the final decision to have Poland become Christian in 965 when he married Dabrowka, a Christian princess of Bohemia. He was baptized at the time of the marriage, and in the following year, he invited missionaries from Prague to convert Poland. Wishing to gain the protection of Pope John XV, Mieszko drew up in 985 a document ceding his lands to the Holy See under a feudal overlordship.

Eventually, Christian Poland constituted Europe's eastern fortress against the pagan Tartars, and later the Turks.

Boleslav I Chrobry, "The Brave," son of Mieszko I, succeeded his father in 992 as ruler of Poland. Boleslav I was one of Poland's outstanding leaders of the medieval period—it was he who firmly established his country as an independent kingdom. He had himself crowned as Poland's first king in 1025 by taking advantage of an interregnum in Germany, and by refusing to

recognize any German overlordship. Although he died only a few months after the crowning, he managed to consolidate the Polish dominion from the Odra and Nysa Rivers to the Dnepr River, and from western Pomerania to the Carpathian Mountains. Consequently, Poland's western boundary at the beginning of the eleventh century was roughly the same as Poland was to acquire over 900 years later (at the conclusion of World War II).

After the death of Boleslav the Brave, Poland's power and prestige declined. Concurrently, the power of the Holy Roman Empire increased and for a long period the rulers of Poland were recognized only as Dukes.

Polish armies repelled Mongol invasions in 1241 and 1259, actions that severely drained the country's economy. Large sections of the country, particularly in the east, were devastated.

During this troubled, period, the Teutonic Knights, a purely German military-religious group, overran most of that Polish territory later known as East Prussia and brought in large numbers of German settlers to help colonize the area. Thus, Poland now faced in the west an ambitious and growing militaristic state. Among other things, the knights barred the Pole's access to the Baltic.

The Teutonic Knights were decisively defeated by Ladislas II Jagello at the great Battle of Grunwald (called Tannenburg by the Germans) in 1410. Ladislas (reigned 1386-1434) commanded the combined forces of Poland and Lithuania, with the assistance of the Ruthenians and Ukrainians, in this battle—considered one of the major turning points of European history. Although the threat of Germanic expansion was by no means ended, the power of the Teutonic Knights was destroyed, and their dream of establishing a Germanic East European empire was shattered.

The Dynasty of Jagellon, 1386-1572

Poland clearly reached the peak of its power during the Jagellonian Dynasty (1386-1572) and during the century following the end of this distinguished line of kings and queens. When Columbus was discovering the New World the brilliant Dynasty of the Jagellons had just passed its midpoint.

Sigismund I, "The Great" (reigned 1506-42), known as Poland's first modern ruler, married an Italian princess, who brought the art and architecture of the Italian Renaissance to the court at Krakow, then the capital. There was a renewed interest at this time in the Polish language and the country began to produce its first great prose writers.

It was during Sigismund I's reign that Nicolaus Copernicus (1473-1543) flourished. The brilliant astronomer was born at Torun, a great city in medieval times, and studied at the University of Krakow where he began to formulate his theory that the earth revolved around the sun, and that the



Warsaw, often called the "Paris of Eastern Europe" before the second World War, has many sidewalk cafes where citizens discuss everything from sports to philosophy. Warsaw was rebuilt after the war and its population now exceeds pre-1939 levels.



Warsaw at night is a kaleidoscope of lights. The city's rich night life revolves around orchestral performances, legitimate theaters, cinemas, night clubs and fine restaurants.

earth was not the center of the universe...this concept, known as the heliocentric theory, was then considered extremely radical. Poles all over the world are making elaborate plans to celebrate the 500th anniversary of Copernicus's birth in 1973.

Poland had reached its Golden Age in the 16th century as its writers, artists, mathematicians, and scientists flourished. From a political standpoint, its borders reached to within Moscow and included Kiev and the immediate surrounding area in the Ukraine.

Sigismund I, called "The Old" toward the end of his reign, was succeeded by his son, Sigismund II, Augustus, who died without heir (in 1572) and was the last of the Jagellons.

The Crown Elective, 1573-1795

The kings of Poland were elected after the end of the Jagellonian Dynasty. This did not mean that the people voted—only the nobles did. And because of the traditional enmity between the inferior and chief nobles, it almost became the general custom to elect to the throne a member of some *foreign* noble family.

On occasion, however, a Pole was elected to the throne. One of the most famous of these kings was John III Sobieski. Of the foreigners, one was Henry of Valois, third son of Henry II of France and Catherine De Medici. He served as an ineffectual king of Poland for less than two years (1573-74), before he fled to France and became King Henry III. In Paris 15 years later, Henry was stabbed to death by a religious fanatic.

Sigismund III Vasa, Prince Royal of Sweden, was chosen King of Poland in 1587 and ruled for 45 years until his death. He was the son of John III Vasa, King of Sweden, and Catherine Jagello, Sigismund II's sister. Sigismund III also ruled as King of Sweden, but he was deposed there in 1604. Sigismund Vasa was an ambitious king anxious to increase Poland's territories; consequently, he took the country in and out of many wars. In the prolonged wars with Russia, Sigismund Vasa's forces had succeeded in occupying Moscow and the king went so far as to elect his son, Ladislas, as Czar. Surprisingly enough, Sigismund Vasa refused to give permission for his son to retain the title and Poland lost a golden opportunity for a Polish-Russian union.

During the reign of Casimir V (1648-68), the Sejm (Parliament), concerned with protecting its own powers, adopted in 1652 the fatal practice of *liberum veto* by which a unanimous vote became necessary to pass a law. Thus, a single deputy could not only block any measure before the house, but he could also call for a dissolution of the Sejm. Foreign powers, pursuing



The campus of the University of Warsaw. The University of Warsaw has one of the largest centers for the study of humanities in all of Eastern Europe.



Hundreds of different magazines on almost every conceivable subject are published in Poland. The display in this Warsaw bookstore indicates that a variety of foreign magazines, including those from the United States, are brought into the country.

their own interests, took advantage of *liberum veto* by bribing one or several members of the Sejm.

John III Sobieski, elected King of Poland in 1674, proved to be one of the truly heroic figures in the country's thousand-year history. As a soldier, he took part in the fighting against the Cossacks, the Swedes and other foreign invaders. When he took command of the entire Polish army in 1668, he was already called "The Saviour of the Country." In 1672, he defeated the Turks and Tartars and in 1673 he again routed the Turks at Chocin. When King Michael Wisnowiecki (1669-73) died, it was foregone conclusion that Sobieski would be elected as his successor.

The Turks, on a prolonged drive into the heart of Western Europe, arrived at the gates of Vienna in 1683. Sobieski enthusiastically supported by the Polish nation, went to the rescue of Vienna and Christendom with an army of 30,000 men. (The Turkish forces numbered no less than 275,000). Sobieski combined forces near Vienna with the army of Charles of Lorraine and drove back the Turks. The Polish King, after a triumphal entry into Vienna, pursued the enemy into Hungary, which was soon restored to the emperor Leopold I of the House of Hapsburg, who was also the Holy Roman Emperor.

However, Sobieski was obliged to cede territories in eastern Poland to Russia in return for promised aid against the Turks and Crimean Tartars. Unfortunately, Sobieski's last years were embittered by national as well as by family difficulties. He died in 1696.

After the Sobieski period, Saxony's influence over Poland came into sharp focus when Augustus II (Frederick Augustus I, Elector of Saxony) was elected King of Poland in 1697. Augustus II almost literally bought the election. He resigned the Polish throne in 1704 and went back to Saxony where he served as king. But he was restored as Polish king in 1709 and held the throne of both Saxony and Poland until his death in 1733.

Augustus III (1734-63), son of Augustus II, proved to be an ineffectual king since he was no more than a puppet of Russia. Like his father, he held the Polish and Saxon thrones simultaneously.

The policy of having foreign kings and foreign intervention in all important internal affairs led directly to the three divisions to which Poland was subjected. Stanislaus II Augustus Poniatowski, an unpopular Polish nobleman, was elected King in 1764 under pressure from both Russia and Prussia. He was to be the last King of Poland. During his troubled reign of 31 years, arrangements were made for the partition of Poland by the two powers, Russia and Prussia, along with Austria. Three partitions were effected—in 1772, 1793, and 1795. When the final partition was concluded, each of the three powers helped itself to a piece of Poland, and Poland ceased



The town of Nowa Huta was founded in 1951 near Krakow. In less than 20 years, Nowa Huta has grown to become a major industrial center of more than 100,000 population. The city has many modern factories, including forges, foundries and metallurgical plants.



Dr. Romuald Cebertowicz of Warsaw is a recognized authority on hydrology and hydraulics. An author of a study on techniques of ground hardening, he has consulted with Italian engineers on methods of preserving the Leaning Tower of Pisa.



This ultramodern structure is a sanatorium and clinic maintained by the Huta Steel Works for its workers in Szczawnica in Silesia (southwestern Poland).

to exist as a sovereign nation until after the close of World War I. Russia was by far the most important of the three occupying powers.

The Partitions, 1795-1918

The noted Polish patriot Thaddeus Kosciuszko, always a fighter for liberty, had served with distinction as a general under George Washington in the American Revolution. Now, in 1795, he led a revolt against the third partition, but he did not receive the necessary support from the crown. With 20,000 regular troops and 40,000 poorly armed peasants, he resisted for months the united Russian and Prussian armies of 150,000 men. He was overpowered by superior numbers in 1794 at the Battle of Maciejowice, captured and kept imprisoned until after the accession of the Russian emperor Paul in 1796. Kosciuszko maintained his fight for Polish independence until the day he died in 1817.

Throughout much of the nineteenth century the Poles staged one insurrection after another as they attempted to regain their freedom. The revolutionaries kept alive the national aspirations for an independent statehood. Poland's cause was supported by democrats, liberals and revolutionaries of many countries around the world. The first few words of the Polish national anthem, composed in 1797, proclaim the Poles' faith poignantly and succinctly: "Poland has not perished so long as we live. . ."

The Republic Of Poland, 1918-39

The long period of partition ended with World War I, and Poland in 1918 once again became a sovereign nation, a republic. Poland was invaded by Austrian and German armies in the fall of 1914. The combined Austro-German forces were opposed by the Russians, who promised the Poles an autonomous government under the Czar if they would aid Russia now. Before they could decide, General Paul von Hindenburg took Warsaw in the summer of 1915. The Russians were driven from the country, but as they retreated they burned and wrecked the Polish cities, towns and villages so that no food or equipment would remain for the invaders.

The independence of Poland was proclaimed on November 9, 1918, after a Constituent Assembly had been established. The presidency of the Assembly was held by Ignace Jan Paderewski (1860-1941), the noted pianist, who had been largely instrumental in obtaining Allied recognition of Poland's independence. Recognition of Poland as an independent state was one of United States President Woodrow Wilson's famous 14 Points. It was secured at the Treaty of Versailles in 1919.

However, a new outbreak of fighting occurred. In 1919 Poland attacked Russia which had been taken over by a Communist government in November,



The Polish liner "Batory" is seen at her home port at Gdansk. The "Batory" has carried many thousands of American visitors to Poland.



The town of Krynica in southern Poland near the Czech border is one of the country's oldest and most fashionable health spas. This modern sanatorium attracts visitors from points far beyond Poland's borders.

1917. Poland was invaded in 1920 by Russian forces, which were turned back with French aid near Warsaw. The Treaty of Riga, October, 1920, concluded hostilities and, at the expense of Russia, increased Poland's territory by nearly one-third.

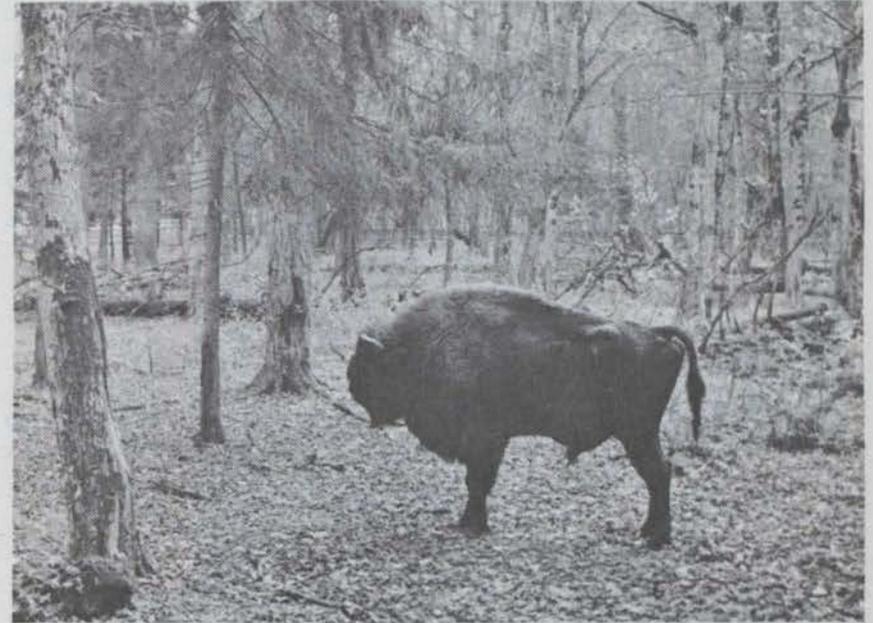
German Occupation, 1939-45

World War II began when Nazi Germany attacked Poland without formal declaration of war of September 1, 1939. The Russians from the east attacked Poland almost simultaneously. Though the Poles fought valiantly, the overwhelming might of German military power on the ground and in the air brought the uneven battle to an end in less than four weeks. On September 27, all resistance ceased, and on the following day Germany and Russia signed a "Treaty of Friendship and Frontiers" by which they divided Poland between them. This treaty came to an abrupt end when Germany invaded Russia on June 22, 1941. Thus, Poland joined the Russian forces against the Germans.

Poland's casualties during the war ran into the millions and Warsaw, the proud capital, was approximately 85 per cent destroyed. Warsaw's population fell from a 1939 level of more than 1,300,000 to a pitiful 162,000 by the end of 1944. Under Nazi occupation some 2,000,000 Poles were shipped to Germany as slave workers, and nearly all the country's 3,000,000 Jews were wiped out.



Students of Polish descent living in various countries of Europe taking a walking tour through Gdansk, Poland's main seaport on the Baltic. The street sign points toward the neighboring cities of Gdynia and Sopot. The December 1970 rebellion against the government-announced increase in food prices began in Gdansk.



A bison roams free in the Bialowieza Forest, a large park in the northeastern section of Poland, near Bialystok, at the Russian frontier. Almost three-quarters of Poland's forests are evergreens, chiefly pine and spruce.

The resistance movement, directed by the Polish government-in-exile in London, was fierce. Free Polish troops fought bravely with the Western Allied armies on the Continent, especially in Italy. Monte Casino was captured by Polish soldiers on May 18, 1944.

When Germany was finally defeated in 1945, the Russian army of "liberation" was occupying Poland, and the Polish government-in-exile, which had been recognized by the United States and Great Britain, was in London. The Soviet government backed the claims to leadership of the Communist-oriented Polish Committee of National Liberation at Lublin, to which a few members of the London group had been admitted. Both the U.S. and Great Britain opposed recognition of the Lublin Committee, but they struck a compromise with Soviet Premier Stalin when he agreed to let free elections be held in Poland. However, when it came to having international supervision of the elections held in 1947, Stalin refused and the elections were completely dominated by the Communists.



"Sigismund's Bell," one of the finest paintings by Jan Matejko (1838-93) . . . the painting now hangs at the National Museum in Warsaw. Sigismund III (1587-1632) reigned during the period when Poland was at the peak of her power. After the failure of the 1863 insurrection led by the patriots of Warsaw against the Russians, Matejko painted many historical pictures that had profound impact upon the 19th and early 20th century freedom fighters. Though his canvases are vast and crowded with figures, they still manage to retain an intensely personal touch.

Thus, with no allied armies in Poland, except for those of Russia, and with the London group many hundreds of miles away, the outcome of the election was never in doubt — the Communists won.

The Russians now took claim to nearly 70,000 square miles of territory in eastern Poland, giving Poland as compensation some 40,000 square miles of German territory east of the Odra-Nysa line. The Western powers still have not recognized these arrangements. And since the end of World War II, Poland has been caught squarely in the middle of the conflict of political ideologies which rages between East and West.

"The Peoples Democracy," 1945---

The 1952 constitution (formally adopted on July 22nd of that year) describes Poland as a People's Republic (*Polska Rzeczpospolita Ludowa*) with a Parliament elected for 4-year terms by direct ballot.



The Wigilia, a pre-Christmas dinner having deep religious meaning, is observed in a small town in the province of Lowicz.

Almost immediately after the end of the war, land reforms were instituted by which the great private estates were eliminated. Then the government attempted to re-establish large farms, but under government control. Thus, much of the country's arable land was placed under a system of collective and state farms.

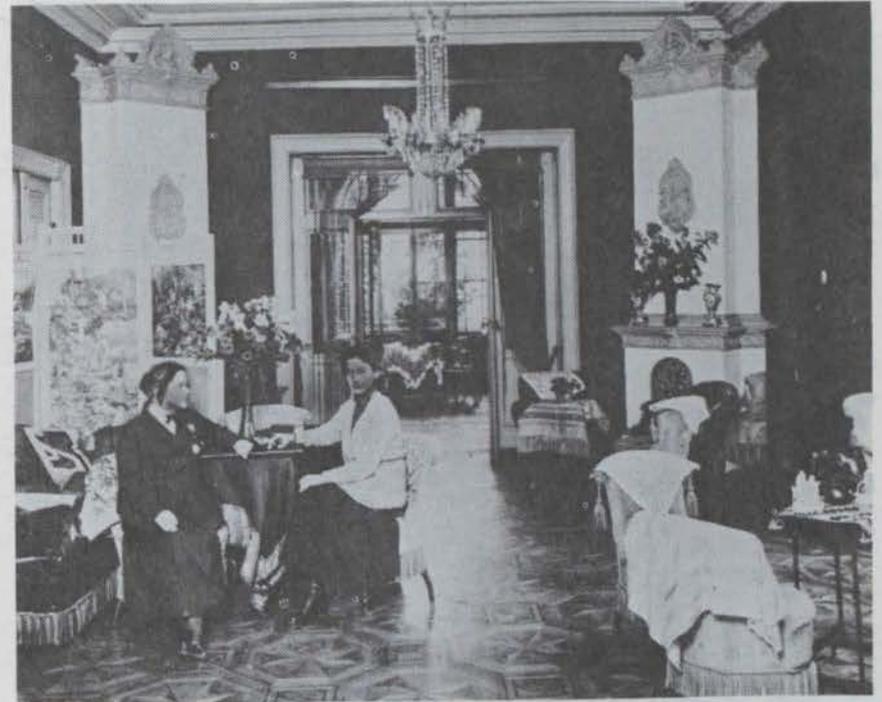
However, after the Poznan Uprisings in June, 1956 (in which some 50,000 workers joined by students demonstrated against the Communist regime and Soviet rule) many changes were effected in respect to economics and the political structure. Most of the collective farms were put back into private hands, and free enterprise reappeared in commerce to a limited extent. Press laws were liberalized, workers gained more voice in industrial managements and more emphasis was placed on consumer production. Travel restrictions were also lifted and tourists from the West were now welcomed into Poland. In fact, during the past 15 years tourism has become a major industry in Poland.

In recent years, the liberalization process has continued to affect the entire spectrum of society. For example, compulsory courses in Marxism-Leninism have been dropped from the curricula of both the secondary schools and the universities. While artists and writers still chafe against various types of government censorship, the government has, nevertheless, encouraged cultural exchanges with the West.

Wladyslaw Gomulka, a dominant figure in Polish politics since the end of World War II, was elected as the country's governmental leader after the Poznan riots with the title of Secretary-General of the Polish United Workers' Party (the PZPR). Gomulka received credit for many of the reforms instituted after 1956, but Polish liberals always felt he adhered too closely to the Soviet line.



Christmas carolers go from house to house and receive presents for their efforts. The giant star symbolizes the Three Kings.



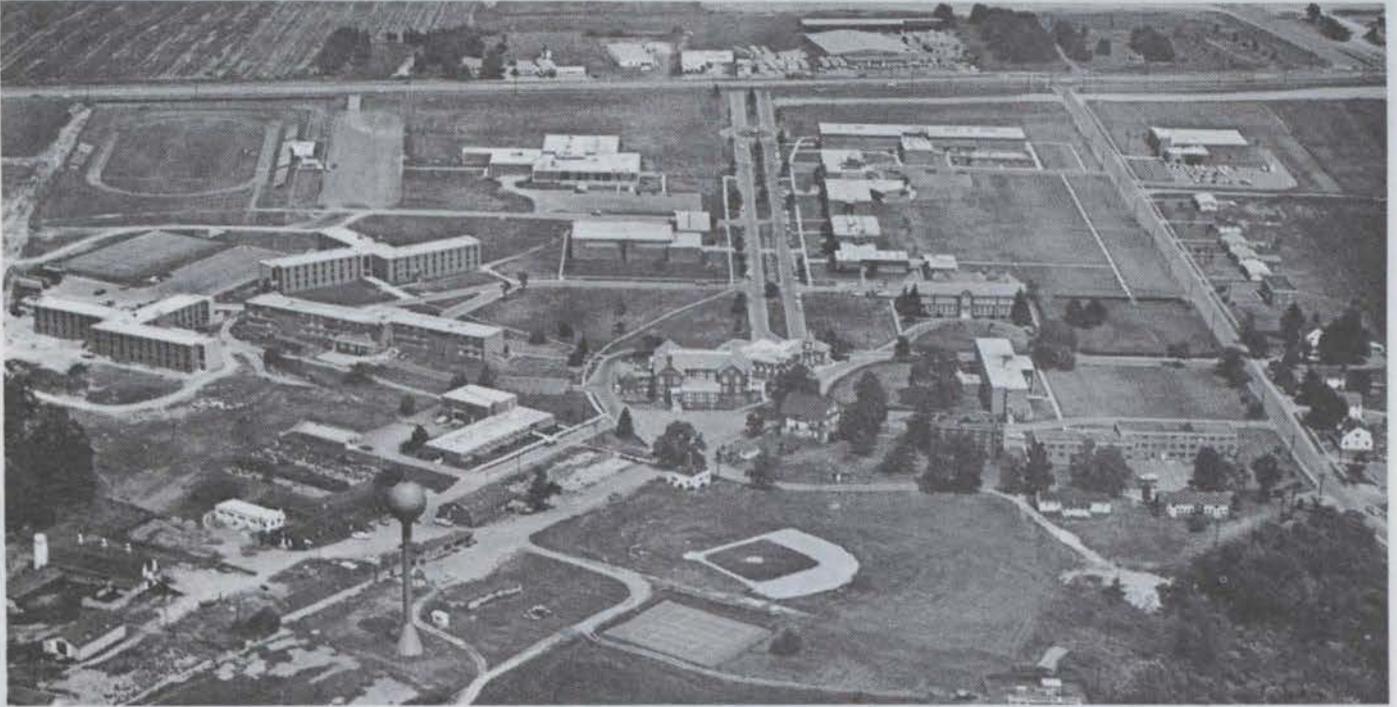
Henryk Sienkiewicz (1846-1916), the first Polish writer to win the Nobel Prize in Literature, in 1905, spent many years living and working at Oblegorek, a small town in eastern Poland. His home there has been converted into a museum. In this rare photo taken several years ago, we can see at left the museum's curator, and at right Sienkiewicz' daughter Jadwiga Karnilowiczowa. Sienkiewicz is perhaps best known in English for his "Quo Vadis" (1896), a novel about the persecution of the Christians under Nero in Rome.

After handling the reins of government for nearly 14 years, Gomulka was toppled from power in December, 1970 after food prices were hiked from 10 to 20 per cent across the board. The Polish consumer, already trapped between the jaws of comparatively low wages and high prices, was almost literally "pushed over the brink" by this stunning announcement from the Gomulka government. Protest marches and riots that began at the Baltic port city of Gdansk in mid-December, 1970 soon spread to other parts of the country.

The PZPR, now deeply concerned with its own fate, elected Edward Gierek as the new Secretary-General. Gierek, who had for many years been the PZPR leader in the industrial district of Silesia, is considered to be one of the most liberal of all the top Polish Communists. Gierek, in one of his first official acts, responded to the people's wishes by rolling back food prices to pre-December, 1970 levels.

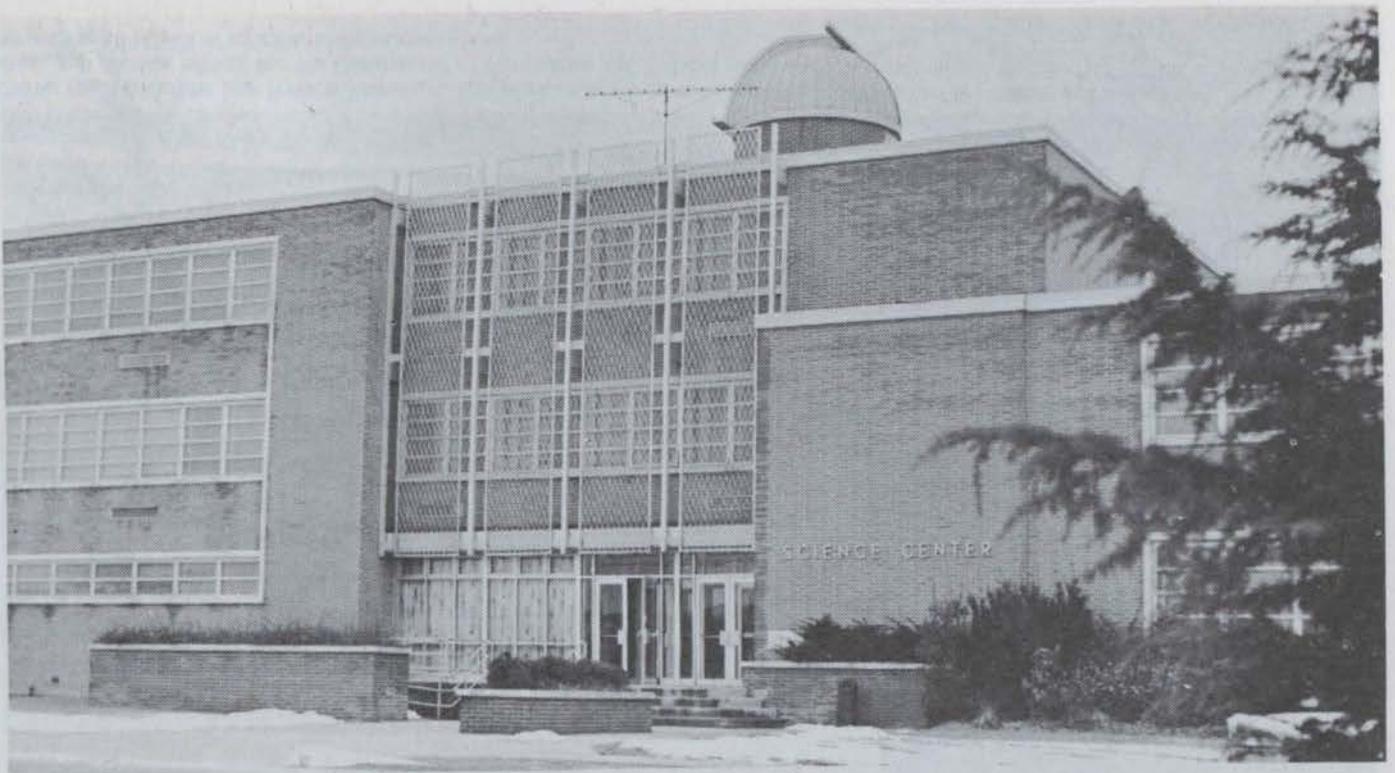
Delaware State College in 1971 ... A Brief Pictorial Survey

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Aerial view of the Delaware State College campus. Under the leadership of Dr. Luna I. Mishoe, Delaware State president, the College has made great progress in both physical expansion and academic development during the past decade. Delstate had a student enrollment of nearly 1,700 for the 1970-71 academic year . . . that figure is expected to reach the 2,000 mark in 1971-72.

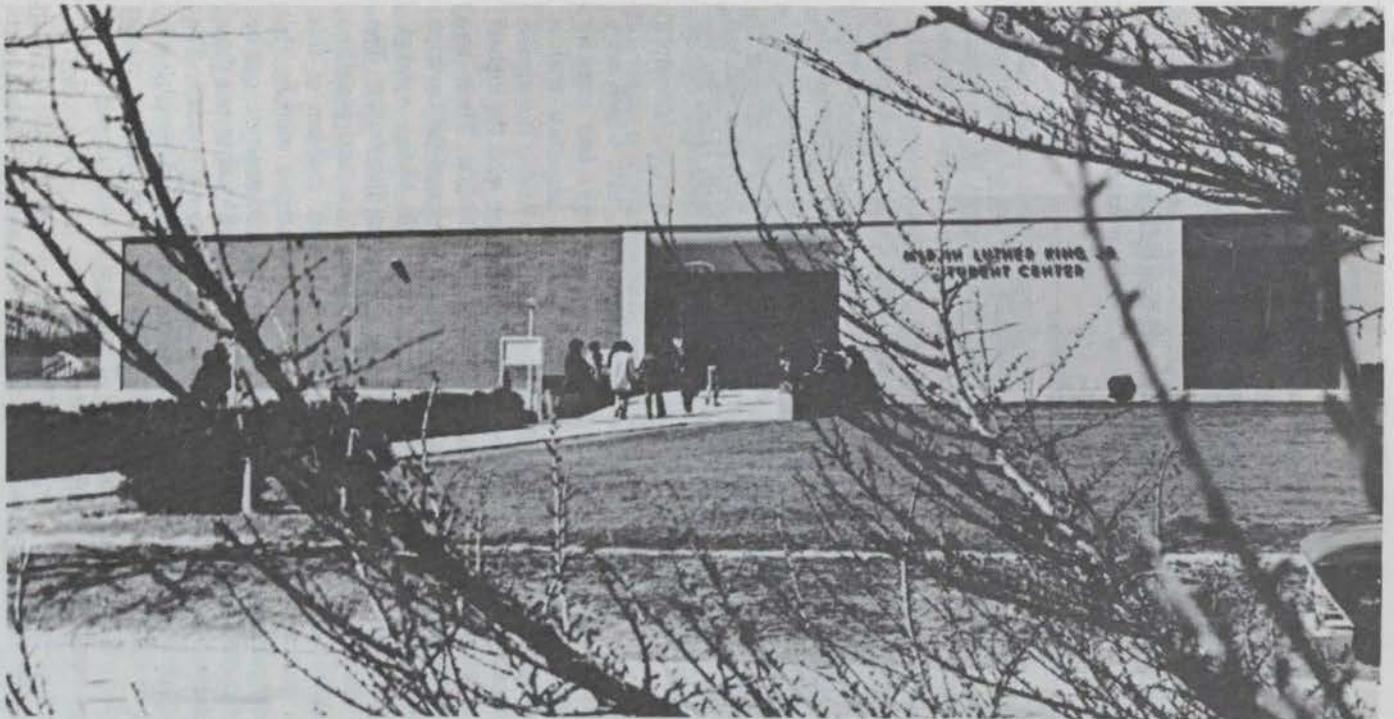
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The Delaware State Science Center. A \$1,500,000 structure, completed in 1964, comprised of an astronomical observatory, a vivarium, laboratories and classrooms for the biological sciences, chemistry, mathematics, physics and science education, a computing laboratory, a radiation laboratory, offices, research laboratories, a technical and scientific library, and an amphitheatre.



Center for Agriculture and Natural Resources. This ultramodern structure, completed in 1966, houses classrooms, laboratories, farm mechanics shop, and faculty offices for the Department of Agriculture and Natural Resources. A greenhouse is also located in this structure. Research projects in all phases of agriculture are centered here.



Martin Luther King Student Center. Completed in 1967, this building is the focal point for student life. It houses offices for student organizations and some student personnel services, a post office, bookstore, canteen, recreation and entertainment rooms, meeting rooms, lounges, and a large auditorium-ballroom. A bowling alley, lounge, and additional meeting rooms were added during the 1969-70 academic year.

The Development of Perceptual Decision Strategies in Children: An Experimental Analysis

By Albert B. Miller

The present study reports the initial results of a series of experiments now underway to investigate the nature and development of perceptual decision strategies used by children under conditions of environmental ambiguity or as it is referred to in the literature, stimulus uncertainty. The present study was done within the context of a signal detection experiment (that is one where the primary concern is with the relationship between dimensions of the physical stimulus and decision strategies); however, the basic principles involved extend to situations of much broader concern. The procedure and experimental design used in the present study are essentially the same as those in a study previously reported (Miller, 1968) and will not be repeated here; however, a brief description of the problem faced by the observers will help put the present study in context.

The subject was seated in a sound attenuated room into which were projected from the rear, white rectangles of varying height and constant width. The stimuli were on 16mm film in a random sequence with a frequency distribution that was Gaussian. The distribution having the smaller mean height is called the noise distribution. The distribution with the highest mean height is referred to as the signal plus noise distribution. These two distributions overlapped so that perfect detection was not possible. On each trial, the observer had to decide on the basis of the height of the rectangle alone whether it came from the noise or signal plus noise distribution. The observer was reinforced (with money) for correct responses and penalized (loss of money earned) for incorrect responses. The basic problem of this study was to determine the nature of the decision strategies used by the observers and in particular to determine whether or not the strategies can be described by the maximizing or matching principles, and whether or not there were any discernable developmental phases of the strategy used. The maximizing principle states that under the conditions described the observer behaves so as to maximize his total earnings. The matching principle states that the observer will match his probability of response to each stimulus to its corresponding probability of reinforcement.

A study by Strain, Unikel, and Adams (1969) of the alternation behavior of children from lower as compared to middle socioeconomic status groups

illustrates some of the implications of the type of study being reported. The Strain, Unikel, and Adams study was concerned basically with the exploratory behavior of children as reflected in their alternation behavior, this study being concerned with the alternation in choice between candy of two different colors. The study was done within the context of a Head Start program. The rationale underlying the study was that the children from the low socioeconomic environments would have had less opportunity for the kind of stimulation necessary for adequate development, and this in turn would be reflected in the extent to which they changed (alternated) their choices in the experiment. Their results indicated "that lower socioeconomic status females and middle socioeconomic status males and females alternated in color choice above chance beyond the .001 level of significance. The lower socioeconomic status males did not alternate beyond chance." The authors go on to state that the results of their study are:

"... consistent with Peterson's (1967) findings of sex differences among lower socioeconomic status subjects in responsibility to different types of social reinforcement. They further indicate that major performance deficits are to be found in the lower status male group, while females with the same socioeconomic background are functioning near the level of relatively higher status male and female children of similar age levels. The data suggests that a lower socioeconomic status background alone does not necessarily lead to negative consequences, and further research which seeks to determine differential experiences in the preschool years which contribute to sex differences in the behavior of lower status children is needed."

METHOD

Subjects:

The observers were two children, ages 9 and 11. Both were female. The observers earned five cents for each fourteen correct responses that were made. The amount earned varied from session to session, but averaged approximately one dollar forty-five cents per session.

Apparatus:

The apparatus used in this experiment has been described in detail elsewhere (Miller 1968) and will only be briefly summarized here. The stimuli consisted of two overlapping normal distributions of white rectangles of varying height and constant width arranged in a random sequence on 16mm film.

The observer sat at a table in a sound attenuated booth approximately five feet away from the rear projection screen. The observers response panel consisted of three microswitches, one each for yes and no responses and the other for presenting the stimulus. There are counters which indicate the

number of reinforcements earned, and a light and a tone which occur simultaneously with the operation of the reinforcement counter.

Procedure:

The observer presented the stimulus to himself by pressing a button on his response panel after which he responded either yes by pressing the right button or no by pressing the left. When a correct response is made a count is indicated on the observers reinforcement counter and a light over the counter comes on and the tone is heard. When an error is made, a count is recorded on another counter, but the light and tone do not occur. In addition, the house lights go off for one second (a timeout). In the baseline condition, there were five sessions of approximately 500 trials each. Observer one had 2,453 trials and observer two had 2,850 trials. In the criterion specified condition, observer one had 2,467 trials and observer two had 2,674 trials.

Instructions:

In the baseline condition, each observer was told to press the right button whenever a large rectangle occurred and to press the left button when a small rectangle occurred. Typically, each subject would ask what was meant by large and small. They were told that it was up to them to determine their own standards for large and small. Each observer was informed that for each fourteen correct responses that were made, five cents would be earned and that for each incorrect response the house lights would go out for one second. They were further instructed to try to earn as much as they could. In the criterion specified condition, the observers received the above instructions and in addition were given a standard on each series of trials. They were instructed to respond yes when the stimulus was equal to or larger than the standard and to respond no when the stimulus was smaller than the standard.

The payoff matrix which summarizes the instructions is shown below.

		Stimulus Presentation	
		Noise	Signal Plus Noise
Response	YES	Timeout 1" (False Alarm)	FR 14 @ 5¢ (Correct Detection)
	NO	FR 14 @ 5¢ (Correct Rejection)	Timeout 1" (Miss)

RESULTS

Condition I – Baseline.

Figures 1 and 2 show the psychophysical functions for the first five sessions obtained for both observers. These functions are compared with the smooth curve representing the optimal micromatching (Mu) pattern of response. This means that at each stimulus value the probability of response equals the probability of reinforcement. It can be seen from inspection of the curves that observer two starts out with a pattern of response which more closely approximates the Mu pattern during the first three sessions and begins to drift away from this pattern during the fourth and fifth sessions. Observer one's curves show just the opposite trend, the first three sessions more closely following the Max. pattern and the fourth and fifth sessions, especially the fifth, showing close approximation to the Mu pattern. For the payoff matrix being used the Max. strategy would yield a step function (see Figure 3) which reaches 1.0 at stimulus number eleven which is the center of the two overlapping distributions. At this point it was not clear whether the departure from the Max. strategy depended primarily upon perceptual uncertainty, that is, the inability of the observers to discriminate the differences between stimuli or cognitive response factors, such as possible sequential conditioning of response tendencies. I am assuming here that neither subject had any knowledge of the mathematical basis for maximization and thus the response patterns indicate already learned response tendencies or ones that were evolving with experience in the testing situation. In order to gain some insight into the relative effect of perceptual versus cognitive variables which were operating, a second experiment was carried out.

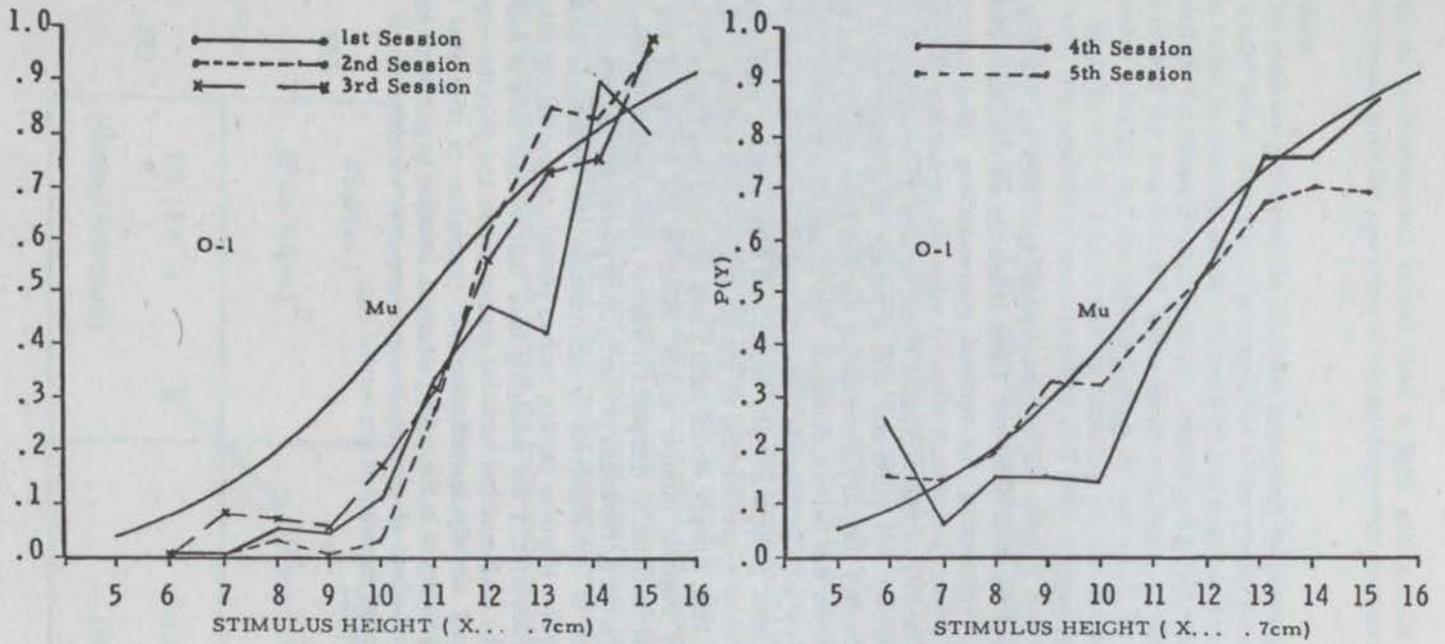


Figure 1. Psychophysical functions for the first five sessions for observer one (nine years old). The smooth solid curve represents the optimal curve for the micromatching (Mu). The maximization strategy would yield a step function reaching 1.0 at stimulus number eleven.

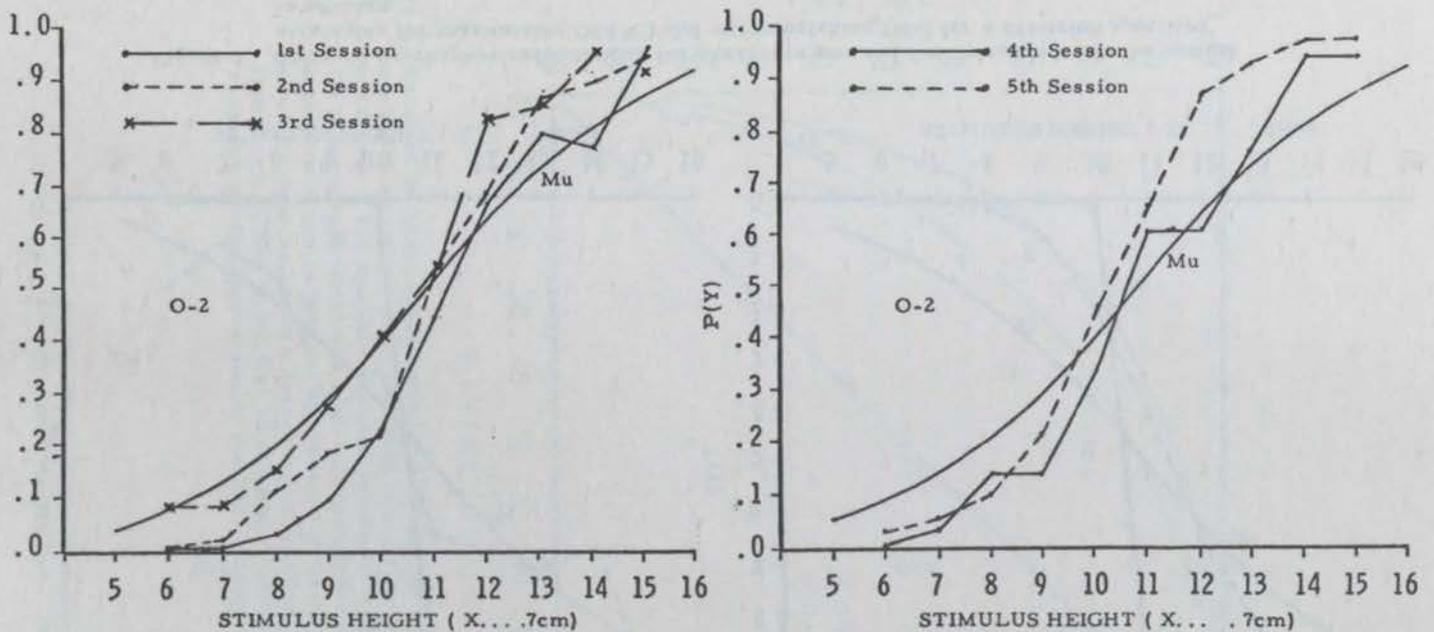


Figure 2. Psychophysical functions for the first five sessions for observer two (eleven years old). The smooth solid curve represents the optimal curve for micromatching (Mu). The maximization strategy would yield a step function reaching 1.0 at stimulus number eleven.

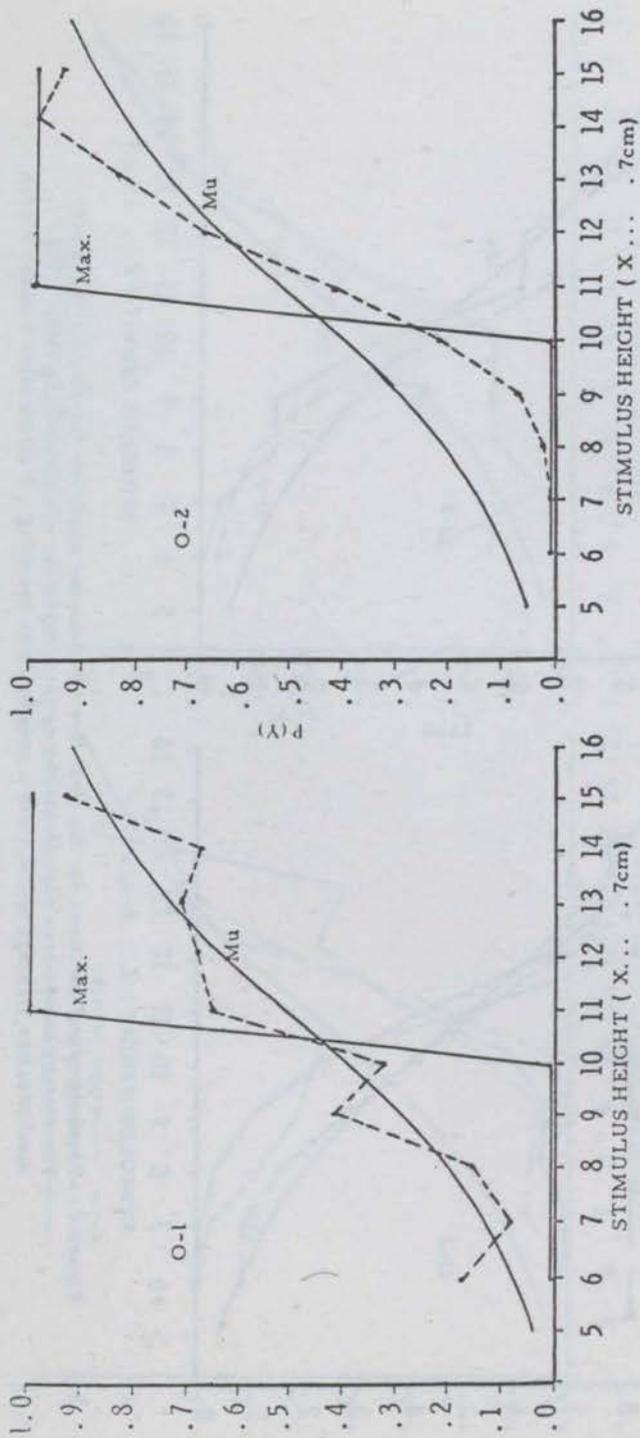


Figure 3. Obtained psychophysical functions for observers one and two compared with the optimal strategies for maximizing (MAX.) and micromatching (Mu) for a criterion specified in advance.

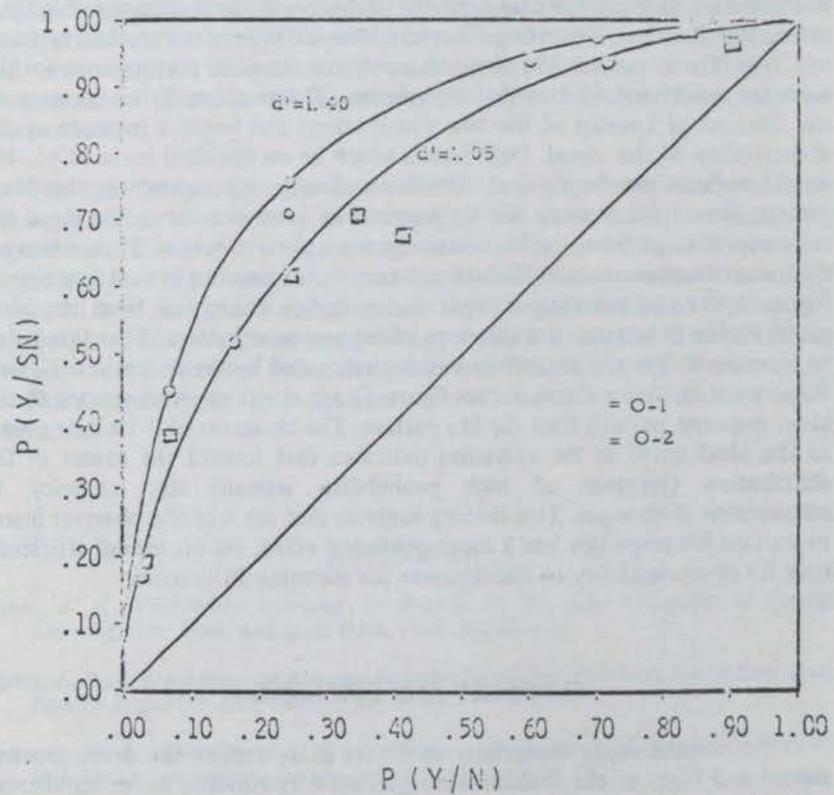


Figure 4. Receiver operating characteristic (ROC) curves for observers one and two obtained under condition two, Criterion Specified in Advance. The measure of signal detectability (d') used in the present experiment was 1.40. Deviations from this curve represent response patterns approximating the micromatching strategy, thus leading to a decrement in "perceptual sensitivity." Data points falling on the $d' = 1.40$ curve are indicative of a response pattern approximating the Max. strategy.

Condition II - Criterion Specified.

Figure 3 shows the psychophysical functions for observers one and two compared with the ideal response patterns for the Max. and Mu strategies. It is clear that the Mu curve is a good approximation to the actual behavior of O-1. Thus, O-1 continues the trend toward the Mu pattern. Observer two also continues his trend toward a closer approximation to the Max. pattern. An examination of Figure 4 confirms the stability of these findings. Figure 4 shows the Receiver Operating Characteristic (ROC) curve for observers one and two. The curve labelled $d' = 1.40$ represents the ideal performance for the stimulus conditions used in this experiment. The measure d' is a measure of the amount of overlap of the two distributions and hence a measure of the detectability of the signal. Data points which lie on the ideal curve ($d' = 1.40$) would reflect psychophysical functions closely approximating the Max. pattern. The further away the data points lie from the curve, the more the responses diverge from the Max. strategy for a given criterion. Thus, when we compare observer one's ROC data points with her psychophysical function in Figure 3, we can see that a major factor in her divergence from the ideal performance is her use of a micromatching response pattern. That this is due to learning within the experiment is demonstrated by the fact that O-1's first three sessions in condition 1 (see figure 1) are closer approximations to the Max. response pattern than the Mu pattern. The closeness of O-1's data points to the ideal curve at the extremes indicates that toward the center of the distribution (location of high probability stimuli) the tendency to micromatch is stronger. This finding suggests that the way the observer learns to pattern his responses has a more profound effect on his overall efficiency than his absolute ability to discriminate the stimulus differences.

SUMMARY AND DISCUSSION

The present study represents an effort to determine the developmental nature and form of the decision strategies used by children under ambiguous stimulus conditions. The methodological approach is the analysis of individual performance under two experimental conditions. Estes (1964) describes a number of ways of conducting experiments of this type, such as, group statistical designs, computer simulation of performance based on theoretical notions or mathematical models, and intensive analysis of individual cases. The latter approach has the advantage of giving specific insights into individual behavior which the statistical techniques obscure.

The results from both experimental conditions, Baseline and Criterion Specified, are consistent in showing that the developmental trends for both observers begun in the Baseline condition continue into the Criterion Specified condition in spite of the fact that the instructions specifically bias the observer toward the use of the maximization response pattern. The ROC curves for both observers demonstrate their ability to use the Max. strategy

although O-2 (the eleven year old) uses the Max. pattern consistently more than O-1 (the nine year old). Observer one confined her use of the Max. pattern to low probability stimuli. Thus, the results for both observers suggest that the major factor determining their behaviors are the factors affecting their response tendencies rather than their perceptual abilities. Farther experiments are being designed to determine the controlling variables in the initial selection and continued use of a particular strategy. Major variables of concern here are the individual probability of reinforcement for each stimulus and their overall frequency of occurrence. In order to clarify the developmental phases it will be necessary to control each of these variables independently.

The data further indicates that a distinct pattern of stable responding (a strategy) begins to emerge relatively early in the experiment. In the present experiments this stability is apparent in the data for both observers after approximately 1200 trials. An even more fine-grained analysis than that presented here may aid in revealing how those response patterns develop and change form early in the experiment, probably within the first 500 trials. Further experiments are being designed to determine how and under what conditions a child can be taught to use and maintain a variety of response strategies.

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Current Research and Studies

Department of
AGRICULTURE AND NATURAL RESOURCES*

EVALUATION OF WILD SHRUBS FOR POSSIBLE USE IN HABITAT MANAGEMENT FOR SUBURBAN SONGBIRDS.

Investigators: John T. Howell, Assistant Professor of Horticulture, (B.S., Hampton Institute; M.S., Michigan State University), and Norman H. Dill, Professor of Biology and Natural Resources, (A.B., University of Delaware; M.S., and Ph.D., Rutgers – the State University).

Support: Forest Service (United States Department of Agriculture)

Objectives: Ten wild shrubs will be selected from several hundred available on the basis of fruit production utilizable for songbird consumption and aesthetic properties. These shrubs will be evaluated considering two primary soil types, site condition, amenability to culture and transplanting, phenology, fruit production, and aesthetic value. Final results will be presented as a tabulation of the attributes of the screened, tested species for potential use in songbird management utilizing aesthetically suitable plants. Such information can be used to select the most suitable plant for any site in the Mid-Atlantic area for any given set of the variables studied.

THE INFLUENCE OF HARVEST MANAGEMENT SYSTEMS ON THE YIELDS OF SEVERAL ALFALFA (*MEDICAGO SATIVA, L.*) VARIETIES.

Investigator: Edward R. Jones, Assistant Professor of Agriculture and Natural Resources, (B.S., Ohio State University; M.S. and Ph.D., Pennsylvania State University).

Objectives:

1. To compare the effects of various cutting schedules on forage yield.
2. To determine the effect of harvest frequency on protein production.
3. To evaluate four varieties under all harvest systems.
4. To compare differences in alfalfa weevil damage between varieties and cutting schedules.

*This report was prepared under the direction of Professor Ulysses S. Washington.

AN EVALUATION OF SEVERAL WEED CONTROL METHODS ON CORN AND SOYBEANS.

Investigators: Kenneth W. Bell, Instructor of Agriculture and Natural Resources, (B.S. and M.S., Tennessee State University), Edward R. Jones, Assistant Professor of Agriculture and Natural Resources, and Ulysses S. Washington, Jr., Assistant Professor of Agriculture and Natural Resources, (B.S., Virginia State College; Ed.M., Rutgers – the State University, in cooperation with the University of Delaware).

Objective: To evaluate several chemical and cultural weed control methods on corn and soybeans.

THE RESPONSE OF SOYBEAN VARIETIES TO NITROGEN FERTILIZATION.

Investigators: Kenneth W. Bell, Instructor of Agriculture and Natural Resources, Edward R. Jones, Assistant Professor of Agriculture and Natural Resources, and Ulysses S. Washington, Jr., Assistant Professor of Agriculture and Natural Resources.

Support: Cooperative State Research Service (United States Department of Agriculture).

Objectives:

1. To determine the effects of source of nitrogen and time of application at various levels of phosphorus and potassium on yield and quality of soybeans.
2. To relate soil and tissue analysis and nodule formation to soybean yield and quality.
3. To evaluate two varieties under the treatments imposed, one variety currently recommended and the second variety one that appears to have high yield potential.
4. To study treatment response in a corn-soybean rotation.

THE YIELD AND GROWTH OF SOYBEANS AS AFFECTED BY MODIFICATIONS IN THE SOIL PROFILE.

Investigators: Ulysses S. Washington, Jr., Assistant Professor of Agriculture and Natural Resources, W. Richard Wynder, Professor of Agriculture and Natural Resources, (B.S., Delaware State College; Ed.D., New York University), and Frederick R. Jones, Assistant in Agriculture, (B.S., Maryland State College).

Support: Cooperative State Research Service (United States Department of Agriculture).

Progress report: There were no significant differences in growth and yield of soybeans in soils that had been modified by several methods. However, there may be differences in these soils in retaining plant food elements. Data from at least two more years' study will be required in determining the effect of retention of plant food elements in modified soils on growth and yield of soybeans.

AN EVALUATION OF THE EFFECTIVENESS OF NATURAL POOLS, CHAMPAGNE POOLS, and BLIND SUMPS IN REDUCING MOSQUITO PRODUCTION ON A SALT MARSH.

Investigator: Anthony Bodola, Professor of Agriculture and Natural Resources, (B.S., Fairmont State College; M.S., University of West Virginia; Ph.D., Ohio State University).

Support: Bureau of Sport Fisheries and Wildlife (United States Department of the Interior).

Abstract: Thirty-nine pools and their surrounding areas on Bombay Hook National Wildlife Refuge were monitored five times during the summer of 1969. Least mosquito production occurred nearest the pond edge, with production increasing with distance from the pond. The pond's effectiveness in this control terminated between 65 and 100 feet from the pond edge. On the basis of results obtained from this study, suggestions were made as to the optimal spacing of ponds created for the control of mosquito production.

IDENTIFICATION AND ANALYSIS OF CURRENT AND EMERGING SOCIAL AND ECONOMIC PROBLEMS OF RURAL NEGRO RESIDENTS OF KENT COUNTY, DELAWARE.

Investigators: Maurice E. Thomasson, Professor of Sociology, Emeritus, (B.S., Iowa State University of Science and Technology; A.M., University of Minnesota; Ph.D., Columbia University), Laverne B. Thomasson, Associate Professor of Sociology, (B.S. and M.S., Boston University), and Ulysses S. Washington, Jr., Assistant Professor of Agriculture and Natural Resources.

Support: Cooperative State Research Service (United States Department of Agriculture).

Abstract: The authors investigated Negro rural residents of Kent County, Delaware for the purpose of identifying major social and economic problems and new potential problems that may be emerging. The investigators interviewed a representative sample of the Negro rural resident households and obtained their statements of their problems. Major old problems still persisting were access to primarily low level jobs, low financial income, low levels of schooling, large families, race prejudice, and discrimination on the

basis of race. The one major emerging problem was the relationship of the youth to the schools.

INHIBITION OF FOOT-AND-MOUTH DISEASE VIRUS BY NORMAL BOVINE SERUM.

Am. J. Vet. Res., 31, (1970):165-171.

Investigator: Richard E. Patty, USDA Liaison Officer, (B.S., Kansas State College; M.S. and Ph.D., Kansas State University).

Support: United States Department of Agriculture.

Abstract: Significant difference existed among A-1, 0-2, and C-3 strains of foot-and-mouth disease (FMD) virus in their neutralization by normal bovine serum. Serial passage of the 0-2 strain of FMD virus in the presence of bovine serum containing high nonspecific neutralizing activity reduced sensitivity of the virus to the inhibitor(s) of normal bovine serum. Treatment of bovine serum by dialysis against distilled water and subsequently heating at 64 C. for 30 minutes reduced the nonspecific neutralizing activity of the serum. There was little difference in specific antibody activity of serums receiving this treatment and serums heated at 56 C. for 30 minutes.

METHODS FOR INCREASING THE SUSCEPTIBILITY OF PRIMARY CULTURES OF PORCINE KIDNEY CELLS TO INFECTION WITH FOOT-AND-MOUTH DISEASE VIRUS.

Arch. ges Virusforsch. (In Press).

Investigator: Richard E. Patty, USDA Liaison Officer.

Support: United States Department of Agriculture.

Abstract: The effect of several environmental factors on the susceptibility of primary cultures of porcine kidney (PK) cells to infection with foot-and-mouth disease (FMD) virus was determined. Cell susceptibility was affected by initial pH of growth and maintenance media and by concentration of cells used to prepare cultures. Plaque formation was affected by composition of fluid in which the virus was diluted. Yield of virus was affected by the composition of culture fluid during replication and release of virus. Cells in cultures prepared by the methods described were highly susceptible to strains of the 7 types of FMD virus obtained directly from animals. A mean of more than 1,000 plaque-forming units (PFU) of FMD virus per cell was obtained from cultures prepared as described for replication and assay of these strains of virus on second passage in cultured cells. Although dispersed cells were centrifuged to remove trypsin, cultures of high

susceptibility to infection with FMD virus were prepared from dispersed cells that were not centrifuged.

FACTORS AFFECTING THE SUSCEPTIBILITY OF PRIMARY CULTURES OF BOVINE KIDNEY CELLS TO INFECTION WITH FOOT-AND-MOUTH DISEASE VIRUS.

Am. J. Vet. Res. (In Press).

Investigator: Richard E. Patty, USDA Liaison Officer.

Support: United States Department of Agriculture.

Abstract: The susceptibility of primary cultures of bovine kidney (BK) cells to infection with foot-and-mouth disease (FMD) virus of low tissue culture passage level was affected by several factors: (1) cultures prepared from cells late in the trypsinization of BK tissues were more susceptible than cultures prepared from cells dispersed earlier, (2) susceptibility of cultured cells to infection with FMD virus was affected by the concentration of trypsin-dispersed cells used for preparing cultures and by the initial pH of the growth and maintenance mediums, and (3) assay of viral infectivity was affected by the composition of fluids used for diluting the virus for plaque assay.

A mean yield of more than 1,000 plaque-forming units (PFU) per cell was obtained by employing cultures prepared as described for replication and assay of strains of the 7 types of FMD virus on 2nd passage in cultured cells.

EFFECT OF EAGLE'S NONESSENTIAL AMINO ACIDS ON THE SUSCEPTIBILITY OF CELLS IN PRIMARY CULTURE TO INFECTION WITH FOOT-AND-MOUTH DISEASE VIRUS.

Approved for publication by a review committee.

Investigator: Richard E. Patty, USDA Liaison Officer.

Support: United States Department of Agriculture.

Abstract: Susceptibility of primary cultures of bovine kidney (BK) cells and of porcine kidney (PK) cells to infection with foot-and-mouth disease (FMD) virus was increased by addition of Eagle's non-essential amino acids to the growth medium of the cells. Susceptibility of these cells was not affected by addition of Eagle's essential amino acids to the growth medium. Addition of cysteine and ascorbic acid resulted in decreased susceptibility of BK and PK cells to infection with FMD virus.

TILTING RACK FOR CELL CULTURES DURING VIRAL REPLICATION.

Approved for publication by a review committee.

Investigator: Richard E. Patty, USDA Liaison Officer.

Support: United States Department of Agriculture.

Abstract: A rack designed so that as many as 54 5-liter Povitsky bottle cultures can be tilted at one time during viral replication is described. Reduction of fluid resulted in a 4- to 5-fold increase in viral concentration in the fluid portion of the cultures.

EFFECTS OF THE PERIODIC CICADA ON FOREST COMMUNITIES.

Investigators: Norman H. Dill and Eric L. Pennell Delaware State College and Radnor (Pa.) High School.

Objectives: Brood #10 of the periodic or 17-year cicada emerged during the spring of 1970. The effects of the cicada on forest communities on the Elk Neck Peninsula, Upper Chesapeake Bay Region, of Maryland are being investigated. Density of cicadas, as indicated by emergence holes per square meter, is being correlated with forest trees present at site of emergence and various environmental factors, particularly those factors associated with soil conditions and site exposure. A measure of the damage the cicadas cause to forest trees and the apparent preference of the cicadas for certain tree species is being determined by a systematic survey of fallen branches. The extent of the cicada damage has been recorded on aerial photographs.

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